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Muhammad Masum Billah

AUTEUR DE LA THÈSE / AUTHOR OF THESIS

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**Effects of Insurance's Absence or Presence on Maritime Liability Law with Special Reference to
Cargo Liability and Oil Pollution Liability Regimes: An Economics Analysis**

TITRE DE LA THÈSE / TITLE OF THESIS

André Barën

DIRECTEUR (DIRECTRICE) DE LA THÈSE / THESIS SUPERVISOR

CO-DIRECTEUR (CO-DIRECTRICE) DE LA THÈSE / THESIS CO-SUPERVISOR

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Gary W. Slater

Le Doyen de la Faculté des études supérieures et postdoctorales / Dean of the Faculty of Graduate and Postdoctoral Studies

**Effects of Insurance's Absence or Presence on Maritime Liability Law
with Special Reference to Cargo Liability and Oil Pollution Liability
Regimes: An Economic Analysis**

Muhammad Masum Billah

Thesis submitted to the Faculty of Graduate and Postdoctoral Studies in partial
fulfillment of the requirements for the degree of

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ABSTRACT

The thesis examines how the absence of insurance in the past led to some special maritime liability law principles such as ‘general average’ (i.e., losses or expenses shared by all the parties to a maritime adventure) and the limitation of shipowners’ liability. In the absence of insurance, these principles served the function of insurance mostly for shipowners. As commercial marine insurance is now widely available, these principles have lost their justification and may in fact interfere with the most important goal of liability law i.e., deterrence from negligence. The thesis thus recommends their abolition. The thesis further argues that when insurance is easily available and affordable to the both parties to a liability claim, the main goal of liability law should be deterrence as opposed to compensation. This is exactly the case with the maritime cargo liability claims where both cargo owners and shipowners are invariably insured. As a result, the sole focus of cargo liability law should be and, to a great extent, is deterrence. On the other hand, in the vessel-source oil pollution liability setting, pollution victims are not usually insured. Therefore, oil pollution liability law has to cater both for compensation and deterrence, the two traditional goals of liability law. The final question the thesis addresses is whether the deterrent effect of liability law is affected by the availability of liability insurance. Contrary to the popular belief the thesis attempts to prove that the presence of liability insurance is not necessarily a hindrance but can be a complementary force towards the realization of deterrent goal of liability law.

Effects of Insurance's Absence or Presence on Maritime Liability Law with Special Reference to Cargo Liability and Oil Pollution Liability Regimes: An Economic Analysis

INTRODUCTION

In a modern society, most individuals and corporations purchase insurance against any possible liability they might incur in a host of activities they engage themselves in.¹ Shipowners are no exception in this regard. In fact, shipowners' liability insurance is one of the most extensive liability insurance in the world;² there is hardly any aspect of maritime liability which is not covered by the corresponding liability insurance.³ Yet, there is little discussion on various questions related to the effect of insurance's absence and presence on maritime liability law. What benefits insurance in general and liability insurance in particular have on our commercial activities including shipping? If insurance is a beneficial risk-management strategy, what alternative risk-management measures shipowners and policymakers devised in the pre-insurance era? Should those measures continue to exist today when commercial insurance is available? What should be the goal of liability law when both liability claimants and liable parties are usually insured against their respective losses and liabilities? Does the presence of liability

¹ In 2006, Canadians paid over \$4.8 billion in premium for liability insurance alone. See Insurance Bureau of Canada (IBC), *Facts 2008 of the General Insurance Industry in Canada*, (IBC, 2008) at 7; available online at http://www.ibc.ca/en/Need_More_Info/documents/FactsBook2008.pdf (last access date: March 11, 2009).

² Shipowners usually purchase liability insurance from their own mutual insurance companies, known as Protection and Indemnity (P&I) clubs. Thirteen of the P&I clubs joined together to form the International Group of P&I Clubs; through a pooling agreement among the clubs, the Group can provide coverage up to US\$5.4 billion per liability incident. See <http://www.igpandi.org/The+Group+Agreements/The+Pooling+Agreement> (last access date: March 11, 2009).

³ G. Gilmore and C. L. Black, Jr., *The Law of Admiralty*, 2d ed. (New York: Foundation Press Inc., 1975) at 17-18 and 53 [hereinafter Gilmore & Black].

insurance nullify the deterrent effect of liability law? Or can we say that the presence of liability insurance actually improves deterrence? These are the questions I will attempt to answer in this dissertation and I will do so in the context of maritime law and from the perspective of law and economics.

Few areas of liability law are as influenced as that of maritime liability law both by the absence of insurance in the past and by its widespread presence today. While the evolution of maritime liability law in its many aspects is closely connected to that of marine insurance, some aspects of maritime liability law may appear quite unreasonable without the realization of their historical link to insurance. Two such aspects examined in the thesis are the limitation of shipowners' liability and 'general average'.

As apparent from the name, limitation of liability reduces shipowners' legal liability to a pre-determined limit based today on the tonnage of a ship but historically on the value of the ship after a liability-causing incident.⁴ General average, on the other hand, is the sharing by shipowners and cargo owners of the losses and the expenses necessitated by their attempts to extricate the ship and cargo from an actual or imminent peril of the sea.⁵ The origin of these two principles of maritime liability law predates commercial marine insurance. The thesis argues that the absence of commercial marine insurance was the most plausible cause of their adoption as they served the function of insurance

⁴ See generally J. J. Donovan, "The Origins and Development of Limitation of Shipowners' Liability" (1979) 53 Tul. L. Rev. 999 [hereinafter Donovan, "The Origins of Limitation"].

⁵ See *Birkley v. Presgrave*, (1801), 1 East. 220 at 228, 102 E.R. 86 at 89; J. H. S. Cooke and R. R. Cornah (ed.), *Lowndes and Rudolf: The Law of General Average and The York-Antwerp Rules*, 13th ed., (London: Sweet & Maxwell, 2008) at 1 [hereinafter *Lowndes & Rudolf (2008 ed.)*].

during the pre-insurance era in reducing the burden on shipowners of the losses and/or liabilities arising from maritime transportation.

In the absence of commercial insurance, the insurance function served by these two principles of maritime law was of great social benefit because their presence reduced the fear of loss or liability in the minds of prospective shipowners and thus encouraged them to invest into shipping and maritime commerce. Today, however, marine insurance market is well-developed and has enormous capacity to cover almost any imaginable maritime loss or liability.⁶ As a result, the need for the above two maritime principles to serve the insurance function has ceased to exist. Instead of producing any social benefit, these two principles may now cause social loss by reducing the incentives for shipowners to exercise proper care and precaution in the transportation of goods and passengers.⁷

The origin and the past justifications of these two principles and their possible detrimental social effects today will cover the discussion in the first three chapters of the thesis. **Chapter one** in its first part will trace the historical need and the consequent development of these two principles together with some other alternative risk-management strategies in the pre-insurance era. The second part of the chapter will discuss the mutual influence of liability law and liability insurance in their historical development with the particular emphasis on cargo and oil pollution liability laws.

⁶ See *infra* notes 382 to 388 and accompanying texts for the capacity marine insurance market.

⁷ The simple reason why these principles may lead to increased social loss is that they may reduce the liability of negligent shipowners and the reduced liability may in turn fail to deter such shipowners from future negligence. Chapters two and three will have detailed analysis of this point.

Chapters two and three will take up the separate and detailed analysis of the principles of limitation of liability and general average respectively.

Although marine insurance market is now well-developed, subscription to insurance is not similar across the wide spectrum of shipping activities; not all the parties to maritime liability disputes are equally insured against their possible losses or liabilities. This difference in the subscription of insurance has influenced at least partially the design of liability laws for different activities. For example, in a setting of cargo transportation it is invariably the case that both shipowners and cargo owners (i.e., potential liability claimants) are fully insured against their respective liabilities and losses.⁸ On the other hand, in the context of the transportation of oil via sea the potential claimants of oil pollution damage are unlikely to be insured against their losses or damages.⁹ As a result, the need for compensation is stronger in the oil pollution liability law than in the cargo liability law. This difference in the need for compensation may provide the partial explanation why liability for oil pollution is strict,¹⁰ while negligence is the basis of maritime cargo liability laws.¹¹

⁸ See Gilmore & Black *supra* note 3 at 17. For empirical evidence on insurance against cargo loss or liability, see *infra* notes 650 to 654 and accompanying texts.

⁹ See International Maritime Organization's (IMO) legal document, LEG/CONF.5/C.1/SR.8 (5 Nov. 1976); reproduced in IMO, *Official Records of the International Conference on the Limitation of Liability for Maritime Claims, 1976* (IMO: London, 1983) at 266 [hereinafter *Official Records of the 1976 Liability Conference*]. However, sometimes the only claimant would be the government of a State which incurs expenses for cleanup after an incident of oil pollution.

¹⁰ See article III.1 of the International Convention on Civil Liability for Oil Pollution Damage, 1969, 973 U.N.T.S.3, (1970) 9 I.L.M. 45, [hereinafter CLC] as amended by 1992 Protocol. The 1992 Protocol can be found in the IMO document, LEG/CONF.9/15. Another reason for this difference is that victims of oil pollution are third parties and thus cannot negotiate mutually satisfactory arrangements with tanker owners before pollution incidents, while the cargo liability claimants have contractual relation with shipowners and can decide their respective share of loss or liability beforehand.

¹¹ See articles III and IV.1 of the International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, Aug. 25, 1924, 51 Stat. 233, 120 L.N.T.S. 155; (hereinafter *Hague Rules*) and

Despite the above difference in the need for compensation, the importance of liability law to deter shipowners from negligence is equally present both in the oil pollution and in the cargo liability laws. Thus the main difference in the design of these two regimes is that while the oil pollution liability law has to cater for both **deterrence** and **compensation**,¹² the sole purpose of the cargo liability law should be **deterrence** as both the plaintiffs and defendants in cargo liability disputes will already have insurance to cover their respective losses and liabilities. In **chapter four**, I will examine how successful the cargo liability regime is in achieving its sole goal of deterrence. It will be shown that the cargo liability laws are generally in line with the deterrence goal. However, the presence of limitation of liability and general average in cargo liability law reduces the deterrent effect of the liability.¹³ Also, the exoneration of shipowners from liability for cargo damage either by the negligent fire or by the negligent navigation and management of ships by the crew is an obstacle to the achievement of optimal deterrence under the *Hague-Visby Rules*,¹⁴ the most prominent cargo liability regime.

The focus of analysis in **chapter five** will be the success of the oil pollution liability regime in providing both adequate compensation and proper deterrence through its various insurance and non-insurance mechanisms. Although adequate compensation of

its 1968 Protocol, 2 U.N. Register of Texts ch. 2, at 180 [hereinafter together *Hague-Visby Rules*]; article 5.1 of the United Nations Convention on the Carriage of Goods by Sea, Hamburg, Mar. 31, 1978, U.N. Doc. A/Conf. 89/5, (1978) 17 I.L.M. 608, (hereinafter *Hamburg Rules*).

¹² Compensation and deterrence are the two main goals of liability law under traditional analysis of liability law. See C. Brown, "Deterrence and Accident Compensation Schemes", (1978-79) 17 U. W. Ontario L. Rev. 111.

¹³ See articles IV.5(a) and V of the *Hague-Visby Rules*; articles 6.1(a) and 24 of the *Hamburg Rules*.

¹⁴ See article IV.2(a) and (b).

oil pollution victims is the declared goal of the oil pollution liability regime,¹⁵ it also creates strong deterrence from negligent navigation by imposing higher liability on shipowners for oil pollution and by requiring compulsory insurance up to the liability limit as well as by allowing direct action against the insurers by the victims. The proof of strong deterrence in oil pollution liability law is evidenced by the dramatic reduction of oil pollution incidents throughout the world.¹⁶ However, there are some non-liability factors which also contributed to the reduction of oil pollution incidents. These factors will also be briefly discussed in the chapter.

While the deterrence from negligence is the common goal of both the cargo and the oil pollution liability laws, the purchase of insurance by a potentially liable party *may*, however, reduce the deterrent effect of liability law. This is because shipowners with liability insurance may tend to be less afraid and consequently less careful against the possible effect of their negligent acts or omissions especially if their insurers have no means to check this tendency.¹⁷ Luckily, however, insurers have various means to control this tendency and to keep the insureds motivated towards proper care. These means include premium rate variance, deductibles, policy limits and policy exceptions. Therefore, I will maintain in **chapter six** that the presence of liability insurance does *not*

¹⁵ See the preamble to both CLC and Fund Convention which reads, "The State Parties to the present Convention.... convinced of the need to ensure that *adequate compensation* is available...." (Emphasis added).

¹⁶ See *infra* notes 793 to 798 with accompanying texts for statistics on oil pollution incidents for last thirty years.

¹⁷ Tendency of an insured to lower the precautionary measures in the presence of insurance is a well-studied fact and is termed as 'moral hazard'. See S. Abraham, *Distributing Risk: Insurance, Legal Theory, and Public Policy* (New Haven, Yale University Press: 1986) at 14 [hereinafter Abraham, *Distributing Risk*]. See also K. J. Arrow, "Uncertainty and the Welfare Economics of Medical Care," (1963) 53 Am. Econ. Rev. 941 at 961-62; M. Pauly, "The Economics of Moral Hazard: Comment", (1968) 58 Am. Econ. Rev. 531 at 535.

necessarily lead to the reduction of the deterrent effect of liability law.¹⁸ In fact, I would go one step further and argue that the presence of liability insurance may actually lead to better care than the care induced by liability law alone (i.e., without liability insurance).

I will analyze all the above aspects of maritime liability law and insurance from the perspective of **law and economics**. For the smoother flow of the analysis in the subsequent chapters, I will discuss here some of the concepts from **economic analysis of law** used frequently in the thesis.

Like any legal analysis, economic analysis of law aims at finding appropriate legal rules and policies which would maximize social welfare or utility.¹⁹ However, a characteristic element of an economic analysis is that it assigns tentative numerical value for every action needed to implement a legal rule and for every consequence flowing from such implementation. In other words, it uses a numeric cost-benefit equation to determine the desirability of legal rules. While the tentative values are mostly assumptions,²⁰ they are based on common sense. Similar assumptions are also regularly used in other legal analyses, albeit without the use of any numbers. For example, under a traditional legal analysis, liability for vessel-source oil pollution may be justified on the ground that liability reduces the number of oil pollution incidents. Implied in this analysis are the

¹⁸ For a somewhat similar observation, see F. James, "Accident Liability Reconsidered: The Impact of Liability Insurance," (1948) 57 Yale L. J. 549.

¹⁹ S. Shavell, *Foundations of Economic Analysis of Law*, (Cambridge, Mass.: Harvard University Press, 2004) at 4 [hereinafter Shavell, *Foundations of Economic Analysis*].

²⁰ Some figures are also based on statistical data and empirical evidence.

assumptions that most incidents of oil pollution are preventable and that the cost of oil pollution to society is more than the cost shipowners would bear to prevent the pollution incidents. Under an economic analysis, the same conclusion may be reached by assuming that the damage from an oil pollution incident is \$1,000 and the cost of prevention is only \$500.²¹ Therefore, prevention or taking care is **cost-efficient** and the imposition of liability to motivate shipowners to take such care is justified. Not taking care in such a situation amounts to negligence.

In determining **negligence**, economic analysis uses the concept of **expected loss or liability**.²² Expected loss or liability is the product of the **magnitude** of liability multiplied by its **probability**. An act of negligence does not always give rise to a loss or liability. For example, the failure to install smoke detector may cause \$1,000 loss only in one out of ten incidents of fire i.e., in 10 percent of the time. Even though the actual loss, when incurred, is \$1,000, the expected loss is only \$100 (magnitude of loss (\$1,000) multiplied by the probability of loss (10%)). Under an economic analysis, negligence is the failure to take care when the cost of care is less than the expected loss. If the cost to install a smoke detector is less than \$100, not installing it would amount to negligence. This definition of negligence was taken from the decision of Judge Learned Hand in *U. S. v. Carroll Towing Co.*²³ Judge Hand, coincidentally an admiralty judge, held that a person would be negligent if *B* is less than *PL* where *B* stands for the cost of

²¹ It does not really matter whether we use the figure \$1,000 or \$100,000 for the loss and \$500 or \$50,000 for the cost of care; the purpose of using these figures is to show more clearly that the cost of care is less than the loss.

²² See R. Posner, "A Theory of Negligence", (1972) 1 J. Legal Stud. 29 at 32-33.

²³ 159 F.2d 169 at 173 (2d Cir. 1947); see R. A. Posner, *Economic Analysis of Law*, (6th ed) (New York: Aspen Publishers, 2003) at 168 [hereinafter Posner, *Economic Analysis of Law*].

precaution, P for the probability and L for the magnitude of loss. This is known as 'Hand Formula' in economic analysis of law.

It is noteworthy to mention here an important distinction between **expected loss** and **expected liability**. They are not always the same amount. Despite the **expected loss** of \$100 due to the absence of smoke detector, a negligent homeowner's **expected liability** may be less than \$100. Only in a sure case of liability the expected liability and the expected loss will be the same amount. For example, if the homeowner is held liable in one out of two actual fire losses caused by the absence of smoke detector, the probability of his or her being liable is only 50% and the **expected liability** would be only \$50 ($\$100 \times 50\%$ or $\$100/2$) for failure to install the smoke detector. Lower expected liability may reduce the deterrent effect of liability law. Although the installation of the smoke detector may cost less, say \$90, than the **expected loss**, a rational homeowner²⁴ may not install it because his or her **expected liability** is only \$50.

In the above example, the expected liability became less than the expected loss due to the reduction in the **probability** of being held liable. Reduction in the **magnitude** of liability would also lower the expected liability. For example, if due to the limitation of liability a homeowner has to pay only \$800 instead of \$1,000 in damages for not installing the smoke detector, the homeowner's expected liability would be reduced further to \$40 [$(\$800 \times 10\%) \times 50\%$]. With further reduction in the expected liability,

²⁴ Under economic analysis, parties are assumed to be rational profit-maximizing individuals. See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 1-2.

the homeowner will have even less incentives to install the smoke detector at a cost of \$90. In our discussion on the limitation of shipowners' liability and general average, the expected liability will be less the expected loss due to the reduction in the **magnitude** of shipowners' liability.

The concept of expected loss or liability is simple but crucial for the proper understanding of the economic analysis of any liability law. The concept will be repeated throughout the thesis. The importance of this concept lies in the fact that most of our actions are based on a rough calculation of the costs of and benefits from those actions. While the costs of a precautionary measure such as the installation of a smoke detector are certain in each case, the benefits of the precaution in preventing the fire damage or in not being held liable for fire damage are probabilistic. People would be willing to incur the sure cost of care only when their expected liability is more than the cost of care. As the expected liability (\$50 or \$40) in our example is less than the cost of care (\$90), a potentially liable homeowner may not exercise care. One way to make the expected liability more than the cost of care is to multiply the amount of damage by the inverse of probability.²⁵ As the probability in our example was 50% or $\frac{1}{2}$ of the time, its inverse is 2. In other words, when caught, a liable party must pay \$2,000 (i.e., the actual damage of \$1,000 multiplied by the inverse (2) of probability) in order for the party to be motivated to spend \$90 on the installation of the smoke detector. By ensuring that expected liability remains higher than the cost of care, liability law can deter potentially liable parties from negligence.

²⁵ Shavell, *Foundations of Economic Analysis*, *ibid* at 244.

Another concept I will repeat throughout the thesis is '**risk aversion**'; it is a frequently used concept in the economic analysis of insurance.²⁶ Risk aversion is the people's tendency to be more afraid of a larger loss with lower probability than of a smaller loss with higher probability even though the expected loss in both situations is the same. For example, a loss of cargo worth \$1,000 with 10 percent probability may not be as big a concern to the owner as the loss of \$10,000 worth of goods with 1 percent probability even though in both cases the expected loss is the same i.e., \$100 ($\$1,000 \times 10\%$) or ($\$100,000 \times 1\%$). The fear would be even worse if the magnitude of the loss is \$100,000 although the chance of such loss is only one-tenth (i.e., 0.1) of one percent. Here again the expected loss is only \$100. '**Risk-neutrality**' is the opposite concept of risk aversion.²⁷ To a risk-neutral party, all of the above losses will be of equal concern.

Risk aversion is a source of social disutility as it either causes the risk-averse people to take excessive care or discourages them from engaging in socially beneficial activities.²⁸ For instance, as the expected loss in all the above examples is only \$100, to take precaution against such loss at a cost more than \$100 would be excessive precaution. Yet, risk-averse people will tend to spend more than \$100 to avoid 1 percent risk of losing \$10,000 or to prevent 0.1 percent chance of suffering \$100,000 loss. Alternatively, they may decide not to engage in such an activity at all even though their expected gain might be higher than the expected loss if they engage. For example, cargo

²⁶ Abraham, *Distributing Risk*, *supra* note 17 at 10-11; Posner, *Economic Analysis of Law*, *supra* note 23 at 10-11.

²⁷ Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 178.

²⁸ S. Shavell, *Economic Analysis of Accident Law*, (Cambridge: Harvard University Press, 1987) at 11-12 [hereinafter Shavell, *Economic Analysis of Accident Law*].

owners may decide not take their goods via ships to distant ports despite a sure profit of \$200 because of their fear of losing \$10,000 even though the odds of such loss are only 1 percent. Both the cost of excessive care and the forgone profit from not engaging in an activity are social loss.

Insurance is the best solution to the problem of risk aversion. Utilizing the available data on loss history, insurance companies can roughly determine the expected losses of an activity in the future. By charging a premium roughly equivalent to the expected losses, insurance removes this exaggerated fear from risk-averse insured and thus facilitates investment into risky but socially beneficial activities such as shipping and other businesses. In the pre-insurance era, limitation of liability and general average served the function of insurance to a limited extent by transferring partial loss or liability of one party to another in the marine transportation contracts.

A recurrent theme of the thesis is **deterrence** from negligence through the use of liability law. Deterrence from negligence is the primary goal of liability law under the economic analysis of law.²⁹ There is no societal gain in imposing liability on shipowners instead of letting the loss remain on liability claimants if the fear of liability or its actual imposition does not deter the shipowners from negligent navigation and consequently does not lead to reduction of maritime losses in the future. The imposition of liability in the absence of deterrence may only shift a loss from one party to another and will not reduce social loss. Although such shift may serve the traditional goal of

²⁹ See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 267-69 and 635-38. See also S. Shavell, *Economic Analysis of Accident Law*, *ibid* at 208.

liability i.e., **compensation**, the relative importance of this goal has significantly decreased today as both the liable parties and the liability claimants can easily buy market insurance.³⁰ This is not to say that compensation has no role to play in liability law today; compensation can be a necessary *means* to achieve the deterrence *goal* of liability. Compensation, however, should not be the primary goal of liability law. In practical terms, what it comes down to is that in designing and implementing liability rules both policymakers and courts should focus more on the liability rules' effect on the behaviour of a potentially liable party than on their effect on restoring liability claimants to their pre-accident positions.³¹

Of course, in most cases the **compensation** of liability claimants and the **deterrence** of liable parties will occur simultaneously. For instance, when shipowners are held liable for the cargo losses arising from their negligent navigation without the benefit of limitation of liability,³² cargo owners receive their full compensation and at the same time shipowners are also deterred from the similar conduct in the future. There can, however, be cases where full compensation would occur without proper deterrence when the compensation or part of it comes from a party other than the liable party. For

³⁰ Shavell, *Foundations of Economic Analysis*, *ibid* at 266.

³¹ Traditionally, the goal of liability both under torts and contract law has been to restore the claimants to their pre-incident level as far as money can do. It is expressed retrospectively in tort (to put the victim back where he would have been, had the tort not occurred) and prospectively in contract (to put the promisee in a position where he would have been had the contract been performed). See F. D. Rose, *Marine Insurance: Law and Practice*, (London: LLP, 2004) at 487 [hereinafter Rose, *Marine Insurance*].

³² Although it would be very difficult to deprive shipowners of the benefit of limited liability under the present law, a court may be lenient in construing the relevant provision of the law i.e., art Article 4 of the Convention on Limitation of Liability for Maritime Claims, 1976, (1977) 16 I.L.M. 606 [hereinafter LLMC 1976]. "A person shall not be entitled to limit his liability if it is proved that the loss resulted from *his personal act or omission, committed with the intent to cause such loss, or recklessly and with knowledge* that such loss would probably result." (emphasis added)

example, in liability law for vessel-source oil pollution claimants receive compensation from various oil pollution funds when their losses exceed the liability limit of shipowners.³³ In such cases, it is possible that victims receive full compensation for oil pollution damage without shipowners being properly deterred from negligent navigation.

Conversely, it is also not true that imposing full liability always creates deterrence. If some losses are inevitable in the sense that no amount of precaution could have prevented them, imposing liability for such losses would not create any deterrence. An example of this would be to impose liability on shipowner for cargo loss arising from an unpredictable storm on the sea.

In short, using the economic analysis of law the thesis would maintain that insurance is the most valuable tool against risk aversion. The availability of insurance removes the fear of loss from the minds of investors and thus facilitates the growth of shipping and commercial activities. With this in mind, the importance of both limitation of liability and general average as mechanisms to partially provide insurance could be appreciated for a pre-insurance era or when insurance market was not well-developed. With well-established insurance market today, however, these two aspects of maritime liability law have lost their importance and justifications. As they sometimes reduce the liability of negligent shipowners, these two concepts of maritime liability law now interfere with

³³ See the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971, 16 I.L.M 621 (1972), as amended by 1992 Protocol, LEG/CONF.9/16, and 2003 Protocol, LEG/CONF.14/20 [hereinafter Fund Convention].

the deterrent effect of liability law. Deterrence should be the only goal of liability law when both the liable parties and liability claimants can easily buy insurance. Although the presence of liability insurance may seem to affect the deterrence goal of liability law, insurers have various insurance mechanisms to keep the insureds deterred from negligence. In fact, the presence of insurance may lead to stronger deterrence than would be the case otherwise.

Chapter 1

Lack of Marine Insurance and Its Effect on Alternative Risk Management

Strategies and on Liability Law: A Historical Evaluation

Introduction

Marine insurance, though described as the “elder brother to all other insurance,”³⁴ has not developed into its modern form (i.e., undertaking to bear risks against a fixed premium) until the fourteenth century.³⁵ However, societies from time immemorial managed risks in various ways regardless of the existence or otherwise of market insurance. Predictably, in the absence of insurance shipowners and merchants had to rely on non-insurance risk management strategies to a greater extent than what is the case now; such reliance is likely to be considered inefficient today when insurance is widely available. In other words, some of the existing non-insurance strategies or the extent of their use, while justified in the absence of insurance, may now generate inefficiency and social waste.

Even when marine property insurance (i.e., hull and cargo insurance) became widely available during the industrial revolution, market for marine liability insurance was not

³⁴ C. B. Mitchell, *A Premium on Progress: An Outline History of the American Marine Insurance Market: 1820-1970*, (New York: the Newcomen Society in North America, 1970) at 9 [hereinafter Mitchell, *A Premium on Progress*]; see the decision of Chouinard J. in *Zavarovalna Skupnost Triglav (Insurance Community Triglav Ltd.) v. Terrasses Jewellers Inc.*, [1983] 1 S.C.R. 283 at 293, 297-98 (SCC); G. R. Strathy and G. C. Moore, *The Law and Practice of Marine Insurance in Canada* (Ontario: Butterworths, 2003) at 5 [hereinafter Strathy & Moore, *Marine Insurance in Canada*].

³⁵ W. R. Vance, “The Early History of Insurance Law” (1908) 8 Colum. L. Rev. 1 at 6-7. There are debates about when and who first practiced the modern marine insurance. Most writers consider Lombards from Italy as the pioneer of modern marine insurance some time between twelve to fourteenth centuries. J. Bischoff, *Marine Insurance: their Importance, their Rise, Progress and Decline, and their Claim to Freedom from Taxation* (London: A.H. Baily and Co., 1836); reproduced in D. Jenkins and T. Yoneyama (ed), *History of Insurance* (v.7: marine) (London: Pickering & Chatto, 2000) at 319-120 [hereinafter Bischoff, *Marine Insurance*]; C. M. Holt, *A Treatise on the Insurance Law of Canada*, (Montreal: C. Theoret, Law Bookseller and Publisher, 1898) at 4.

fully developed until the middle of nineteenth century. This probably had an impact on the development of various areas of maritime liability law. Although it is hard to say whether the inadequacy of liability insurance was the cause or the effect of the underdevelopment of liability law, it is certain that both these conditions existed at the same time. A recent and familiar example of the underdevelopment of marine liability law is the absence of any specific liability law for the oil pollution from ships until 1969.

Part I of the chapter will cover the discussion on some of the ancient maritime risk-management strategies as well as their justifications both in the past and at the present time, if any. Part II will examine the possible effect of lack of liability insurance on the development of maritime liability law or vice versa.

I. Use of Alternative Risk Management Strategies in the Absence of Insurance

Marine insurance as we know today started to evolve only from the fourteenth century.³⁶ Prior to that time, alternative risk-management strategies existed to fill the vacuum of modern marine insurance. Alternative risk management strategies, which even exist today alongside marine insurance, include personal saving, diversification, the contract for future goods and services, and safety precautions.³⁷ In short, anything we do now to avoid a future risk is a risk management strategy. Defined in this broad

³⁶ Vance, "The Early History of Insurance Law", *ibid* at 6-7.

³⁷ Abraham, *Distributing Risk*, *supra* note 17 at 2, 67.

way, insurance actually include all these strategies.³⁸ Defined narrowly, however, these strategies amount to alternatives to insurance. Thus, depending on how we define insurance, all these strategies to manage risk can be termed either as alternatives to insurance or as alternative forms of insurance.³⁹ However, my use of the word ‘insurance’ in this chapter will be confined mostly to its narrower sense i.e., market insurance.⁴⁰ All these risk management strategies can be grouped together into four headings: risk-avoidance, risk-control, risk-retention and risk-transfer.⁴¹ Although insurance is also a form of risk-transfer, I will focus here mainly on *non*-insurance risk-transfer strategies as the purpose of the discussion in this part is to show the alternatives risk management strategies used in the past during the absence of insurance.

A. Risk-Avoidance

The most effective, though not necessarily the most cost-efficient, strategy to manage risk is the avoidance of risk by not engaging in risky activities altogether.⁴² In all time and at all places people avoid risks of incurring losses or liabilities by not engaging in some activities.⁴³ However, this strategy was more prevalent in the past when the market insurance was not available. We can infer the prevalence of this strategy in the

³⁸ This broad definition of insurance will, however, be used in later chapters in order to show that the lack of market insurance precipitates the need for ‘insurance’ in non-market forms such as general average, limitation of liability and various compensation funds for marine pollution.

³⁹ See generally K. S. Selmer, *The Survival of General Average: A Necessity or an Anachronism?*, (Oslo University Press: Oslo, 1958) at 25-26 [hereinafter Selmer, *Survival of General Average*].

⁴⁰ In discussing the conflicting views among historians as to the existence of insurance in ancient societies such as Phoenicians, Rhodians and Romans, W.R. Vance attributed the source of this conflict to these broader and narrower definitions of insurance. See Vance, “The Early History of Insurance Law”, *supra* note 35 at 2-3.

⁴¹ See generally G. E. Rejda, *Principles of Risk Management and Insurance*, 10th ed, (Boston: Pearson Education Inc., 2008) at 12-14 [hereinafter Rejda, *Risk Management and Insurance*].

⁴² *Ibid.*

⁴³ An example at present time is the fact that many pharmaceutical companies stopped producing certain vaccines due to fear of liability lawsuits. See *ibid* at 11-12.

past from the fact that investment into businesses in general and shipping in particular was very limited. If someone does not engage in a business or own a ship, he or she cannot simply face any risk of loss or liability arising from that business or shipping. The reason this strategy would be inefficient is that the forgone profits due to non-investment may outweigh the expected loss or liability.

B. Risk-Control

Once an investor decides to engage in the shipping business, he or she will likely to manage or control the potential risks of maritime losses or liabilities through various precautionary measures. Reduction of risks by care and precaution is as important today as it was during the pre-insurance era. However, such precautions were probably excessive in the absence of insurance because people would be more apprehensive of losses and liabilities when they do not have insurance.⁴⁴ Excessive precautions are social waste as they entail more cost than benefit. An example of excessive precaution during the pre-insurance era can be visualized from a practice in ancient China. Chinese merchants on the Yangtze River used to send their cargo on more than one vessel so as to spread the risk of loss over more than one adventure.⁴⁵ The care level here was excessive because sending on different ships what could be sent on one ship would be very expensive.

⁴⁴ Excessive fear of uncertain risks is a phenomenon termed as 'risk-aversion' in insurance literature. The concept of 'risk-aversion' will be further elaborated in the subsequent chapters. See Pauly, "The Economics of Moral Hazard: Comment," *supra* note 17 at 532; Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 186-87; Shavell, *Foundations of Economic Analysis of Law*, *supra* note 19 at 258.

⁴⁵ This practice existed as far back as 3,000 B.C. See V. Dover, *A Handbook to Marine Insurance: Being a Textbook of the History, Law and Practice of an Integral Part of Commerce for the Businessman and the Student*, (8th ed.) (London: Witherby & Co. Ltd, 1975) at 3 [hereinafter Dover, *A Handbook to Marine Insurance*].

As the protection against the risk of future losses is the goal of all risk-management strategies, risk-control through proper care may be the best protection against risks when such care can *completely eliminate* the risks.⁴⁶ In fact, if all possible losses could be prevented by precaution and *if* the exact amount of such losses and the precaution necessary to eliminate them could be accurately predicted, there would arise no need for insurance.⁴⁷ However, since there would always be some uncertainty about the potential risks and as no precautionary measures or at least no cost-efficient measures could prevent some of the serious random losses, risk-control alone is unlikely to form the complete risk management strategy.

C. Risk-Retention

Since there will remain some risks of loss or liability despite all the necessary risk-control measures, shipowners would either *transfer* such risks to someone else or to *retain* the risks by themselves. Shipowners may decide to retain some risks even in the presence of insurance. However, risks retained in the absence of insurance market were substantial because the capacity of non-insurance devices to *transfer* risks is always limited, as we will see below. While the retention of risk in the absence of insurance was mainly due to the lack of choice, insureds today may deliberately retain part of the risk so as to reduce their insurance costs (i.e., premium) or insurers deliberately leave part of the risk uninsured in order to maintain incentives in the minds of insureds

⁴⁶ In effect, this strategy is similar to the first strategy of risk-management i.e., avoidance of risk, the only difference being the elimination of risk by precaution in the former and elimination by complete avoidance of the activity in the latter.

⁴⁷ See generally G. Calabresi, *The Costs of Accidents: A Legal and Economic Analysis*, (New Haven: Yale University Press, 1970) at 48-49 [hereinafter Calabresi, *The Costs of Accidents*].

towards care. In most insurance contracts today, insureds retain either part of the risk all the time through deductibles and policy limits or the entire risk in some of the time i.e., in situations of policy exceptions.⁴⁸

D. Risk-Transfer

Potential risks that are not retained will be transferred to others. Risk-transfer occurs either through insurance contracts or through non-insurance arrangements. Obviously, non-insurance arrangements were the only means to *transfer* risks in the pre-insurance era. There were many such arrangements in the maritime context. Discussed below are some of the well-known non-insurance transfer mechanisms:

1. Transfer to governments

A contractual transfer of maritime and war risks from shipowners to governments existed in the ancient Rome and in other maritime nations.⁴⁹ Such contracts were made when privately-owned ships transported arms and foods for soldiers or carried public treasures and money. This practice could be traced in 215 B.C. when the Roman government agreed to bear the loss in the shipment of military supplies arising either from the attacks of enemies or from the elements of the sea.⁵⁰ Similar practices existed in the ancient Italy and Spain where the receiving States used to cover all risks in the

⁴⁸ See chapter six for detailed discussion on all these insurance mechanisms to induce care.

⁴⁹ Selmer, *Survival of General Average*, *supra* note 39 at 25-27; C. F. Trenerry, *The Origin and Early History of Insurance, Including the Contract of Bottomry*, (London: P. S. King & Son Ltd., 1926) at 109 and 119.

⁵⁰ Dover, *A Handbook to Marine Insurance*, *supra* note 45 at 2.

transportation of arms and victuals for the troops or in the shipment of public money and treasures.⁵¹

While government protection was necessary in the past both during war and peace time because of non-existence of market insurance, the availability of market insurance today obviated the need for such protection at least during peace time. However, government protection may still be needed during war time due to the unwillingness or the incapacity of market insurers to bear the highly unpredictable risk of war losses.⁵² Consequently, the need for government assurance against war risks remains as important today as it was in the ancient times.

In both of the last two World Wars, governments in many maritime nations provided both hull and cargo insurance against war risks either independently or in collaboration with the market insurers. For example, the British government made an agreement with the market insurers during the World Wars I and II to reinsure the hull risks and to offer primary cargo insurance alongside the market insurance.⁵³ The difference between the government protection in the past and its presence today is that while the governments in the pre-insurance era provided insurance-like protection whenever a ship was carrying the governments' own goods (arms, victuals, and public money) regardless of

⁵¹ *Ibid* at 3; Vance, "The Early History of Insurance Law", *supra* note 35 at 1-2, 5.

⁵² In fact, government protection or assurance is also needed in the cases of devastating natural disasters. Like war time loss, losses due to natural disorders are also highly unpredictable.

⁵³ See H. N Bennett, *The Law of Marine Insurance*, 2nd ed. (Oxford, New York: Oxford University Press, 2006) at 12-14 [hereinafter Bennett, *The Law of Marine Insurance*].

the presence or absence of war, government protection today is limited to war time only but extends to all goods and ships whether or not they belong to the government.

2. Transfer to financiers (i.e., bottomry and respondentia)

Another form of risk-transfer in the maritime context which existed until very recently is the practice of bottomry or respondentia.⁵⁴ Under this practice, shipowners and merchants transferred maritime risks to their financiers. In bottomry, shipowners borrowed money at an agreed rate of interest to finance their adventures on the security of the bottom (hull) of the ships;⁵⁵ in respondentia similar arrangements were made between cargo owners and lenders on the security of the cargo.⁵⁶ The borrowers were liable to pay back the loan with higher than the regular interest rate *only after* the safe arrival of the vessel and/or the cargo; thus the loan was not recoverable if the vessel or the cargo, as the case may be, was lost before arrival.

The practice of bottomry and respondentia was insurance in reverse; merchants received the protection against potential risks but had to pay the premium only if the insured risks did not materialize.⁵⁷ The interest rate charged on the loan was higher than the rate for other loans because the interest for bottomry and respondentia loan reflected both

⁵⁴ In *Zavarovalna Skupnost Triglav (Insurance Community Triglav Ltd.) v. Terrasses Jewellers Inc.*, 54 N.R. 321 at 332, [1983] 1 S.C.R. 283 at 293 (S.C.C.), Chouinard, J. considered bottomry and respondentia as the origin and the earliest form of marine insurance.

⁵⁵ H. G. Lay, *Marine Insurance: A Text Book of the History of Marine Insurance including the Functions of Lloyd's Register of Shipping*, (London: Post Magazine, 1925) at 4 [hereinafter Lay, *Marine Insurance*].

⁵⁶ The contracts of bottomry and respondentia were evidenced on bonds, called bottomry and respondentia bonds. E. Gold, A. Chircop and H. Kindred, *Maritime Law*, (Toronto: Irwin Law Inc., 2003) at 279 [hereinafter Gold et al., *Maritime Law*].

⁵⁷ Lay, *Marine Insurance*, *ibid* at 4.

the *interest* on the loan and the *premium* on the risk of loss of vessel or cargo.⁵⁸ This hybrid nature of loan with inbuilt insurance was the likely reason for the difference in the permissible maximum interest rates between bottomry and the regular loans in the edict of the Emperor Justinian in 533 A.D.; it was 12 percent for the former and 6 percent for the latter.⁵⁹

The practice of bottomry and respondentia dates back to 2250 B.C. in Babylon as the mention of somewhat similar concept was found in the *Code of Hammurabi*.⁶⁰ Also, the instances of financing similar to that of bottomry for trading expeditions to India could be found in 600 B.C.⁶¹ Both the Rhodians and the Romans practised it. The Rhodians' code contained the rules on bottomry;⁶² the Romans incorporated these rules into their law from the Rhodians' code. 'The Law of Oleron' adopted these rules from the Roman law.⁶³ Ancient maritime nations such as the Carthaginians and Phoenicians also used bottomry and respondentia as a risk-management strategy.⁶⁴ Italian merchants had probably practised it since the fifth century and its first recorded practice in England was in 1593 A.D.⁶⁵

⁵⁸ *Ibid* at 4-5; Vance, "The Early History of Insurance Law", *supra* note 35 at 6.

⁵⁹ F. Martin, *The History of Lloyd's and of Marine Insurance in Great Britain*, (New York: Burt Franklin, 1876) at 3 [hereinafter Martin, *History of Lloyd's*].

⁶⁰ "The merchant advanced goods to the trader, who handed him in return a sealed memorandum or inventory containing the value, etc., of the goods on the understanding that the security and the rate of interest payable were to be at fixed terms, but that in the event of his being robbed on the journey, through no negligence or connivance on his part, on making a solemn declaration to that effect he should be freed from the debt – both capital borrowed and interest. This arrangement is given legal force in the Code of Hammurabi (2250 B.C.);" cited in Dover, *A Handbook to Marine Insurance*, *supra* note 45 at 5.

⁶¹ *Ibid* at 5.

⁶² Bischoff, *Marine Insurance*, *supra* note 35 at 311-12.

⁶³ *Ibid*.

⁶⁴ Lay, *Marine Insurance*, *supra* note 55 at 5.

⁶⁵ Dover, *A Handbook to Marine Insurance*, *supra* note 45 at 5.

Bottomry and respondentia are very rarely used today, if at all. When used on rare occasions, the loan is not requested by the merchants to finance their adventures but by the master of a ship in distress to complete the voyage.⁶⁶ Its rare use in the presence of modern market insurance makes economic sense because the job of financing for a ship and/or cargo and the job of predicting risks against maritime perils may not be efficiently done by the same person or entity. While banks are experts in investment risks, marine insurers know better about the risks in maritime transportation; they both bring different expertise in the markets and can devise more efficient means separately in minimizing the relevant risks than would be the case if one of them provides both loan and insurance for a ship or cargo, as was inherent in the practice of bottomry and respondentia bonds.

3. Transfer to co-adventurers (i.e., general average)

‘General average’ is another form of risk-transfer strategy necessitated by the absence of insurance in the past. Under this practice, the parties to a maritime adventure share the risk of losses arising from the perils of the sea in proportionate to their respective saved interests in the adventure. It is comparable to mutual insurance as the losses in general average situation are shared by all the parties to an adventure.⁶⁷ These parties are invariably shipowners and cargo owners. As a means of protection against the perils of the sea, the practice of general average existed in the great maritime city of Levant in Rhodes from 916 to 700 B.C.⁶⁸ The Rhodian Law explained the principle, “Let that

⁶⁶ Gold et al., *Maritime Law*, *supra* note 56 at 279.

⁶⁷ Lay, *Marine Insurance*, *supra* note 55 at 3.

⁶⁸ Dover, *A Handbook to Marine Insurance*, *supra* note 45 at 6.

which has been jettisoned on behalf of all be restored by the contribution of all.”⁶⁹ From Rhodian law, it was adopted in the Digest of Justinian.⁷⁰ Later maritime codes copied the principle from the Justinian Digest with some modifications. Its first recorded incident in England was in 1285 A.D.⁷¹

Like many ancient risk management strategies, general average greatly reduced the fear of losses in maritime transportation and encouraged investors to invest into shipping. This in turn raised the social utility through the increase in international or coastal trades. In the presence of modern hull and cargo insurance, the need of these ancient risk management devices lost their justifications. Yet, unlike many of the ancient devices, general average continues to exist today in maritime transport settings. I will take up the detailed discussion in chapter three on its justifications and its effects on incentives to take care and on the increased costs of transportation. It suffices here to mention that the presence of general average today sometimes encourages suboptimal maintenance of ships because the burden of loss or liability is *partially* transferred from negligent shipowners to cargo owners; the latter has no control on the navigation of the ships carrying their goods.

4. Transfer to liability claimant (i.e., limitation of liability)

Another form of partial risk transfer from shipowners to cargo owners and/or third parties, also originated in the pre-insurance era, is the principle of limitation of liability.

⁶⁹ Cited *ibid* at 6.

⁷⁰ Gilmore & Black *supra* note 3 at 3-4. Selmer, *Survival of General Average*, *supra* note 39 at 19.

⁷¹ Gilmore & Black, *ibid* at 6.

The risk of liability is as burdensome for shipowners as the risk of damage to or loss of their ships. In the absence of insurance, both liability and the property loss may cause similar financial ruin for a shipowner. The risk of liability and the risk of property loss may occur at the same time and they may increase simultaneously due to the fact that incidents giving rise to high liability may be the same incidents which caused the loss of the ship or damaged it severely. A seriously damaged or sunken ship will likely to take with it the cargo, passengers and crews to the bottom of the sea.

In the absence of liability insurance it was thus naturally thought fair and desirable that the liability of shipowners for both personal injury and death and for cargo loss should be limited to the value of the ship after the accident. If the ship was a total loss, no value could be assigned to it and consequently there would be no liability on the shipowner for any type of loss. Today, however, the valuation of ship for the purpose of liability is determined on the basis of the ship's tonnage regardless of the actual state of the ship after an incident,⁷² the US being the sole exception where liability for property damage is still determined on the basis of the actual post-accident value of the ship and its pending freight provided that the shipowner is not guilty of actual fault or privity.⁷³

⁷² This change of valuation from actual value of the ships to an amount based on their total tonnage is justified because shipowners now need not and in fact do not pay liability from the value of their ships but regularly pays from their liability insurance. The presence of liability insurance does not only make the old-valuation unnecessary but also the very principle of limitation of liability for the purpose of which we need a valuation method. Yet, while valuation has changed in response to this insurance reality, limitation of liability continues to exist in an implicit denial of this fact.

⁷³ 46 U.S.C.A. §§181-189.

There remains some uncertainty about the origin of limitation of shipowners' liability,⁷⁴ although Justice Holmes compared it to the Roman law doctrine of 'noxio deditio'; under this doctrine the liability for an injury or loss is directed to the offending thing instead of its owner regardless of whether the offending thing was an object, animal or human being.⁷⁵ If we consider this doctrine as the source of the principle of limitation of liability, then it has its origin in the antiquity. However, its earliest extant evidence is found in the Amalphitan Table of the eleventh century, a commercial code for Italy (Amalphia).⁷⁶ Although by the sixteenth and seventeenth centuries the doctrine became part of the most continental maritime codes, it was not recognized under English law until the enactment of the *Responsibility of Shipowners Act* in 1733.⁷⁷

Again, like many other risk-management strategies, in the absence of insurance limitation of liability was of great help to risk-averse shipowners due to its inherent mechanism to spread the risks of losses over both the liable shipowners and the liability claimants.⁷⁸ Yet, unlike many other past strategies which disappeared from the backdrop of maritime risk-management with the advent of modern marine insurance, limitation of liability still exists in all areas of maritime liability law despite the widely available marine liability insurance. I will argue in the next chapter that its presence in maritime liability not only lacks any justification in the light of current insurance

⁷⁴ Donovan, "The Origins of Limitation", *supra* note 4 at 1000.

⁷⁵ O. W. Holmes, *The Common Law*, (Boston: Little, Brown and Company, 1949) at 6-13 [hereinafter Holmes, *Common Law*].

⁷⁶ Donovan, "The Origins of Limitation", *supra* note 4 at 1001.

⁷⁷ 7 Geo. 2, c.15 (1734). See Donovan, "The Origins of Limitation", *ibid* at 1002-1007.

⁷⁸ It is noteworthy here that while general average was originally designed to protect *both* shipowners and cargo owners through spreading the loss, limitation of liability was mainly designed as a protection for the shipowners *alone*. However, they both now invariably serve the interest of the shipowners.

practice but may in fact reduce the *deterrent* effect of liability and cause more maritime losses than would be the case if liability were not limited.

II. Lack of Insurance and Under-development of Liability Law

It is hard to say whether the lack of commercial liability insurance is the cause or the effect of the under-developed maritime liability law in the past. Both maritime liability law and marine liability insurance were limited in their scope until the middle of the nineteenth century.⁷⁹ We may attribute this state of affairs to one of three possible causes. First, the lack of liability insurance in the past was the cause of the limited scope of maritime liability law. Second and conversely, the narrow scope of maritime liability law made it less attractive for insurers to offer liability insurance than is the case for property insurance (i.e., hull and cargo insurance). Third, the under-development of each may have been both a partial cause and effect in the underdevelopment of the other.⁸⁰

Logically, there would be little need for liability insurance if there is no liability for a particular loss or damage. For example, the liability law for oil pollution damage did not exist as a separate heading of liability until 1969 and, consequently, there was no specific insurance coverage for such liability. Yet, it would not be implausible to say that the lack of marine insurance market's capacity to provide coverage for oil pollution

⁷⁹ W. R. A. Birch Reynardson, "The History and Development of P&I Insurance: the British Scene," (1969) 43 Tul. L. Rev. 464 [hereinafter Reynardson, "History of P&I Insurance"].

⁸⁰ This may be partially explained by showing how the theory of supply and demand works in physical goods. Increasing demand for certain goods may bring more supply of the goods in the market. Alternatively, abundant supply may lower the price and thus increase the demand. Similarly, increasing liability law may create a market for liability insurance and an improved liability insurance market may in turn increase the scope of liability law.

liability was the partial reason for the non-existence of such liability law in the past. Shipowners and the organisations representing them regularly use this argument of insurance market's lack of capacity against any attempt to increase either the amount or the scope of the existing maritime liability.⁸¹ Between these two explanations the more persuasive one seems to be the former i.e., the existence of relatively few liability areas in the past made the provision of liability insurance not so profitable venture for marine insurers. This is because insurers were already providing coverage for property loss or damage and they could do so for liability if there were enough demand for the latter. On the other hand, today it can also be argued that the presence of very high capacity of marine liability insurance market is an influencing factor in the gradual increase of both the amount and the scope of maritime liability.⁸²

The insurance practice in a maritime activity may influence the development of the liability law in that activity. For example, in the cargo transportation settings both shipowners and cargo owners invariably carry insurance.⁸³ Consequently, the need for cargo liability law to provide *compensation* is not as important as the need to create *deterrence*. As a result, the liability law for cargo damage is *negligence*-based i.e., its primary concern is the deterrence from carelessness and not the need for

⁸¹ However, the validity of the shipowners' argument in this regard may be questioned. See the next chapter.

⁸² Examples of increasing liability include both newer areas of liability and higher amount of liability for the existing areas. Among new areas of liability are oil pollution liability, liability for bunker oil pollution and for pollution from Hazardous and noxious substance (HNS). Liability limit was raised in passengers' liability, in general maritime liability and in oil pollution liability laws. While shipowners argue the incapacity of market insurance to cover the increased liability, countries supporting an increase bring evidence that insurance market has very high capacity.

⁸³ For evidence of insurance practice, see *infra* note 650 to note 654 with accompanying texts.

compensation.⁸⁴ On the other hand, a victim of oil pollution would probably be uninsured against oil pollution damage, while the ships carrying oil are usually insured against all kinds of potential liabilities. Logically, the oil pollution liability law needs to address both the issues of *compensation* and *deterrence*. Seen from this perspective, *strict liability* for oil pollution makes practical sense.⁸⁵

A. Increasing need for marine liability insurance

Although market marine insurance existed since the beginning of the fourteenth century,⁸⁶ it was mainly in the form of first party property insurance i.e., hull and cargo insurance as opposed to third party liability insurance. As mentioned above, this was partly due to the fact that until the middle of the nineteenth century the possibility of shipowners being held liable for any considerable amount was very minimal.⁸⁷ First of all, no liability action for damages could be brought for negligently causing death under common law.⁸⁸ Second, there existed very few headings of liability law and thus little need for liability insurance. Third, to a great extent shipowners could exclude their possible liabilities to cargo owners and passengers through the ‘exclusion clauses’ in the contract of carriage.⁸⁹ Fourth, any remaining liability which could not be contractually excluded might be subject to either limitation of liability or general average or both and consequently would be reduced further. After all these legal and contractual reduction

⁸⁴ I will take up the detailed discussion of cargo liability in chapter five.

⁸⁵ Chapter six will examine how well oil pollution liability regime is able to maintain the balance between these two needs.

⁸⁶ Vance, “The Early History of Insurance Law”, *supra* note 35 at 6-7.

⁸⁷ Reynardson, “History of P&I Insurance”, *supra* note 79.

⁸⁸ Gold et al., *Maritime Law*, *supra* note 56 at 551. Reynardson, “History of P&I Insurance”, *ibid* at 465.

⁸⁹ See M. F. Sturley, “The History of COGSA and the Hague Rules”, (1991) 22 J. Mar. L. & Com. 1 at 5-6 [hereinafter Sturley, “The History of COGSA”].

of liability, very little liability was left for shipowners to bear, thus suppressing the need for a liability insurance market to grow. This scenario began to change from the middle of the nineteenth century. A number of factors combined to increase the need for liability insurance.⁹⁰ Although all these factors were mainly related to the shipowners and the marine insurers in the UK, the centre of the world's commerce at that time, they also influenced the laws and practice of other maritime nations. These factors are discussed below:

1. Enactment of Lord Campbell's Act

First, in 1846 the enactment of the *Fatal Accidents Act*,⁹¹ commonly known as the Lord Campbell's Act, changed the old common law rule of non-liability for negligently causing death. Under the old common law the dependents of a deceased had no right to bring actions for damages against a person whose negligent act or omission caused the death. The law was based on the maxim, *action personalis moritur cum persona* (personal action for damages dies with the deceased).⁹² It was probably because of the little value and dignity held for human life at that time.⁹³ The 1846 Act allowed the dependents to bring such actions for the loss they suffered from the death of their family members. This incidentally increased the shipowners' liability for death of passengers and crew and the consequent need for liability insurance.

⁹⁰ See Reynardson, "History of P&I Insurance", *supra* note 79, for the discussion on these historical factors.

⁹¹ 9 & 10 Vic., c. 93.

⁹² See Gold et al., *supra* note 56 at 551. It was probably because of the little value and dignity held for human life at that time. Reynardson, *supra* note 79 at 465.

⁹³ Reynardson, "History of P&I Insurance", *ibid* at 465.

2. Increasing immigration to the US and Australia

The second factor leading to the increasing liability and the need for liability insurance was the mass emigration in the middle of the nineteenth century from England and other European countries to the United States and Australia.⁹⁴ Increased immigration led to the building of bigger ships manned with more crew members, which in turn exposed shipowners to more frequent and higher liability for the injury to and death of passengers and crew.⁹⁵ However, the impact of the above two factors was somewhat neutralized by the enactment of the *Merchant Shipping Act of 1854*,⁹⁶ which limited the liability of shipowners to the value of the ship and the freight provided that there was no fault or privity on their part. Yet, the Act fixed the value of the ship at £15 per ton for the purpose of calculating the liability for personal injury and death. The total value of ships calculated in this way was in fact more than the actual value of most ships.⁹⁷ There was no insurance available against such liability. Even if shipowners used their hull insurance proceeds to pay for such liability in the event their ships were also lost, the proceeds could fall short of the actual liability because of the difference in the calculation of hull insurance and liability limit.

3. Insufficient collision liability coverage

⁹⁴ While from 1825 to 1834 the average number of immigrants from Europe to the United States was 32,000 every year, the number rose to 71,000 in the next decade. Reynardson, "History of P&I Insurance", *ibid* at 465. Following the discovery of gold in Australia, an average of 87,000 people from the United Kingdom rushed to Australia every year from 1876 to 1880. *Ibid* at 465.

⁹⁵ As the liability under common law was unlimited, this was a very heavy burden on shipowners. To make the matter worse, the underwriters at Lloyd's refused to cover any such third party liabilities. Reynardson, "History of P&I Insurance", *ibid* at 466.

⁹⁶ 17 & 18 Vic., c. 104.

⁹⁷ M. Tilley, "The Origin and Development of the Mutual Shipowners' Protection & Indemnity Associations," (1986) 17 J. Mar. L & Com. 261 at 264 [hereinafter Tilley, "Origin of P&I Associations"].

The need for liability insurance was also partially increased due to the decision of *de Vaux v. Salvador*⁹⁸ in 1835, where it was held that collision was not a “peril of the sea”, the usual insured peril at that time, and thus liability towards the other ship/s in a collision was not covered by hull insurance.⁹⁹ To overcome the effect of this decision, a new clause, which later came to be known as the “running-down clause”, was introduced in hull insurance policies in consideration of extra premium. However, hull underwriters were unwilling to provide *full* coverage for collision liability under this running-down clause. The clause covered only the three-fourths of the collision liability; shipowners had to bear personally the remaining one-fourth.¹⁰⁰ The burden of this uncovered collision liability further increased the need for alternative liability insurance coverage.

4. No coverage for excess liability

The fourth reason for the increasing need of liability insurance was also related to collision liability. Coverage for collision liability was inadequate not only due to the three-fourths coverage provided in the running-down clause but also due to the basis of calculation in determining the maximum coverage. Maximum insurance coverage for collision liability was calculated on the basis of actual value of the vessel. As the valuation for liability was on the basis of tonnage of the ship, insurance coverage even

⁹⁸ (1836) 4 A & E 420, 111 E.R 845 (K.B.).

⁹⁹ If both ships were to blame in causing the collision, the basis of collision liability used to be the equal division of the aggregate loss between the involved ships. Based on this law, the insured shipowner in this case was liable to pay the other shipowner the difference between the half of the aggregate loss and the loss suffered by the insured shipowner. The insured shipowner then claimed from the insurer for this payment as a loss arising from perils of the sea. The insurer refused on the ground that the reason for liability was not the peril of the sea per se but the admiralty rule of equal division. The court agreed with the insurer. See Bennett, *The Law of Marine Insurance*, *supra* note 53 at 397-98.

¹⁰⁰ Tilley, “Origin of P&I Associations”, *supra* note 97 at 262.

without the one-fourth deduction would occasionally fall short of the actual liability. Thus the three-fourths coverage could be less than the three-fourths of the actual liability. Hull insurers did not use to cover this difference, known as ‘excess collision liability’.¹⁰¹

The reluctance of insurers to provide full coverage under the running-down clause or any coverage for excess liability was due to the insurers’ desire to induce the insured shipowners to take proper care in the maintenance and operation of the ships. Insurers were more afraid in the past than they are now that the presence of liability insurance would dilute the very purpose of liability law i.e., deterrence from negligence.¹⁰² This may explain why the Lloyd’s underwriters appealed, though unsuccessfully, to the British Board of Trade in 1854 for legislation to prohibit collision liability insurance.¹⁰³ This heightened fear was justified as there were fewer tools such as the modern means of telecommunication and surveillance cameras at that time to verify and check negligent behaviour of the insureds.

B. P&I clubs to meet the increasing need for liability insurance

The increase of liability on one hand and the reluctance of insurers to cover such liability on the other left shipowners with no choice but to form their own mutual insurance clubs which would later come to be known as ‘protection and indemnity’

¹⁰¹ *Ibid* at 262-63.

¹⁰² Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 214-15. In order to prevent dilution of deterrent effect of liability law, the former Soviet Union prohibited liability insurance. Brown, “Deterrence and Accident Compensation Schemes”, *supra* note 12 at 115-116. See also J. Fleming, “The Role of Negligence in Modern Tort Law”, (1967) 52 Va. L. Rev. 815 at 826.

¹⁰³ Reynardson, “History of P&I Insurance”, *supra* note 79 at 467; Gold et al., *Maritime Law*, *supra* note 56 at 303.

(P&I) clubs. The first such club was the Shipowners Mutual Protection Society, established in 1854.¹⁰⁴ The P&I clubs were modelled on the shipowners' old hull clubs. The hull clubs were in decline at that time; yet they provided an excellent model of mutual insurance in the face of increasing liability and the conservative nature of marine insurance market in the nineteenth century.¹⁰⁵ As the predecessor of modern P&I clubs, a brief history of hull clubs may be in order here.

1. History of hull clubs

Hull clubs came into existence as a market reaction to the increased premium due to the duopoly of market marine insurance by two chartered corporations¹⁰⁶ and the Lloyd's after the enactment of the Bubble Act in 1720.¹⁰⁷ In addition, the location of these two companies and that of Lloyd's being in London caused inconvenience for the shipowners from other port cities of England to obtain insurance and to reach prompt settlements for their claims. As a result, the shipowners in Liverpool, Bristol, Hull and other British ports formed mutual hull clubs to protect themselves against maritime risks as well as to reduce the costs of insurance. Each ship in a club would usually

¹⁰⁴ Its successor was the Britannia Steam Ship Insurance Association, which is still in existence today. It was followed by the Shipowners Protection Association in 1855, which is now known as the West of England Protection and Indemnity Association. Reynardson, "History of P&I Insurance", *supra* note 79 at 467.

¹⁰⁵ Such conservatism to provide coverage caused marine insurance market to lose lucrative liability insurance opportunities from time to time. While in the nineteenth century marine property insurers lost the opportunity to underwrite excess collision liability to P&I clubs, in 1969 P&I clubs themselves partially lost market for oil pollution liability insurance as part of such liability is now covered by oil companies' insurance-like International Oil Pollution Compensation (IOPC) Fund. See R. M. M'Gonigle and M. W. Zacher, *Pollution, Politics, and International Law: Tankers at Sea*, (California: University of California Press, 1979) at 379 [hereinafter M'Gonigle and Zacher, *Pollution, Politics and International Law*].

¹⁰⁶ The two chartered companies were: Royal Exchange and the London Assurance. Reynardson, "History of P&I Insurance", *supra* note 79 at 463.

¹⁰⁷ Geo I, c 18.

contribute an *equal* amount to meet the total losses and expenses of the club it belonged to.

Although it was illegal to form any corporation, partnership or association for the purpose of providing marine insurance because the Bubble Act granted the two chartered companies the exclusive right to underwrite marine insurance, there was no legal action brought against any of these hull clubs during the entire period of monopoly for over one hundred years.¹⁰⁸ More than twenty such clubs existed in 1810, when a British Parliamentary Inquiry was conducted into the state of marine insurance business in that country.¹⁰⁹

As long the monopoly existed, the hull clubs remained competitive and could provide satisfactory or even better rate compared to that of the two companies and the Lloyd's because the hull clubs, being mutual insurance, did not have to make any profits from the premium they charged their members.¹¹⁰ However, once the monopoly was

¹⁰⁸ This was probably because the intended beneficiaries of the monopoly, the two chartered companies, were less enthusiastic in marine insurance business than in other branches of insurance, a fact proved by their market share of total marine insurance and their lack of any resistance against the abolition of monopoly. Their market share was less than 4% of total marine insurance premium. *Report from the Select Committee on Marine Insurance* (UK) (1810), parliamentary paper 116; reproduced in D. Jenkins and T. Yoneyama (ed), *History of Insurance* (v.8: marine) (London: Pickering & Chatto, 2000) at 7 [hereinafter *The 1810 Report*].

¹⁰⁹ *The 1810 Report*, *ibid*; cited in Reynardson, "History of P&I Insurance", *supra* note 79 at 462. Two of these clubs existed in London: Friendly Assurance and London Union Society. Although the existence of such a big number of hull clubs was adduced as further evidence in support of the Inquiry's finding that the marine insurance provided by the two companies and Lloyd's was inadequate, the monopoly was not abolished until 1824, as discussed above. *The Report of 1810*, *ibid*; cited in *ibid* at 462.

¹¹⁰ This is evidenced by the premium charged in the two London hull clubs. In 1809, the Friendly Association charged its member 1.25 percent, which would have been 9 to 11 percent if insured at Lloyd's. The London Union Society charged an average premium of 5.10 percent. If insured at Lloyd's, the premium would have been 9 percent for transport ships and 18 to 20 percent for colliers. *The Report of 1810*, *ibid*; cited in Reynardson, "History of P&I Insurance", *ibid* at 462-63.

abolished and new companies entered the market, marine insurance market became more competitive. Increased competition naturally led insurers to make more differentiation between good risks and bad risks in order to charge individualized insurance premium for each insured. Consequently, insurance premium for the well-built and well-maintained ships dropped. However, the hull clubs mostly offered a flat rate premium for all the vessels regardless of their physical structure and strength. As a result, the owners of better-maintained ships preferred the Lloyd's and other market insurers over their hull clubs. The hull clubs were thus left mainly with the vessels of inferior quality and the clubs were in decline before long.¹¹¹

2. From hull clubs to P&I clubs

The organizational model for the emerging P&I clubs was already there in the hull clubs. In fact the founders of the first P&I club, Shipowners Mutual Protection Society, were the managers of several hull clubs.¹¹² The main difference between the old hull clubs and the new P&I clubs was the type of insurance they were intended to provide. The former was designed to cater for hull insurance¹¹³ and the latter to provide coverage for the one-fourth and excess collision liability which market insurers refused to cover. Today the P&I clubs cover not only the one-fourth collision liability but almost any form of liability a shipowner could possibly incur.¹¹⁴ Historically, however, the clubs limited their coverage to *protection* liabilities as opposed to *indemnity* liabilities. By

¹¹¹ *Ibid* at 464.

¹¹² *Ibid* at 467.

¹¹³ Again, there was not much need for liability insurance at that time. Whatever liability existed there was probably insignificant and covered by the hull insurance or hull clubs as incidental items.

¹¹⁴ S. Hazelwood, *P. & I. Clubs: Law and Practice*, 3d ed. (London: LLP, 2000) at 152-153 [hereinafter, Hazelwood, *P&I Clubs*].

protection liabilities, it was then understood as liabilities arising in respect of an entered ship, its crew and passengers, while liabilities arising in relation to the carriage of cargo were known as indemnity liabilities.¹¹⁵

The clubs began to cover indemnity liabilities after the case of *The Westenhope* in 1870.¹¹⁶ *The Westenhope* was lost with its cargo off the South African Coast. Because of the deviation from its destination, the ship was held liable for the cargo loss.¹¹⁷ As liability for cargo loss was not covered by the ship's protection club, the owners of the ship had to personally bear the liability. Following this case, a group of shipowners established the Steamship Owners Mutual Protection and Indemnity Association in 1874 to cover both the *protection* and *indemnity* coverage, as evident from the name of the new club.¹¹⁸ It was later merged with North of England Protection Association and now known as North of England Protection and Indemnity Association.¹¹⁹ Other clubs followed the suit. Since then these clubs came to be known as 'Protection and Indemnity' (P&I) clubs. Thirteen of these clubs joined together and formed the International Group of P&I clubs.¹²⁰

¹¹⁵ Lay, *Marine Insurance*, *supra* note 55 at 133. Established as mutual protection societies, the clubs' original intention was to provide coverage against liabilities for loss of life and injury, collision damage, damage to piers, wreck removal etc. Reynardson, "History of P&I Insurance", *supra* note 79 at 464-65.

¹¹⁶ Unreported. See Tilley, "Origin of P&I Associations", *supra* note 97 at 264-65; Reynardson, "History of P&I Insurance", *supra* note 79 at 467-68.

¹¹⁷ It is noteworthy that deviation from voyage automatically made a shipowner liable for any subsequent loss regardless of any connection between the deviation and the loss. Any clause in the bill of lading excluding this effect of deviation was unenforceable. *Davis v. Garrett*, (1830), 6 Bing. 716, 130 E.R. 1456; *J. Thorley Ltd. v. Orchis Steamship Co. Ltd.*, [1907] 1 K.B. 660 (C.A.); *Hain Steamship Co. v. Tate & Lyle Ltd* [1936] 2 all E.R. 597. See Gold et al., *Maritime Law*, *supra* note 56 at 364-368.

¹¹⁸ Tilley, "Origin of P&I Associations", *supra* note 97 at 265.

¹¹⁹ Reynardson, "History of P&I Insurance", *supra* note 79 at 468.

¹²⁰ *Ibid* at 55 at note 76 in 591.

Today P&I clubs are the main providers of marine liability insurance.¹²¹ The International Group of P&I clubs jointly covers over 90% of the world's ocean-going merchant fleet.¹²² They cover almost all forms of shipowners' liabilities except collision liability to other vessels and cargo thereon, which is traditionally covered by hull policies. However, the coverage for excess collision liability is mainly provided by these clubs.¹²³ The areas of liability falling under the clubs' coverage gradually increased over the years as the new headings of liability arose either due to new legislative measures or legal decisions. Presently, the P&I clubs provide liability insurance for (1) the damage to the cargo on the carrying vessels, (2) the loss of life and personal injury, (3) wreck removal, (4) the damage to docks or other fixed objects and (5) oil pollution damage.¹²⁴ For any reason, if a new form of liability does not fall under any of the above headings or under the existing club rules, the clubs' managers have wide discretion to indemnify the liable member under an 'omnibus clause' in the club rules.

C. History of Cargo and Oil Pollution Liability Regimes

Among many areas of maritime liability law the thesis will focus mainly on two areas (cargo and oil pollution)¹²⁵ in examining the influence of marine insurance on the

¹²¹ W. Tetley, *International Maritime and Admiralty Law*, (Quebec: Les Editions Yvon Blais Inc., 2002) at 591 [hereinafter Tetley, *International Maritime and Admiralty Law*].

¹²² Tilley, "Origin of P&I Associations", *supra* note 97 at 261. The recent estimate is 95%; see 2005 Annual Report of Britannia Club at 3.

¹²³ L. J. Buglass, "Limitation of Liability from a Marine Insurance Viewpoint", (1979) 53 Tul. L. Rev. 1364 at 1367-70 [hereinafter Buglass, "Limitation of Liability"].

¹²⁴ *Ibid* at 1369-70.

¹²⁵ As the transportation of cargo is the main shipping activity and as oil pollution liability regime is very comprehensive regime, I chose these two liability regimes for my analysis of maritime liability law in the light of current marine insurance.

deterrent effect of liability law. As a chapter on historical evolution of both marine insurance and maritime liability law, the chapter would remain incomplete without a brief history of these two areas of liability law. This would also reduce the need for any discussion on the history in the subsequent chapters and keep our discussion more focused on the analysis proper of the connection between these liability regimes and insurance practice in their respective areas.

1. History of cargo liability regime

Transportation of goods is the primary activity of the shipping industry.¹²⁶ More than 95 percent of the world cargo by weight is transported via ships.¹²⁷ As a result, issues related to the cargo liability form the majority of the legal disputes in maritime transportation. Historically, in common law shipowners were automatically held liable for any loss of or damage to cargo unless they could prove that there was no negligence on their part *and* that the loss was the result of one of four factors (act of God, act of public enemies, cargo owner's fault, and inherent vice of the goods).¹²⁸ In other words, shipowners' liability for cargo loss was strict. One possible explanation of such strict liability was that in the absence of a well-organized insurance market it was thought unjust for cargo owners to bear the burden of loss of or damage to cargo while the cargo

¹²⁶ See Gilmore & Black, *supra* note 3 at 13.

¹²⁷ R. R. Churchill and A.V. Lowe, *The Law of the Sea*, 3rd ed. (Manchester: Manchester University Press, 1999) at 255 [hereinafter Churchill & Lowe, *The Law of the Sea*].

¹²⁸ Gilmore & Black, *supra* note 3 at 139-140; Sturley, "The History of COGSA", *supra* note 89 at 4-5.

is under shipowners' care. This can be inferred from the courts' occasional reference to shipowners as "insurers" for the purpose of such liability.¹²⁹

It is possibly a combination of factors such as widespread insurance, the doctrine of *laissez faire* and the use of bill of lading which gradually changed cargo liability from strict to negligence-based liability law. While bills of lading provided shipowners with an opportunity to insert exception clauses, the principle of *laissez faire* gave them more freedom of contract to exclude liability for cargo loss caused even by their own negligence.¹³⁰ At the same time, the availability of widespread market insurance made it look less unjust for cargo owners to bear the loss caused by shipowners. As a result, by the end of nineteenth century, although strict liability still remained the default rule, shipowners could exclude their liability through the extensive 'exoneration clauses' in the bill of lading in the name of freedom of contract.¹³¹

The influence of *laissez faire* and its related concept the 'freedom of contract' were more prevalent in maritime nations than in coastal States, reflecting their respective commercial interests. For example, while the courts in the UK, a traditional maritime

¹²⁹ See J. H. Beale, Jr., "The Shipowner's Liability: Its History", (1897-98) 11 Harv. L. Rev. 158 at 158. In *Forward v. Pittard*, (1785) 1 T.R. 27 where Lord Mansfield said, "A shipowner is in the nature of an insurer." *Ibid* at 167-68. *Per* Lord Wright in *Paterson Steamship Ltd. v. Canadian Cooperative Wheat Producers Ltd.*, [1934] A.C. 538 at 544 (PC), "At common law, he [shipowner] was called an insurer, that he was absolutely responsible for delivering in like order and condition at the destination the goods bailed to him for carriage." See also *Coggs v. Bernard* (1703), 2 LD. Raym. 909, 92 E.R. 107; cited in Gold et al., *Maritime Law*, *supra* note 56 at 363 and note 19.

¹³⁰ This was particularly the case in England. See Gilmore & Black, *supra* note 3 at 142.

¹³¹ Sturley, "The History of COGSA", *supra* note 89 at 5-6. In 1890, the Glasgow Corn Trade Association made a petition to the British Prime Minister, where they complained that shipowners' "bills of lading are so unreasonable and unjust in their terms as to exempt [the shipowners] from almost every conceivable risk and responsibility." Petition of Glasgow Corn Trade Association, reprinted in H. R. Rep. No. 1988, 52d Cong., 1st Sess. 2 (1892); cited in *ibid* at 10 and note 62.

country, allowed any contractual exclusion of liability in the bill of lading on the principle of freedom of contract,¹³² the US courts restricted such freedom and refused to implement clauses excluding shipowners' liability for negligence on the ground of public policy.¹³³ This limitation of shipowners' freedom of contract prompted the British shipping industry to insert clauses to fix the 'choice-of-law' and 'choice-of-forum' as those of the UK in order to overcome the effect of the American decisions.¹³⁴ In response, US Congress enacted the Harter Act¹³⁵ to protect the American cargo owners.¹³⁶

The Harter Act imposed two overriding duties on shipowners: the duty to exercise due diligence to provide a seaworthy ship and the duty to care for the cargo while under shipowners' control. As a compromise, however, the Act exempted shipowners from liability for cargo damage arising from the negligence of the master and crew in the management and navigation of the ship. The Canadian Parliament adopted similar legislation in 1910, the *Water Carriage of Goods Act*.¹³⁷ This compromised solution

¹³² See *Tattersall v. National Steamship Co.*, (1884) 12 Q.B. Div. 297; *In re Missouri S.S. Co.*, (1889) 42 Ch. D. 321; cited in J. C. Sweeney, "Happy Birthday, Harter: A Reappraisal of the Harter Act on its 100th Anniversary", (1993) 24 J. Mar. L. & Com. 1 at 6 note 22 [hereinafter Sweeney, "Happy Birthday, Harter"].

¹³³ See *Liverpool & Great Western Steam Co. v. Phenix Insurance Co.*, (1889) 129 U.S. 397 (U.S.S.C.); *Clark v. Barnwell*, (1851) 53 U.S. 272; *Propeller Niagra v. Cordes*, (1858) 62 U.S. 7; cited in Sweeney, "Happy Birthday, Harter", *ibid* at 6-8.

¹³⁴ Sweeney, "Happy Birthday, Harter", *ibid* at 8; Sturley, "The History of COGSA", *supra* note 89 at 10-11.

¹³⁵ 27 Stat. 445-46 (1893), codified as 46 U.S.C. Appx. §§190-96.

¹³⁶ See D. C. Frederick, "Political Participation and Legal Reform in the International Maritime Rulemaking Process: From the Hague Rules to the Hamburg Rules", (1991) 22 J. Mar. L. & Com. 81 at 83-84 [hereinafter Frederick, "From the Hague Rules to the Hamburg Rules"].

¹³⁷ 9 -10 Edward VII, ch. 61; see Sturley, "The History of COGSA", *supra* note 89 at 16-17. In fact, Canadian legislation was the model on which the *Hague Rules* were based. The innovative feature of Canadian Act was that it contained in its s.8 a package limitation to the effect that a shipowner was not

appeared attractive to many countries and they either enacted or were considering enacting similar legislation.¹³⁸ Despite their similarities, however, the national legislation varied from one another to some extent. The difference caused inconvenience and some uncertainty for shipowners with regard to their cargo liability. This led to a call for the uniform cargo liability regime from the interested parties and finally to the adoption of the *Hague Rules* in 1924.¹³⁹ These rules were amended in 1967 and are jointly known now as the *Hague Visby Rules*.¹⁴⁰ Most of the world maritime nations are parties to these rules.¹⁴¹

The exoneration of shipowners' liability for cargo damage arising from the crew's negligent navigation and management of the ship and the low liability limit in the *Hague-Visby Rules* caused dissatisfaction among nations with little shipping interests¹⁴² and this dissatisfaction ultimately prompted the United Nations Commission on International Trade Law (UNCITRAL) to adopt the *Hamburg Rules* in 1980.¹⁴³ However, very few maritime nations incorporated them into their national laws even

liable for more than \$100 per package unless higher value was stated in the bill of lading. Sturley, "The History of COGSA", *ibid* at 16, 19-21.

¹³⁸ Countries which enacted similar legislation are Australia, New Zealand and French Morocco, while France, the Netherlands, Spain, Denmark, Norway, Sweden, Finland, Iceland and South Africa were considering similar legislation prior to the Hague Rules. Sturley, "The History of COGSA", *ibid* at 15-18.

¹³⁹ See Sturley, "The History of COGSA", *ibid* at 18-36 for various incidents from the 1917 Dominions Royal Commission Report on the need of uniform legislation to the proposal of the Hague Rules in 1921 and to its final adoption in 1924. See also Frederick, "From the Hague Rules to the Hamburg Rules" *supra* note 134 at 86-94.

¹⁴⁰ See *supra* note 11.

¹⁴¹ About seventy five per cent of maritime transport is done under the *Hague-Visby Rules*; W. Tetley, "Reform of Carriage of Goods – The UNCITRAL Draft and Senate COGSA '99", (2003-2004) 28 Tul. Mar. L.J. 1 at 9.

¹⁴² See J. C. Sweeney, "The UNCITRAL Draft Convention on Carriage of Goods by Sea (Part I)", (1975-1976) 7 J. Mar. L. & Com. 69 at 72-74; see also Frederick, "From the Hague Rules to the Hamburg Rules" *supra* note 136 at 98-106.

¹⁴³ United Nations Convention on the Carriage of Goods by Sea, Hamburg, Mar. 31, 1978, U.N. Doc. A/Conf. 89/5, (1978) 17 I.L.M. 608 [hereinafter *Hamburg Rules*].

though the rules came into force in 1992.¹⁴⁴ This state of affairs together with the existence of non-uniform national laws modifying the *Hague Rules* and the increasing use of internet to issue electronic shipping documents led to the desire of a new cargo liability convention.¹⁴⁵ As a result, a new liability convention is now under negotiation by the UNCITRAL.¹⁴⁶ The new convention is expected to be finalized by the beginning of 2009.¹⁴⁷ While the new conventions made some changes with regard to few aspects of shipping, so far there is no sign that it would make any change with regard to limitation of liability and general average principles,¹⁴⁸ the two liability principles analyzed in the thesis. This is regrettable as these two principles are responsible for negligent navigation and careless shipping to some extent. Subsequent chapters will focus more on these issues.

2. History of oil pollution liability regime

Although the carriage of oil via seas is part of the broader maritime cargo transportation activity, the potential of this cargo to cause serious pollution damage made it stand out from other cargoes. Historically, however, oil pollution liability was not a distinct heading of shipowners' liability. Up until 1969 there was no special liability law for oil

¹⁴⁴ Out of current 32 State parties to the *Hamburg Rules*, few of them are major commercial and maritime powers. In fact about one-third of the Contracting States are land-locked. See M. F. Sturley, "The United Nations Commission on International Trade Law's Transport Law Project: An Interim View of a Work in Progress", (2003-2004) 39 *Tex. Int'l L.J.* 65 at 66 [hereinafter Sturley, "UNCITRAL's Transport Law Project"]; see also M. F. Sturley, "Scope of coverage under the UNCITRAL Draft Instrument", (2004) 10 *J. Int. Mar. L.* 138 at 138 note 1 [hereinafter Sturley, "Scope of coverage"].

¹⁴⁵ See generally Sturley, "UNCITRAL's Transport Law Project" *ibid* at 66-68.

¹⁴⁶ For the latest version of draft convention see the UNCITRAL doc. A/CN.9/WG.III/WP.101 at <http://daccessdds.un.org/doc/UNDOC/LTD/V07/881/07/PDF/V0788107.pdf?OpenElement> (last visited: Nov. 10, 2008) [hereinafter *Draft Convention*].

¹⁴⁷ W. Tetley, *Marine Cargo Claims*, 4th ed., (Quebec: Thomson Carswell, 2008) at xviii [hereinafter Tetley, *Cargo Claims* (2008 ed.)].

¹⁴⁸ See articles 44-46 (limitation of liability) and article 87 (general average) of the *Draft Convention*.

pollution damage.¹⁴⁹ Parties suffering damage due to oil spill could claim under the common law principles of negligence, trespass, nuisance, and strict liability.¹⁵⁰ Shipowners could limit their liability under the general maritime liability law.¹⁵¹ The world community recognized the inadequacy of the general maritime law to cover the expenses of devastating oil pollution damage in the aftermath of the *Torrey Canyon* incident in 1967.¹⁵²

Starting from 1969 the IMO gradually adopted specific liability regime to address the problem of inadequate compensation for oil pollution; this regime now comprises the Civil Liability Convention (CLC) and the Fund Convention.¹⁵³ The CLC deals with the

¹⁴⁹ A. K. Tan, *Vessel-Source Marine Pollution: The Law and Politics of International Regulation* (New York: Cambridge University Press, 2006) at 288 [hereinafter Tan, *Vessel-Source Marine Pollution*].

¹⁵⁰ See *Southport Corporation v. Esso Petroleum Company Ltd*, [1953] 2 Lloyd's Rep. 414 (Trial Div.); [1954] 1 Lloyd's Rep. 446 (CA); [1955] 2 Lloyd's Rep. 655 (HL); *The Wagon Mound*, [1961] A.C. 388 (P.C.); *Kirwin v. Mexican Petroleum Co.*, 267 F. 460 (Dist. of Rhode Island, 1020); *Salaky v. Atlas Tank Processing Corp.*, 120 F. Supp. 225, 1954 AMC 80 (E.D.N.Y. 1953), rev'd on other grounds, 208 F.2d 174, 1954 AMC 77 (2d Cir. 1953); *In re New Jersey Barging Corp.*, 168 F. Supp. 925, 1959 AMC 2532 (S.D.N.Y. 1958); *Oppen v. Aetna Ins. Co.*, 485 F.2d 252, 1973 AMC 2165 (9th Cir. 1973). The American cases are cited and discussed in L. I. Kiern, "Liability, Compensation, and Financial Responsibility Under the Oil Pollution Act of 1990: A Review of the First Decade," (2000) 24 Tul. Mar. L. J. 481 at 490-502 [hereinafter Kiern, "OPA: A Review of the First Decade"].

¹⁵¹ In international maritime setting, shipowners' general liability law at that time contained in the 1957 Convention on the Limitation of Liability of Owners of Sea Going Ships, 10 October 1957, 52 U.K.T.S. 355 (1968). The liability was fault-based and the limit was calculated on the basis of 1,000 gold francs (\$67) per ton for property damage and 2,000 francs per ton for personal injury and death claim. Unlike CLC, the 1957 Convention did not have any maximum ceiling for total liability. Today most widely accepted general liability law convention is the LLMC 1976, *supra* note 32, as amended by 1996 Protocol, LEG/CONF.10/DC.2.

¹⁵² Cleanup alone cost the British and French governments £7.70 million (US\$18 million). Although it was impossible to estimate the damage to the environment, total quantifiable cost was £14.24 million. P. Burrows et al., "The Economics of Accidental Oil Pollution by Tankers in Coastal Waters" (1974) 3 Journal of Public Economics 258. Ultimately, the UK and France settled for slightly over US\$7 million. M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 153.

¹⁵³ Oil pollution compensation regime consists of two international conventions: 1) International Convention on Civil Liability for Oil Pollution Damage, 1969, 973 U.N.T.S.3, 9 I.L.M. 45 (1970), [hereinafter CLC] and 2) International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971, 16 I.L.M 621 (1972), as amended by 1992 Protocols [hereinafter Fund Convention]. The 1992 Protocols can be found in the IMO documents, LEG/CONF.9/15 and LEG/CONF.9/16.

shipowners' liability, which is strict but limited in amount, while the Fund Convention has created the IOPC Fund to provide for oil pollution damage when the compensation from shipowners is either inadequate or not available at all.¹⁵⁴ However, the Fund's compensation is limited as well, albeit at a higher ceiling. In 2003, the IMO adopted a new Protocol to the Fund Convention to create a Supplementary Fund, a third tier of compensation with SDR750 million (US\$1.10 billion) ceiling.¹⁵⁵ The Protocol came into force on March 3, 2005.¹⁵⁶ Although Canada is party to both the CLC and the Fund Convention¹⁵⁷ and implements the law through the *Marine Liability Act*,¹⁵⁸ it has not ratified the Supplementary Fund Protocol.¹⁵⁹ The United States is not party to any of these international conventions.

Conclusion

Marine insurance has come a long way from the individual cargo owners' effort to spread maritime risks by sending their cargoes on various vessels to modern market

¹⁵⁴ Two voluntary agreements mirroring the compensation mechanisms of these two conventions were reached by the oil companies and shipowners in order to provide compensation for oil pollution before the entry into force of the conventions. They are TOVALOP (Tanker Owners' Voluntary Agreement on Liability for Oil Pollution), (1969) 8 I.L.M. 497 and CRISTAL (Contract Regarding an Interim Settlement of Tanker Liability for Oil Pollution), (1971)10 I.L.M. 137. These agreements continued to exist long after the entry into force of the conventions and they discontinued from Feb. 20, 1997. See Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 329-30.

¹⁵⁵ Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992 [hereinafter the Supplementary Fund Protocol]; the Protocol can be found in the IMO document: LEG/CONF.14/20.

¹⁵⁶ See the status of conventions at IMO http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

¹⁵⁷ See the list of State parties to both conventions. The list can be accessed at the IOPC Fund website at <http://www.iopcfund.org/92members.htm> (last accessed: March 11, 2009). As of March 9, 2009, there were 102 contracting States to both Fund Convention and CLC, as amended by the 1992 Protocols. By Nov. 05, 2009, the number will be 103. There are 19 States which are parties to CLC (1992) but not to Fund Convention. See *ibid*. There are also 38 States which are parties to CLC in its original 1969 version. See at <http://www.iopcfund.org/69civilliability.htm> (last accessed: March 11, 2009).

¹⁵⁸ *Marine Liability Act*, 2001, c. 6, Part 6.

¹⁵⁹ As of March 9, 2009, there were 23 States parties to the Supplementary Fund; they were mainly from European Union. See at <http://www.iopcfund.org/92members.htm> (last accessed: March 11, 2009).

insurance. Marine market insurance today not only spreads the maritime risks over many insured shipowners and cargo owners but also over many non-maritime enterprises through reinsurance in the broader insurance market. This change of marine insurance reality does not fully reflect in the maritime liability law. There still exist some principles in maritime liability law which were originally designed to serve insurance-like function in a pre-insurance era. Two such principles of maritime liability laws, which will be the subject of analysis in the subsequent two chapters, are limitation of liability and general average. As will be seen in the next two chapters, an ideal maritime liability law demands the abolition of these two principles. However, the reality of the present insurance market and practice *does* reflect to a large extent in the existing maritime liability laws for cargo loss or damage and for oil pollution. Chapters four and five will examine the connection between insurance and the cargo and oil pollution liability regimes for these two areas respectively.

Chapter 2

Connection between Insurance and Limitation of Shipowners' Liability: An

Economic Analysis¹⁶⁰

Introduction

Limitation of liability is a feature common to all areas of shipowners' liability.¹⁶¹ Its historical reason is the encouragement of investment in national shipping sector¹⁶² and the present argument by its beneficiaries is either the lack of capacity or the cost of insurance for unlimited liability.¹⁶³ Its most criticized consequence is the deprivation of the victims of maritime accidents from adequate compensation.¹⁶⁴ As a result, the focus of changes in maritime liability laws has been to increase compensation,¹⁶⁵ sometimes from sources other than liable parties. This approach fails to take into consideration the main goal of liability system i.e., to deter potentially liable people from careless activities. By limiting the magnitude of liability, limitation of liability reduces the expected liability of shipowners and consequently their optimal precaution. It encourages negligent navigation.

¹⁶⁰ An earlier and shorter version of this chapter appeared in M. Billah, "Economic Analysis of Limitation of Shipowners' Liability", (2007) 19 USF Mar. L. J. 297.

¹⁶¹ For general limitation of shipowners' liability see 1976 Liability Convention, *supra* note 9. The liability limit of the 1976 Convention was further increased by an average of 2.3 times by a Protocol in 1996 (LEG/CONF.10/DC.2 of May 2, 1996). It is noteworthy here that limitation of liability also exists in other modes of transportation as well.

¹⁶² For historical development of limitation of shipowners' liability, see J. J. Donovan, "The Origins of Limitation", *supra* note 4.

¹⁶³ For example, the International Chamber of Shipping (ICS) stated in a submission to the 1976 Limitation of Liability Conference, "...the main justification of limitation of liability today is the insurability of the risk with its two elements, the availability of cover and economic cost." LEG/CONF.5/6 (27 Sept. 1976) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 112-113.

¹⁶⁴ See G. Gauci, "Limitation of liability in maritime law: an anachronism?", (1995), 19 Marine Policy 65 [hereinafter Gauci, "Limitation of liability"]. For criticisms of the US Limitation of Liability Act of 1851[46 U.S.C.A. §§181-189], see Gilmore & Black, *supra* note 51 at 818, 821-23.

¹⁶⁵ See the preamble to CLC and Fund Convention; *supra* note 15.

In part I, I will argue why deterrence should be the main purpose of shipowners' liability. In part II, I will take up the analysis of limitation of liability in terms of its effect on potentially liable parties' behaviour and its desirability in maritime liability law. I will describe and refute the insurance arguments shipowners use to maintain limitation of liability in part III. Finally, I will recommend in part IV the abolition of limitation of liability from maritime liability law and discuss the possible consequences of this change.

I: Nature of the Problem

"If my dog kills your sheep and I freshly after the fact tender you the dog you are without recourse against me."¹⁶⁶ This was the basis of limitation of liability in traditional maritime liability law: If my ship was the cause of your loss and I surrendered you the ship or its value after the incident, I would be relieved from any further liability.¹⁶⁷ Thus if the ship was completely lost in the accident, there was no liability. On the basis of this principle, in the famous *Torrey Canyon* oil spill incident in 1967 the liability of the shipowner was held to be US\$50,¹⁶⁸ while the clean up cost the UK and French governments US\$15 million.¹⁶⁹ It is noteworthy that today limitation of

¹⁶⁶ These are the words of a judge in the time of Edward III, cited by Holmes J. in *Liverpool, Brazil and River Plate Steam Navigation Co. v. Brooklyn Eastern District Terminal*, 251 U.S. 48 at 53 (US S.C. 1919).

¹⁶⁷ The principle of surrender is based on the Roman law doctrine *noxae deditio* (surrender of offending instrument exonerates the wrongdoer from liability). See Holmes, *The Common Law*, *supra* note 75 at 6-13.

¹⁶⁸ The value of the single salvaged lifeboat; see *In re Barracuda Tanker Corp.*, 228 (S.D.N.Y.1960).

¹⁶⁹ However, the claim was finally settled at US\$3 million. See Kiern, "OPA: A Review of the First Decade", *supra* note 150 at 503.

liability under international maritime liability conventions is calculated according to the tonnage of the ship or on per passenger basis.¹⁷⁰

Fast forwarded to forty years from the *Torrey Canyon* incident, maritime liability today is in a much better shape, at least in terms of compensation. Liability limit under general maritime liability convention¹⁷¹ has been increased twice since then. Special liability regimes with much higher limit were adopted for oil pollution from tankers, and for damage from some hazardous and noxious substances (HNS).¹⁷² In addition to substantial increase in the amount of compensation, special liability regimes have various features such as strict liability, compulsory insurance, and direct action against insurers in order to guarantee compensation for victims of maritime accidents.¹⁷³ One

¹⁷⁰ See Articles 6 and 7 of LLMC 1976. However, under the US Limitation of Liability Act (46 U.S.C. App. §§ 188-189) the value of the ship after an incident plus pending freight is still the criterion for property damage. The tonnage based calculation has been in the international maritime law since the first international convention on limitation in 1924, International Convention for the Unification of Certain Rules relating to the Limitation of Liability of the Owners of Sea-going Vessels, 1924; League of Nations Treaty Series No. 2763, Vol. CXX, p. 125 [hereinafter 1924 Liability Convention].

¹⁷¹ During the *Torrey Canyon* incident, general liability for maritime claims including oil pollution was governed by the International Convention Relating to the Limitation of the Liability of Owners of Sea-going Ships, 1957 [hereinafter 1957 Convention]. LLMC 1976 increased the limit by more than double the 1957 Convention's limit. The limit in LLMC 1976 was increased further by an average of 2.3 times by its 1996 Protocol. It is noteworthy that general liability convention applies to all maritime liability unless excluded either by LLMC 1976 itself (see Art.3) or by express provision of special liability regimes. Although there are specific liability conventions on cargo liability and liability for passengers' injury and death or for damage or loss of their luggage, these areas of liability are still subject to LLMC 1976. See P. Griggs, R. Williams and J Farr, *Limitation of Liability for Maritime Claims*, (4th ed) (London: LLP; 2005) at 106, 109 and 134-136 [hereinafter Griggs et al., *Limitation of Liability*].

¹⁷² For conventions on oil pollution, see note 151. The convention on HNS is International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, 1996, 35 I.L.M. 1406 [hereinafter HNS Convention]. It is not yet in force. For the status of conventions, see International Maritime Organization (IMO)'s website at: http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

¹⁷³ Provisions requiring insurance certificates are Art.VII.1 of the CLC, Art. 12 of the HNS Convention, Art.7 of International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001, LEG/CONF 12/19, [hereinafter Bunkers convention] and Art.5 of the 2002 Protocol (LEG/CONF .13/20) to Athens Convention Relating to the Carriage of Passengers and their Luggage by Sea, 1974; (1975) 14 ILM 945. [hereinafter PAL 1974]. For direct action against insurers, see Article VII.8, Article 12 (8), Article 7 (10),

thing, however, remained unchanged: the right of shipowners to limit liability. In fact, the right is now made almost an indefeasible one.¹⁷⁴ This affects the deterrent effect of liability, the main purpose of liability under the economic analysis of law.¹⁷⁵

The traditional legal view about the purposes of liability is that liability serves two purposes: compensation and deterrence.¹⁷⁶ Between these two, compensation seems to be more dominant purpose both in tort and contract liability.¹⁷⁷ Yet when a victim can receive compensation or indemnity for his or her loss from sources other than the liable party, the function of liability as a source of compensation becomes less important. If it were only for compensation, liability may not be desirable. This is especially so when the cost of maintaining liability system exceeds the benefit, if any, of compensating a victim who would have received compensation from other sources but for liability.¹⁷⁸ However, when the imposition of liability deters potentially liable parties from negligence, which in turn reduces future losses, the benefits of liability may outweigh

and Article 5(10) of the above conventions respectively and for strict liability see Art. 4(1) (a) and (b) of the 2002 Protocol to the PAL 1974.

¹⁷⁴ See the test to break the liability limit in Article 4 of LLMC1976.

¹⁷⁵ Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 267-69 and 635-38.

¹⁷⁶ See Brown, "Deterrence and Accident Compensation Schemes" *supra* note 12 at 111; M. J. Trebilcock, "The Social Insurance-Deterrence Dilemma of Modern North American Tort Law: A Canadian Perspective on the Liability Insurance Crisis", (1987) 24 San Diego L. Rev. 929.

¹⁷⁷ It is expressed retrospectively in tort (to put the victim back where he would have been, had the tort not occurred) and prospectively in contract (to put the promisee in a position where he would have been had the contract been performed), although the outcome is same i.e., to pay the plaintiff for his loss. See Rose, *Marine Insurance*, *supra* note 31 at 487.

¹⁷⁸ Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 635-38. In such situation, the desirability of liability as for the purpose of compensation will lie on the value we assign to the notion that a wrongdoer must fully compensate the victim (the classical notion of corrective justice). Such value may not be high, or at least not high enough to justify the cost of liability system when we know that victim will be compensated regardless of liability (e.g., from first party insurance) and that it is not the wrongdoer but his liability insurer who pays the liability judgment.

the cost and make the liability socially desirable. In other words, the desirability of liability depends on its functional value of reducing harm through deterrence.

In maritime liability settings, the victims of maritime accidents will usually receive full compensation or indemnity regardless of shipowners' liability. For example, an owner of damaged or lost cargo will receive indemnity for the loss from its cargo insurers.¹⁷⁹ The owners of damaged ships in a collision case will receive indemnity for any uncompensated loss from their hull insurers. The passengers on a ship may receive their unpaid medical expenses or lost earnings from their private insurance or from social insurance.¹⁸⁰ The victims of oil pollution on the sea will get compensation from various compensation funds.¹⁸¹ Despite all these sources of compensation or indemnity, liability is still imposed on shipowners. Thus deterrence is the only conceivable reason for liability. Limitation of liability will not deprive the victims of adequate compensation in any of the above situations. This is not to say that victims of maritime losses always receive full compensation from one source or another. There are situations when a

¹⁷⁹ For an excellent discussion on who should bear the cost of insurance in the context of cargo liability, see M. F. Sturley, "Changing Liability Rules and Marine Insurance: Conflicting Empirical Arguments about Hague, Visby, and Hamburg in a Vacuum of Empirical Evidence," (1993) 24 J. Mar. L. & Comm. 119 [hereinafter Sturley, "Changing Liability Rules"].

¹⁸⁰ Passengers who do not have private insurance are likely to be from low-income bracket of the society and their loss of earnings from an accident will unlikely to exceed the limit set out in the either in LLMC 1976 or PAL 1974. They will thus receive adequate compensation from shipowners. The current liability limit for personal injury or death of per passenger is SDR 175,000 (\$0.75m) under [Article 7(1) of LLMC 1976] and SDR 46,666 under PAL 1974. This amount will be increased to minimum SDR 250,000 and maximum SDR 400,000 per passenger, when the 2002 Protocol (LEG/CONF .13/20 of 19 November 2002) to PAL 1974 comes into force.

¹⁸¹ They can receive up to SDR 750 m (=US\$1.13 billion) per incident from a three-tier compensation system. See below.

victim may not receive full compensation from all the sources combined including the liable shipowner because of the shipowner's right to limitation.¹⁸²

If compensation were the sole goal of liability law, special maritime liability regimes may be cited among the best liability regimes in the world.¹⁸³ For example, under the current oil pollution liability regime more than US\$1 billion is available for a single oil spill incident through a three-tier oil pollution compensation regime. The first tier of maximum SDR 89 million (US\$130.57m)¹⁸⁴ is the shipowners' liability. The second tier up to SDR 203 million (US\$297.82m) comes from the International Oil Pollution Compensation Fund (IOPC Fund)¹⁸⁵ and the third tier from the Supplementary Fund (up to SDR750m=US\$1.1b).¹⁸⁶ Both these funds are contributed by the oil companies of the contracting States. For oil pollution on Canadian water, there is an additional national fund, the Ship-source Oil Pollution Fund (SOPF), in case the loss does not fall under the international regime.¹⁸⁷ The high amount of compensation will also be available when the HNS convention comes into force. The HNS Fund will provide up to SDR 250 million (US\$366.78m) per incident including SDR100 (US\$146.71m) million

¹⁸² Despite the existence of very high ceiling for oil pollution liability, in some cases such as *Amoco Cadiz*, *Erica* and *Prestige* available funds were still insufficient to meet all the claims in full. For details of these incidents, see IOPC website at <http://www.iopcfund.org/> (last accessed: March 11, 2009).

¹⁸³ This is not to say that oil pollution liability regime is a perfect regime and fully covers every aspect of pollution damage. There are cases under this regime where full compensation was not available. Among these are the highly publicised cases of the *Amoco Cadiz* in France in 1978, the *Erika* again in France in 1999, and the *Prestige* in Spain in 2002. However, the number of such cases is few and far between.

¹⁸⁴ Art. V.1 of CLC. SDR (Special Drawing Right) is the monetary unit for International Monetary Fund. SDR 1=US1.46713 as of March 11, 2009 at http://www.imf.org/external/np/fin/data/rms_sdrv.aspx

¹⁸⁵ Art. 4 (4) of Fund Convention.

¹⁸⁶ Art. 4 (2) of the 2003 Protocol to Fund Convention.

¹⁸⁷ Among such cases is the liability for a 'mystery-spill' i.e., the source of oil pollution is unknown; Article 4.2 (b) of Fund Convention. See *Ship-source Oil Pollution Fund - the Administrator's Annual Report 2005-2006* (Ottawa: the Administrator of Ship-source Oil Pollution, 2006) [hereinafter, *SOPF Annual Report 2005-2006*].

maximum from shipowners.¹⁸⁸ Despite the high compensation in these regimes, the deterrent effect of liability may still be hindered by the limitation of shipowners' liability because some of the compensation money in these special liability regimes comes from parties who are not directly involved in the navigation of ships.

Although compensation in other areas of maritime liability is not as generous as that for oil pollution or HNS damage, liability limit has been increased substantially since the *Torrey Canyon* incident. In general liability regime, the 1996 Protocol to the LLMC 1976,¹⁸⁹ provides for at least SDR 2 million (US\$2.93m) for the loss of life and personal injury and SDR 1 million (\$1.46m) for the property claims per incident.¹⁹⁰ For liability regarding passengers' loss of life and personal injury, an additional SDR 175,000 (US\$256,747) per passenger is provided under Article 7(1) of the LLMC 1976 as amended by the 1996 Protocol.¹⁹¹ Although the real value of the increased amount in

¹⁸⁸ See Articles 9 and 14 of the HNS convention.

¹⁸⁹ The Protocol came into force on May 13, 2004. See the status of the IMO Conventions at IMO website: http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

¹⁹⁰ Article 6(1) of LLMC 1976 as amended by its 1996 Protocol. This is for a ship with a tonnage of 2,000 or less. Beyond 2000 tons, the calculation is based on a tapering system. SDR800 and 400 for each additional ton up to 30,000 tons, SDR600 and 300 per ton up to 70,000 tons and SDR400 and 200 each ton above 70,000 tons for personal injury and death, and property damage respectively.

¹⁹¹ This amount is supposed to reflect the 1990 Protocol to PAL 1974, which is now abandoned in favour of the new 2002 Protocol with minimum SDR 250,000 and maximum SDR 400,000 per passenger. There may be some unintended inconsistencies between the PAL 1974 and LLMC 1976. As shipowners may choose between LLMC 1976 and PAL 1974 (Art. 19 of PAL 1974) but the passengers can claim only under the PAL 1974 (Art. 14), a shipowner may opt for lower limit if there are different limits under the conventions as is the case now. Currently, it is SDR 46,666 under the former and, as mentioned, SDR 175,000 under the latter. However, the situation would be reverse if the 2002 Protocol comes into force. This problem would not arise for a country which is a party to only one of these Conventions. The drafters could have avoided this problem by simply cross-referring LLMC 1976's provision on passenger claims to PAL 1974 without including any figure in LLMC1976. Another inconsistency may arise with regard to maximum limit of liability. While it is calculated by reference to the actual number of passengers multiplied by per passenger limit under PAL 1974, under LLMC 1976 the relevant number is the number of passengers the ship is certified to carry. See Griggs et al., *Limitation of Liability*, *supra* note 171 at 52-55. With regard to the last point, a member of the Polish delegate in the 1976 Limitation Conference suggested that the actual number should be the basis of calculation. So the inconsistency is

the general liability regime by the LLMC 1976 and its 1996 Protocol may appear very little or none at all if we take into account the inflation rate over the years,¹⁹² the indemnity from other sources will make up for the victim's uncompensated loss.¹⁹³

The main problem with limitation of liability is not the under-compensation of victims but under-deterrence of shipowners. Although both inadequate compensation and under-deterrence may arise due to the limitation of shipowners' liability, the first consequence can be averted by other means¹⁹⁴ not incompatible with limitation of liability, while the latter cannot be so with the presence of limitation of liability. For example, even though shipowners' liability is limited, victims of maritime accidents can still have full indemnification or compensation from their private insurance (e.g., cargo insurance), social insurance (e.g., public health care for injured passengers or crew) or the payment from some compensation funds as is the case for oil pollution and HNS damage. In fact, the availability of first party insurance may support even the abolition of whole maritime liability law if compensation were the sole objective of liability. This is especially so when we consider the high costs of maintaining the liability system and the availability of cheaper alternatives to the liability system such as special funds or

probably left on purpose to favour shipowners. See LEG/CONF.5/C.1/SR.2 (Nov. 02, 1976) in the *Official Records of the 1976 Liability Conference*, *supra* note 9 at 217.

¹⁹² For example, the 1996 Protocol made an average increase of 2.3 times, while the inflation between 1976 and 1996 made the 1976's limit three times less valuable in 1996. Griggs et al., *Limitation of Liability*, *supra* note 171 at *ibid* at 43. Similarly, the increase by LLMC 1976 was double the amount provided in the 1957 Convention, just enough to counterbalance the effect of inflation. See *Official Records of the 1976 Liability Conference*, *supra* note 9 at 76-77.

¹⁹³ An example of such indemnity may be the personal insurance of the victims or the social insurance from the government.

¹⁹⁴ Examples of such means are oil pollution or HNS compensation funds and private or social insurance.

first party insurance in order to provide for compensation.¹⁹⁵ If there is any justification for liability today, it must be due to its deterrent effect. Limitation of liability affects this very purpose of liability system.

II: Economic Analysis of the Problem

A. Nature of Economic Analysis

Economic analysis of a legal rule examines the effect of the rule on the behaviour of rational individuals i.e., how they respond to incentives (descriptive or positive analysis) and then evaluates the desirability of the rule in the light of the maximization of social welfare or utilities (normative analysis).¹⁹⁶ For example, a ‘polluter pays’ rule in the case of oil pollution may be analyzed first by examining its effect on the potential polluters’ behaviour whether they would take optimal care to prevent pollution or reduce their pollution-generating activities. This will be descriptive analysis. Then we can further examine whether the rule is socially desirable by comparing the cost on polluters (i.e., the forgone profits due to increased cost of precaution or reduced activities) against the benefits of pollution-free sea to other users¹⁹⁷ and non-users of the

¹⁹⁵ The cost to the society from litigation was one of the factors behind the introduction of ‘no-fault’ automobile liability system. The deterrence effect of automobile liability was minimal in many cases as these cases were of accidental nature without any negligence on the part of the involved parties. See S. Sugarman, “Doing Away with Tort Law”, (1985) 73 California Law Review 555.

¹⁹⁶ Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 1-4. Broadly defined, utility is the satisfaction a person derive from an activity. As it is almost impossible to measure how much satisfaction a person would derive from an activity (e.g., driving a car or buying a product), it is roughly measured by a person’s willingness to pay for a product or service. See Shavell, *Foundations of Economic Analysis*, *ibid* at 1-4.

¹⁹⁷ Such benefits may include aesthetic and recreational value to users.

sea¹⁹⁸ (normative analysis). Besides the costs on polluters, the measure of social welfare will also include the administrative costs of implementing the rule.

With regard to the limitation of liability rule, the descriptive analysis will examine the effect of limitation of liability on the behaviour of potentially liable shipowners in their decisions whether to take optimal care or not. The normative analysis will compare the social benefits of limitation of liability both in the past and today, if any, against the costs of maritime losses due to under-deterrence arising from the limitation rule. As the question of inquiry is the desirability of limitation of liability and not the liability itself, I will not discuss whether shipowners' liability is desirable in the first place. Since shipowners themselves are not opposed to their liability, I will assume that liability for maritime losses is desirable. The assumption is largely valid because liability is imposed on shipowners mainly for their fault or negligence. The LLMC 1976 (i.e., convention on general limitation of liability) does not deal with the basis of shipowners' liability¹⁹⁹ and leaves it to national laws i.e., tort and contract laws to determine liability. However, I will shortly note the conditions for shipowners' liability to be desirable at the end of the chapter.

B. Descriptive Analysis of Limitation of Liability

As limitation of liability is the opposite of full liability in concept, the existence of one reduces the effect of the other. If full liability is necessary to create optimal deterrence,

¹⁹⁸ For example, the satisfaction derived by a non-user from the knowledge of existence of clean sea.

¹⁹⁹ See the wordings in Art. 2.1 "whatever the basis of liability may be".

such deterrence will be affected to the extent liability is reduced according to the principle of limitation of liability.

1. The effect of liability on behaviour: deterrence

Liability deters potentially liable parties from being negligent in their activities. As mentioned in the introductory chapter of the thesis, a party is negligent for failing to take care or precaution when the cost of precaution is less than the expected harm. The cost of taking precaution is certain but the loss or liability is usually probabilistic; thus the loss would be expressed in expected amount. For example, if there is a 10 percent chance of a \$1,000 loss, the expected loss is \$100 (\$1,000 X 10%) and the precaution would be optimal if it costs less than \$100, say \$90.²⁰⁰ Not taking optimal precaution will amount to negligence. In the economic analysis of law literature this is known as ‘Hand Formula’, named after Judge Learned Hand. In *U. S. v. Carroll Towing Co.*,²⁰¹ Judge Hand held that a person would be negligent if $B < PL$ where B is the cost of precaution, P the probability and L the magnitude of loss.²⁰² As we assumed at the beginning of this section that liability on shipowners is desirable, we can say that precaution taken by the shipowners due to the fear of liability would save the society

²⁰⁰ The assumption here is that precaution will eliminate the accident. If precaution only reduces the probability, the optimal precaution would cost less than the difference between original expected loss and the reduced expected loss. For example, if precaution reduces the probability from 10 to 4 percent, the optimal cost of precaution would be less than \$ 60 (\$100x10% -100x4%). See Posner, *Economic Analysis of Law*, *supra* note 23 at 168.

²⁰¹ 159 F.2d 169 at 173 (2d Cir. 1947); see Posner, *Economic Analysis of Law*, *ibid* at 168.

²⁰² When only one party’s precaution can optimally eliminate or reduce the loss even though both sides can take precaution, it is socially desirable to impose liability on the “least-cost avoider”. Optimal precaution may also require precaution by both parties at the same time. See Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 5-46; Shavell, *Foundations of Economic Analysis*, *supra* note 19 ch.8. It is also noteworthy that even though optimal precaution is not possible, liability is sometimes imposed on the basis of society’s distributional preferences. See G. Calabresi and A.D. Melamed, “Property Rules, Liability Rules, and Inalienability: One View of the Cathedral,” (1972) 85 Harv. L. Rev. 1089 [hereinafter Calabresi & Melamed, “Property Rules”].

more than the cost of precaution.²⁰³ Put differently, shipowners' cost of care is less than the victims' expected loss.

2. The effect of limitation of liability: under-deterrence

In the above example, if the liability is limited to \$500, for example, instead of \$1,000, the expected liability will be less than expected loss and, as a result, a potentially liable party may not take optimal precaution.²⁰⁴ While the expected loss of a victim would be \$100, the expected liability would be \$50 (\$500 X 10%). Although taking precaution at a cost \$100 or below would be optimal precaution, a potentially liable party would only take precaution when the cost of precaution is below the expected liability i.e., \$50, assuming that the party is risk-neutral.²⁰⁵ Although the party will be held negligent for not taking care, limited liability makes it more advantageous for the party to be negligent than to take optimal precaution. Limitation of liability thus leads to under-deterrence.²⁰⁶ Being negligent would pay in situations where liability is less than the actual loss.

²⁰³ Liability on shipowners would be undesirable if the shipowners' cost of care is more than reduction in liability claimants' losses.

²⁰⁴ Besides liability, imposing corrective tax equal to expected loss may also make the potential injurer to take optimal care. However, if the government cannot observe losses or it is too costly to observe, liability would be a better approach because it creates incentives for victims to report losses. See Shavell, *Foundations of Economic Analysis*; *supra* note 19 at 93-94. See also A. C. Pigou, *The Economics of Welfare*, (4th ed) (London: Macmillan and Co., 1932).

²⁰⁵ As mentioned in the introductory chapter, 'risk-neutrality' is the opposite of 'risk-aversion'; it is the tendency to view various risks indifferently when their expected value is the same. A risk-averse party may be willing to spend more than the expected liability on care. See the discussion in the next section.

²⁰⁶ For criticism of limitation of liability in the nuclear context, see M. Trebilcock, and R. Winter, "The Economics of Nuclear Accident Law", (1997) 17 *International Review of Law and Economics*, 215 at 218 [hereinafter Trebilcock & Winter, "Nuclear Accident Law"].

The effect of limitation of liability on deterrence is similar to the effect of the inability of a party to pay judgment amount. Both may lead to under-deterrence. Like the party with limited liability, the party with assets lower than the potential judgment amount will not take optimal precaution.²⁰⁷ Drawing from the above example, if a party with assets worth \$500 may cause \$1,000 harm to a third party with a probability of 10 percent from a faulty brake in the former's car, which would cost the party \$90 to fix, it may not fix the brake even though doing so is cost-efficient i.e., less than expected loss of \$100 because the party knows that its expected liability can never be more than \$50 due to its limited assets.²⁰⁸

C. Normative Analysis of Limitation of Liability

1. Social desirability of limitation of liability in the past
 - a. Full liability may lead a risk-averse person to over-deterrence

In all the above examples we have assumed that the parties are risk-neutral. This may be justified, given the figure we used is only \$1,000. If the figure is changed from \$1,000 to \$100,000, most of us may not consider the loss merely in its expected value. We will fear more to lose \$100,000 with probability of 1 percent than to lose \$10,000 with a probability of 10 percent, although the expected loss in both cases is \$1,000. This is because most of us are risk averse in most of the time. Risk-aversion is the tendency to be more afraid of high figures of liability even though the chance of such liability is

²⁰⁷ Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 167-168.

²⁰⁸ Assuming that the party is risk-neutral and there is no risk of personal injury to itself. See generally Calabresi, *The Costs of Accidents*, *supra* note 47 at 70-74 and notes 28, 29.

very low. Risk aversion occurs due to the diminishing marginal utility of wealth.²⁰⁹ As the value of each dollar is more than the next dollar, the utility loss from losing a dollar will be more than the utility gain from an additional dollar. So, the larger the amount of loss, the higher the average value for each lost dollar despite the expected dollar figure for two losses is the same.

Risk aversion is a source of social disutility; it either creates over-deterrence or leads to excessive precaution.²¹⁰ Both cause social loss. Over-deterrence occurs when a risk averse-party will not participate in an activity due to the fear of risk even though the expected benefit will outweigh the expected cost. Such forgone benefit is a social loss. On the other hand, excessive precaution happens when a risk-averse party takes more than optimal precaution i.e., takes precaution even though B in the Hand Formula is greater than PL . For example, when investing \$100,000 in a factory will generate profit of \$2,000 per year, a risk averse-party may not do so because of the possibility of \$100,000 liability from product defect even though the possibility is just 1 percent. The foregone net benefit of \$1,000 [i.e., $2,000 - (1\% \times 100,000)$] is the social cost arising from the problem of risk-aversion. Alternatively, the risk-averse party may open the factory but invest more than \$1,000 in safety measures annually even though the expected loss without safety precaution is only \$1,000. Spending more than \$1,000 will be again a social waste because more resources are sacrificed to save less. Translating these two phenomena of risk aversion into the tendency of the investors in the days of no liability insurance or underdeveloped concept of corporation, there was the lack of

²⁰⁹ Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 258.

²¹⁰ See generally Shavell, *Foundations of Economic Analysis*, *ibid* at 260-261.

investment in the shipping business and the excessive fear of liability among the few shipowners.

b. Limitation of liability: a mechanism against over-deterrence in the past

It thus made sense in those days for the government to provide the protection of limitation of liability to shipowners in order to encourage investment in shipping sector. By safeguarding the personal assets of shipowners against the potential liability, the laws on limitation of shipowners' liability solved the problems of excessive fear in the minds of shipowners and the lack of investment in the shipping industry. The intention of the government was clearly stated in the preamble of the first English legislation on the limitation of shipowners' liability,

“Whereas it is of the greatest consequence and importance to this Kingdom, to promote the increase of the number of ships and vessels, and to prevent any discouragement to merchants and others from being interested and concerned therein....”²¹¹

Although some other reasons are also ascribed to the introduction of limitation of liability, they are mainly contributing factors to the problem of risk aversion. For example, one such reason was helplessness of shipowners in having any control against the negligence, misconduct or theft by the master and mariners once the ships left their homeports.²¹² If liability arising from such conduct were unlimited, risk-averse people

²¹¹ Preamble to *Responsibility of Shipowners Act of 1733*; cited in P. Griggs, “Limitation of Liability for Maritime Claims: the search for international uniformity”, (1997) LMCLQ 369 at 370. Similar concern was behind the American *Limitation of Liability Act*. For example, in *Moore v. American Transportation Co.*, (1860), 65 U.S. 1 at 39, the court held that the Act was adopted “to promote the building of ships, and to encourage persons engaged in the business of navigation.”

²¹² See A.H.E. Popp, Q.C. “Limitation of Liability in Maritime Law-An Assessment of its Viability from a Canadian Perspective” (1993) 24 J. Mar. L. & Comm. 335 at 336; Gilmore & Black, *supra* note 3 at 877.

would have been even more reluctant to invest into shipping. Another reason was the protection of local shipowners against foreign competition. This argument has two prongs. First, a judgment against foreign shipowners could be implemented only by the arrest of their ships, while all the personal assets of a local shipowner were exposed to liability.²¹³ Limiting the liability of local shipowners to the value of their ships gave them the level playing field with the foreign shipowners. Second, when foreign shipowners had competitive advantage because of their country's laws on limitation which enabled them to limit their liability, local shipowners argued for similar legislation in their country.²¹⁴ In the face of such foreign competition, limitation of liability was thought desirable for the already under-invested national shipping sector due to risk aversion.

2. Social desirability of limitation of liability today

a. Insurance now solves the problem of over-deterrence

The availability of liability insurance offsets the over-deterrence effect of unlimited liability on risk-averse investors. Simply put, insurance takes care of risk-aversion problem. Insurance makes the position of a risk-averse person *vis-à-vis* potential liability similar to that of a risk-neutral person. Actuarially fair premium will roughly equal the expected liability.²¹⁵ Insurance premium for \$100,000 liability with one percent probability or \$10,000 liability with ten percent chance will be the same i.e.,

²¹³ LEG/CONF.5/6 (27 Sept. 1976) in the *Official Records of the 1976 Liability Conference*, *supra* note 9 at 112-113.

²¹⁴ Senator Hannibal Hamlin of Maine, who introduced the bill on the American *Limitation of Liability Act*, argued that the new Act would put the American marine interest "upon the same basis as that of England." Cong. Globe, 31st Cong., 2d Session 332 (1851) at 713; cited in Donovan, "The Origins of Limitation" *supra* note 4 at 1015.

²¹⁵ Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 258 in note 2.

\$1,000. When the investor in our earlier example can protect itself against the yearly one percent risk of \$100,000 liability by purchasing insurance with \$1,000, it will not hesitate to invest \$100,000 in the factory when its annual profit is \$2,000 and will not take excessive precaution by spending more than \$1,000. Thus when full liability insurance is available, there is no need for limitation of liability in order to encourage the investor to invest in the factory or in the shipping business.

Shipowners in fact have virtually unlimited coverage against most of their legal liabilities. The International Group of P&I Clubs, which cover more than 90 percent of the world tonnage,²¹⁶ provides coverage up to US\$5.4 billion per incident.²¹⁷ There has been no incident in the group's history requiring coverage even above the reinsurance level, which is now \$2 billion.²¹⁸ This rebuts the shipowners' argument that there would be shortage of insurance if liability is unlimited. Capacity shortage for insurance may be true only in the case of liability for nuclear plants. Yet, some countries impose unlimited liability for nuclear damage.²¹⁹ As for the cost of shipowners' liability insurance, it represents only 3.5 to 4 percent of total operating costs.²²⁰ Although the cost may increase if there is no cap on liability, the reduction of accident rate due to

²¹⁶ Maritime liability insurance is mainly mutual insurance provided by the shipowners' P&I clubs. See for an introduction Tilley, "Origin of P&I Associations", *supra* note 97.

²¹⁷ See the Pooling Agreement of International Group of P&I Clubs; available at: http://www.igpandi.org/internal.php?primary_nav_selected=The+Group+Agreements&secondary=The+Pooling+Agreement (last visited: Mar. 11, 2009).

²¹⁸ See *ibid*; see also E. Rosaeg, "The Impact of Insurance Practices on Liability Conventions," Legislative Approaches in Maritime Law. Proceedings from the European Colloquium on Maritime Law: Lysebu, Oslo, Dec. 7- 8, 2001 at 21; available at <http://folk.uio.no/erikro/WWW/corrgr/insurance/Lysebu.pdf> (last visited: March 11, 2009) at p. 11.

²¹⁹ These countries are Switzerland, Germany, and Japan. See Trebilcock & Winter, "Nuclear Accident Law", *supra* note 206 at 221.

²²⁰ LEG/CONF.5/C.1/SR.9 (5 Nov. 1976) in *Official Records of 1976 Conference*, *supra* note 9 at 275.

optimal care induced by unlimited liability will most likely offset the additional cost of insurance.²²¹ I will discuss in detail the insurance arguments and their rebuttals in the next part of the chapter.

b. Insurance may create under-deterrence

Full insurance protection against liability may, however, create under-deterrence. Insured shipowners may have less incentive to take optimal care against a loss or liability because they do not have to pay for it directly. This tendency is known as ‘moral hazard’.²²² For example, if we modify our earlier example and assume that the factory owner can reduce the probability of \$100,000 loss from one percent to one half of a percent by spending \$400 on safety measures, the spending will be optimal as the expected liability will now be only \$500 ($\$100,000 \times 0.5\%$) and the net benefit is \$100 ($\$1,000$ (previous expected liability) – ($\$500$ present liability + $\$400$ spending on safety)). Yet, the owner may not spend \$400 on safety when it has full coverage. The insurer may, however, induce the owner to do so by offering premium reduction from \$1,000 to \$500 on condition that the owner spends \$400 on safety. Insurers would make such an offer only if they can observe or verify the precautionary measures taken by the insured.²²³

²²¹ This is also proved from the fact that insurance cost for personal injury and death claim is lower than the cost for property claim due to fewer personal injury and death claims and their lower magnitude despite the fact that the liability limit has always been higher in the personal injury and death claim. See LEG/CONF.5/C.1/SR.20 (Nov. 13, 1976) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 368-69.

²²² See Abraham, *Distributing Risk*, *supra* note 17 at 14-15.

²²³ Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 262; see also Abraham, *Distributing Risk*, *ibid* at 15.

As there are many aspects of precaution or safety measures insurers cannot observe, insureds will not take optimal precaution when coverage is full even though such precaution will ultimately reduce premium. This is because the reduction in premium may not be immediate while the cost of precaution is incurred right away. Moral hazard, when unchecked, may also lead to the ‘adverse selection’ of insurer; that is, the insurer will attract more and more high risk-individuals leading to the breakdown of insurance pool.²²⁴ However, insurers are able, by and large, to check the problem of moral hazard or under-deterrence through various strategies such as partial coverage, deductibles and differentiating premium rates based on the past loss experience.²²⁵ In other words, the problem of under-deterrence from having full insurance coverage is not unmanageable. In the maritime liability insurance context, the P&I Clubs control the problem of ‘moral hazard’ mainly by differentiating individual shipowners’ premium rates based on their claim history, loss experience, size of the fleet and condition of the entered ships. For example, in 1969 the individual tanker owner’s premium varied from 3 cents to 150 cents per gross ton in SKULD, one of the P&I clubs.²²⁶

c. Corporation: another mechanism to ameliorate the problem of over-deterrence

Like limitation of liability, the concept of corporation was introduced as a mechanism to encourage investment in socially beneficial activities.²²⁷ It is, therefore, no surprise that

²²⁴ G. L. Priest, “The Current Insurance Crisis and Modern Tort Law,” (1986-87) 96 Yale L.J. 1521 [hereinafter Priest, “Insurance Crisis”]; *Distributing Risk*, *ibid* at 15.

²²⁵ See *infra* chapter six on the details of these insurance mechanisms.

²²⁶ LEG/CONF.2/C.1/WP. 3 (30 Nov. 1971) in *Official Records of the Conference on the Establishment of an International Compensation Fund for Oil Pollution Damage 1971* (IMCO, London: 1978) at 242 [hereinafter *Official Records of the 1971 Fund Conference*].

²²⁷ In commenting on the US *Limitation of Liability Act* of 1851, Homes said, “The legislators to whom we owe this act argued that, if a merchant embark a portion of his property upon a hazardous venture, it is

both concepts gained legal recognition through the relevant legislation around the same time.²²⁸ By limiting the liability of investors to the amount of their investment, the concept of limited corporate liability encourages risk-averse people to invest. In fact, limited corporate liability and shipowners' limitation of liability did serve the identical purpose in the past. For example, five people could put part of their assets into shipping business and could limit their liability to the value of the ship. Alternatively, they could, as they still can, form a shipping company with the only asset of the company being the ship. In both the cases, their personal and the total exposure to liability was the same.²²⁹

As shipowners can form corporation, and most of them do so any way, there is no longer any justification of limitation of liability on the basis of individual shipowner's risk aversion.²³⁰ As corporations the liability of these shipowners is already limited to the assets of the corporations. Limitation of liability now gives the shipowners additional benefit to further limit the limited liability of the corporations. A shipowning corporation may not only form one company for all its ships but one company for each ship in the fleet. The practice of forming one-ship-company is common among corporate shipowners to shield the liability of corporation against its other ships in case limitation principle does not apply due to any conducts barring limitation.²³¹

reasonable that his stake should be confined to what he puts at risk, - *a principle similar to that on which corporations have been so largely created* in America during the last fifty years." Holmes, *Common Law*, *supra* note 75 at 6-7 (emphasis added).

²²⁸ Lord Mustill, "Ships are different – or are they?", (1993) LMCLQ 490 at 492.

²²⁹ Limitation proceedings resemble bankruptcy proceedings in many respects. See *The Liverpool (No. 2)* [1963] P. 64, [1960] 3 All ER 307, [1960] 3 WLR 597, [1960] 2 Lloyd's Rep. 66 (CA).

²³⁰ Gilmore & Black, *supra* note 3 at 818 and 822.

²³¹ See M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 149-150. For conducts barring limitation see Article 4 of LLMC 1976.

To be sure, the problem of under-deterrence also arises from the limited liability of a corporation to its assets. The problem may be serious when a corporation can hide its assets by forming various subsidiary companies. However, in the case of corporations this problem may be partially restrained by minimum asset requirement or compulsory insurance before engaging in an activity.²³² Although compulsory insurance is also a feature of many maritime liability conventions, the insurance coverage is required only up to the same amount as that under limitation of liability. With the availability of well-developed liability insurance, even the justification of the limited liability for corporation to its assets may be questioned today.²³³ This may explain the growing trend towards compulsory insurance in many areas of activities usually undertaken by corporations.²³⁴

III. Limitation of Liability and Insurance Arguments

As indicated in the beginning of the chapter, shipowners use insurance arguments to maintain the privilege of limitation of liability. Insurance argument has many strands. The main two strands are the capacity of insurance market and the reasonable cost of insurance. For example, the International Chamber of Shipping (ICS) stated in a submission to the 1976 Limitation of Liability Conference, "...the main justification of

²³² Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 231-232.

²³³ In a corporation with limited liability, the creditors of the corporation bear the risk of the corporation's liability exceeding its asset. Creditors are thus in a position of insurer for the corporation. On the other hand, if liability were unlimited, the corporation would buy market insurance directly against such liability. See P. Halpern, M. Trebilcock and S. Turnbull, "An Economic Analysis of Limited Liability in Corporation Law" (1980) 30 U. Toronto L. J. 117 at 126, 128-9, 138.

²³⁴ Liability insurance is compulsory in nuclear liability and oil pollution liability. For nuclear conventions, see Convention on Third Party Liability in the Field of Nuclear Energy, 1960, 1041 UNTS 358 (with a supplementary Convention in 1963, 956 UNTS 264) [hereinafter Paris Convention], Convention on Civil Liability for Nuclear Damage, 1963, 1063 UNTS 265, as amended by its 1997 Protocol, (1997) 36 ILM 1454 [hereinafter Vienna Convention].

limitation of liability today is the insurability of the risk with its two elements, the availability of cover and economic cost.”²³⁵ On the other hand, those who propose the abolition of this principle find the widespread presence of insurance as justification for their position.²³⁶ We will examine here which side is more accurate in their assertions.

The first insurance argument in support of maintaining the principle of limitation is that there would be the lack of market capacity to provide coverage if liability were unlimited. However, the complete lack of coverage is rare and temporary no matter how high the liability may be; such a situation may arise in reaction to a sudden and unexpected increase in liability payouts. For example, after September 11, 2001, there was temporary lack of coverage for terrorism related insurance.²³⁷ Similarly, there was the total lack of coverage for certain products in the 1980’s due to sudden increase in court awards for product-related injuries.²³⁸ Partial lack of coverage is what shipowners probably mean by the lack of coverage against unlimited liability. The argument is that a maritime liability, if unlimited or increased by a significant margin, cannot be insured fully in the market.²³⁹

²³⁵ LEG/CONF.5/6 (27 Sept. 1976) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 112-113.

²³⁶ “An Act [US Limitation of Liability Act] which is so vicious in its impact, unconscionable in its results, and outmoded in an age of institutional protective insurance, if it cannot be repealed outright, deserves only a narrow, grudging and constrictive construction.”(1959) 24 *Nacca L.J.* 223 at 225; cited in *Gilmore & Black*, *supra* note 3 at 822 note 13d (emphasis added).

²³⁷ *Swiss Re, Reinsurance – a systemic risk?* (Swiss Re, *sigma* No. 5/2003) at 15 [hereinafter *Reinsurance*].

²³⁸ See Priest, “Insurance Crisis”, *supra* note 224.

²³⁹ See generally, LEG/CONF.5/6 (27 Sept.1976) (comments of ICS) in the *Official Records of the 1976 Liability Conference*, *supra* note 9 at 112-117.

The second line of insurance argument is the cost of insurance. The argument goes that the cost of insurance for unlimited liability will be too heavy a burden on shipowners even if the market has the capacity to cover such liability. A related argument is that the limited liability entails lower insurance cost; this in turn keeps the price of goods shipped via sea lower. On the other hand, high premium for liability insurance would lead to an increase in freight rates and passenger fares and would cause the price of consumer goods go up.²⁴⁰ It is also argued that unlimited liability or a substantial increase in the liability limit would have a shocking effect on the insurance cost of the low tonnage vessels of the developing countries and would lead to excessive increase in the transportation cost.²⁴¹ Unfortunately, the argument of unreasonable insurance cost is made most of the time without any evidence in the form of statistical data. Whenever, there is some available data, they actually prove the opposite of the above contention.²⁴² Shipowners and their representative organizations would use the arguments of capacity and/or cost of insurance without exception whenever there is any discussion about the abolition of limitation or about the substantial increase of liability limit.

A shipowner can incur liability either in a contractual situation (e.g., the contract of cargo carriage) or in non-contractual situation such as pollution liability to third parties (e.g., affected fishermen or government entities). In the context of contractual liability, there is another strand of insurance argument; it relates to cost-efficiency, that is, who between the two parties to the contract can insure against the losses/liabilities with

²⁴⁰ *Ibid* at 115.

²⁴¹ LEG/CONF.5/C.1/SR.9 (5 Nov.1976) (comments of the Netherlands delegation), *ibid* at 274.

²⁴² For example with regard to cost of insurance in oil pollution liability see H. Smets, "The oil spill risk: economic assessment and compensation limit", (1983) J. Mar. L. & Com. 23 at 31-43.

lower cost.²⁴³ Again, answering this question requires actual data on various insurance costs of the both parties. Yet, data is very seldom produced either due to the lack of the data or probably due to the vested interest of the parties possessing the data in not revealing them. Consequently, the representatives of States attending maritime liability conferences adopt maritime conventions without much real evidence on either the capacity or the cost of insurance. As ship-owning nations and the third world countries are usually opposed to any increase in the shipowners' liability and as they outnumber the countries proposing higher liability, the maritime liability laws remain heavily biased in favour of shipowners. Below are some representative samples on how insurance arguments were used to maintain limitation of liability in some specific maritime liability conventions.

A. Insurance Arguments in Specific Maritime Liability Conventions

As mentioned at the beginning of the chapter, the common denominator of maritime liability conventions is that they all contain the concept of limited liability. The above insurance arguments have been made to support limitation of liability in almost every area of maritime liability law. In this section I will discuss the provisions on limitation of liability in some of the maritime conventions and the insurance arguments made during the adoption of or the subsequent amendments to these conventions. I will start with general liability convention and then will proceed with specific area-wise or special liability conventions.

²⁴³ See Sturley, "Changing Liability Rules" *supra* note 179.

1. General Liability Conventions²⁴⁴

The conventions on general limitation of liability, also known as global limitation, apply to all liability claims except those related to salvage, oil pollution damage falling under the CLC, nuclear damage and crew's contracts in certain circumstance.²⁴⁵ The latest convention on general limitation of liability is the LLMC 1976. The convention was adopted for two reasons: first, to increase the liability limit as the monetary value of the previous 1957 Convention's limit was much eroded due to inflation and, second, to make the breaking of the liability limit very difficult because the earlier test of 'fault or privity' of the owner under the 1957 Convention was liberally interpreted by the courts to deprive shipowners of their right to limit liability.²⁴⁶

With regard to the first objective, most of the States recognized the need for an increase above the 1957 Convention's limit and wanted the new limit to be "as high as the cost of insurance and the market capacity allow".²⁴⁷ With regard to the second objective, article 4 of the new convention made the limitation of liability almost unbreakable.²⁴⁸ The apparent justification for this unbreakable limit was that it would create certainty in the expected liability and certainty would lead to reduction in litigation. Reduced

²⁴⁴ Although there are three conventions on general liability, I will confine my discussion mainly to the latest one i.e., LLMC 1976. The conventions are: a. 1924 Liability Convention, b. 1957 Convention, and c. Convention on Limitation of Liability for Maritime Claims, 1976, (1977) 16 I.L.M. 606 [hereinafter LLMC 1976].

²⁴⁵ See article 3 of LLMC 1976.

²⁴⁶ Griggs et al., *Limitation of Liability*, *supra* note 171 at 3.

²⁴⁷ LEG/CONF.5/4 (27 Sept. 1976) and LEG/CONF.5/4 (27 Oct.1976) (New Zealand) in the *Official Records of the 1976 Liability Conference*, *supra* note 9 at 72 and 107 respectively.

²⁴⁸ Canada opposed the unbreakable limit as this would diminish the incentives of shipowners to take care especially when there is no trade-off by increasing the limit substantially. LEG/CONF.5/C.1/SR.8 (5 Nov.1976) in *ibid* at 269.

litigation would in turn lower insurance costs.²⁴⁹ Insurance was thus the most important consideration behind both objectives.

As for the limitation of liability, States agreed that just in order to restore the value of the 1957 Convention's limit in 1976, it was necessary for the new convention to adopt a liability limit which is double the limit of the 1957 Convention.²⁵⁰ Yet, the majority of the States did not want the liability limit in the new convention to be more than double the 1957 limit again on the ground of insurance cost and capacity. However, they produced little evidence to demonstrate the actual market capacity or what would be the reasonable cost of insurance. On the other hand, the proponents of higher liability limit (i.e. more than double the 1957 Convention's limit) produced some evidence, which was not contradicted by the opponents, to show the existence of almost unlimited capacity of liability insurance at a reasonable cost. For example, the US delegate presented evidence that there was no shortage of capacity in the insurance market to meet the liability insurance needs of shipowners and the insurance cost would be very reasonable for liability limit exceeding the amount of the 1957 Convention's limit by more than double.²⁵¹ They showed that some US vessels at that time had liability coverage in excess of \$100 million at commercially acceptable rates. US delegate also argued that doubling the 1957 Convention's limit would simply adjust for inflation and

²⁴⁹ LEG/CONF.5/4 (27 Sept. 1976) (Norway); LEG/CONF.5/6 (27 Sept.1976) (International Chamber of Shipping) in the *Official Records of the 1976 Liability Conference*, *supra* note 9 at 70-73 and 113-114 respectively.

²⁵⁰ LEG/CONF.5/4 (27 Sept. 1976); *ibid* at 76-77.

²⁵¹ LEG/CONF.5/C.1/WP.32 (3 Nov.1976) (USA); *ibid* at 159.

much higher limit would be required to justify the new test to break liability limit under article 4.²⁵²

With regard to insurance cost, Argentinean delegation produced evidence that doubling the existing liability limit would increase the current operating cost of shipowners by less than 0.6 to 0.8 percent. This is because insurance cost represented only 7 to 8 percent of the total operating cost of shipowners.²⁵³ Liability insurance cost was 50 percent of the total insurance cost or 3.5 to 4 percent of the operating cost. Any increase in the liability would not entail a proportionate increase in the cost but would be at a reduced ratio because shipowners and their insurers would have pay more than what they paid under the 1957 Convention only in few incidents involving liability above the existing limit. This would only raise the premium of the P&I clubs (the liability insurers of shipowners) for their excess of loss reinsurance; reinsurance cost accounts for only 15 to 20 percent of the total liability insurance costs (i.e. 0.6 to 0.8 percent of the total operating cost).²⁵⁴

As any international convention is a compromise among States representing diverse interests, the ultimate liability limit in the convention is more a reflection of an average figure of various proposed limits than an amount based either on the reasonable cost of insurance or on the capacity of the insurance market. US delegation proposed the liability limit for personal claims to be between US\$1,500 to US\$1,900 per ton for the

²⁵² *Ibid* at 160.

²⁵³ LEG/CONF.5/C.1/SR.9 (5 Nov. 1976); *ibid* at 275.

²⁵⁴ *Ibid*.

first 10,000 tons and thereafter US\$350 to US\$400 per ton. For property damage, it proposed US\$600 to US\$700 for the first tier and US\$100 to US\$150 for the second tier.²⁵⁵ On the other hand, two shipowning nations Sweden and Norway proposed for personal claims US\$500 per ton up to 30,000 tons and US\$250 per ton above 30,000 tons. As for the property claims, their proposed amount was US\$300 and US\$150 per ton for the two tiers respectively.²⁵⁶ India proposed a three-tier system with US\$300 (personal injury) and US\$100 (property) per ton up to 30,000 tons, US\$200 and US\$75 for each additional ton above 30,000, and US\$100 and US\$50 for each extra ton above 70,000 tons for personal injury and property claims respectively.²⁵⁷ The limit adopted by the Conference was: maximum liability of US\$400,000 and US\$200,000 to meet the personal injury claims and the property claims respectively for any ship up to 500 tons. For each additional ton between 501 to 30,000 tons, the limit was US\$600 and US\$200 respectively. From 30,001 to 70,000 tons the liability was maximum US\$300 per ton for personal injury claims and US\$150 per ton for property claims and for any additional ton above 70,000 it was US\$200 and US\$100 respectively.²⁵⁸ Although Canada did not propose any specific liability limit, the Canadian delegation wanted the limit as high as possible in the light of insurance market's capacity.²⁵⁹

The above liability limit was little more than double the amount of the 1957 Convention for ships with 30,000 tons or below and just restored the value of the 1957 Convention's

²⁵⁵ LEG/CONF.5/C.1/WP.58 (8 Nov. 1976) (USA); *ibid* at 184.

²⁵⁶ LEG/CONF.5/C.1/WP.35 (3 Nov. 1976), *ibid* at 162-63.

²⁵⁷ LEG/CONF.5/C.1/SR.7 (4 Nov. 1976), *ibid* at 255.

²⁵⁸ LEG/CONF.5/C.1/WP.82 (15 Nov.1976), *ibid* at 203-204. The figures were initially adopted in the US dollars and later converted to SDR (Special Drawing Right), the monetary unit of the International Monetary Fund (IMF).

²⁵⁹ See LEG/CONF.5/C.1/SR. 1 (1 Nov. 1976), *ibid* at 210.

limit in 1976. However, liability limit for larger ships was actually reduced from the 1957 Convention's limit in terms of monetary value because of the new 'tapering system'. Under this system, the higher the tonnage of a ship the lower is the per ton liability limit. On the other hand, there was a single per ton limit for ships of all sizes under the 1957 Convention. In order to impose the same liability as that under the 1957 Convention in terms of value, the liability limit under the LLMC 1976 needed to be US\$600 per ton for personal injury and US\$200 per ton for property claims regardless the size of a ship.²⁶⁰ However, because of the tapering system any ship above 30,000 tons would be able to limit its liability for each additional ton to half that amount (i.e. US\$300 and US\$150 respectively) under the LLMC 1976.²⁶¹ The tapering system thus favours larger ships, although the danger presented by a ship does not necessarily decrease in proportion to its tonnage increase.²⁶² It is worth mentioning here that the 1996 Protocol²⁶³ to the LLMC 1976 increased the above liability limit by 2.4 times.²⁶⁴ The Protocol came into force on May 13, 2004.²⁶⁵

Higher liability limit is provided for personal claims on the ground that people suffering from personal injuries are less likely to be insured than the owners of lost or damaged

²⁶⁰ This figure is taken from the proposal of the Federal Republic of Germany, which proposed one limit per ton regardless of the size of the ship. The figure is approximately double the 1957 Convention's limit. See LEG/CONF.5/C.1/SR.8 (5 Nov. 1976); *ibid* at 265.

²⁶¹ See the chart above.

²⁶² LEG/CONF.5/C.1/SR.8 (5 Nov. 1976); *Official Records of the 1976 Liability Conference*, *supra* note 9 at 265

²⁶³ See 1996 Protocol to LLMC 1976; LEG/CONF.10/DC.2 (May 2, 1996).

²⁶⁴ P. Wetterstein, "Carriage of Hazardous Cargoes by Sea – the HNS Convention", (1996/97) 26 Ga. J. Int'l & Comp. L. 595 at 608 note 41 [hereinafter Wetterstein, "Carriage of Hazardous Cargoes"].

²⁶⁵ See the status of the IMO Conventions at IMO website:
http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

cargo/property.²⁶⁶ Thus, there are two separate limitation funds: one for property claims and another for personal injury or death claims. However, if personal injury fund is exhausted, the personal injury claimants can share property fund pro rata with property claimants.²⁶⁷ The opposite arrangements were not adopted on the ground of possible increase in insurance cost.²⁶⁸ To elaborate, the insurance cost for personal injury fund is usually less than that for property claim fund despite the fact that the liability limit is higher in the former due to comparatively fewer personal claims.²⁶⁹ If unused personal injury fund were open for spill-over to property claim fund in the event the total property claims exceed the limit of the property fund, it was argued that the insurance cost of personal injury fund would increase substantially.²⁷⁰ This again shows that any proposal for change in the maritime liability system with the possible consequence of slight increase in the shipowners' insurance costs met with opposition from the ship-owning States.

As can be seen from the above discussion, the limits of liability were adopted not based on the capacity of insurance market but on the consideration of shipowners' insurance costs. Even though shipowners' stated reason for a lower limit was to keep the insurance cost at a reasonable rate, their ultimate consideration appeared to be to keep

²⁶⁶ LEG/CONF.5/6 (27 Sept.1976) (ICS), *ibid* at 114; LEG/CONF.5/C.1/SR.8 (5 Nov. 1976); *Official Records of the 1976 Liability Conference*, *supra* note 9 at 266.

²⁶⁷ Article 6.2 of LLMC 1976.

²⁶⁸ A proposal for spill-over from unused personal claim fund to property claim fund when property claims exceed the limit of the property fund was rejected. LEG/CONF.5/C.1/WP.76 (proposal by Australia, Italy and Norway), *Official Records of the 1976 Liability Conference*, *supra* note 9 at 135.

²⁶⁹ LEG/CONF.5/C.1/SR 20 (13 Nov.1976), *ibid* at 368-72. This fact incidentally proves that very high or unlimited liability will not necessarily lead to increased insurance cost if the number of liability incidents is reduced following the increase of liability or abolition of limitation.

²⁷⁰ *Ibid* at 369.

the cost at the lowest possible amount not at a reasonable amount. Thus, limitation of liability is a means to cut the cost of shipping companies at the expense of other users of the sea. A reasonable cost implies a cost not too burdensome on shipowners. To impose a liability limit in the LLMC 1976 three/four times higher than that of the 1957 Convention would have increased the operating cost of shipowners only by .05 to 1 percent.²⁷¹

2. Cargo Liability Conventions²⁷²

Liability for cargo damage is subject to the above limitation of liability.²⁷³ It is limited further by a package/weight limitation under cargo liability conventions.²⁷⁴ In other words, even when cargo loss is within the global limitation amount, a shipowner's liability for such loss can be further reduced by the package/weight limitation formula under the cargo conventions unless the cargo owner declares the full value of the cargo.²⁷⁵ On the other hand, if the package/weight formula gives a higher liability limit than the global limit, the liability would be reduced to the global limit. Cargo owners thus face double limitations.

Despite the availability of global limitation under the LLMC 1976, shipowners oppose any increase in the package/weight limitation in cargo conventions, again using the

²⁷¹ LEG/CONF.5/C.1/SR.9 (5 Nov. 1976); *ibid* at 275-76.

²⁷² Again the discussion will be mainly on the latest Convention i.e., the *Hamburg Rules*. For the list of cargo liability conventions, see *supra* note 11.

²⁷³ See article 2.1(a) and (b) of LLMC 1976.

²⁷⁴ See Griggs et al., *Limitation of Liability*, *supra* note 171 at 134-136. Limits under cargo liability conventions are supposed to be the minimum limit and limits under the general liability convention are the maximum limit.

²⁷⁵ Sturley, "Changing Liability Rules", *supra* note 179 at 130.

insurance arguments. For example, when the Hamburg Rules were adopted, *inter alia*, to increase the package/weight limitation, shipowners argued that the insurance cost would become substantial if the new convention comes into force. As both cargo owners and shipowners invariably have insurance against cargo losses and liabilities respectively, the insurance arguments here mainly revolve around the minimization of overall insurance cost.²⁷⁶ Both sides²⁷⁷ agree that insurance cost can be reduced by three ways: a) by reducing the administrative cost through avoiding the expenses of ‘double insurance’ and through shifting the loss to ‘cheaper insurer’, b) by reducing the number of litigation through removing ambiguity in legal provisions and c) by reducing the number of accidents through providing incentives to take care. What both sides do not see eye to eye is how these transitional goals (reduction in administrative costs and in litigation, and improvement of incentives) can be achieved in order to realize the final goal of minimizing insurance costs.

With regard to the reduction in administrative/transaction cost, both sides want to avoid the costs of ‘double insurance’ i.e., the purchase of insurance both by cargo owner and shipowner for the same cargo. However, cargo owners think that shifting all liability for cargo damage to shipowners will save the cost of unnecessary double insurance. The counter argument from shipowners is that even if liability for cargo loss were fully shifted to them, cargo owners would still carry cargo insurance because of the convenience, direct and fast claim settlement, the certainty of payment (in case the

²⁷⁶ *Ibid* at 120-121.

²⁷⁷ In the discussion, ‘cargo owners’ and ‘shipowners’ are used in a wider sense to include any one presenting arguments favouring cargo owners and shipowners respectively.

liable shipowner is bankrupt) and the one stop coverage for all cargo claims including those which occurred outside the ships.²⁷⁸ Thus shipowners argue that since cargo owners would have insurance any way,²⁷⁹ leaving the losses with the cargo owners would save the cost of 'double insurance'. The cargo owners' usual reply is that even if they continue to subscribe to cargo insurance when the cargo losses are shifted to the shipowners, cargo insurance premium would be substantially less because of cargo insurers' right of subrogation against the shipowners or their liability insurers.²⁸⁰ In addition, shipowners too will have liability insurance for their other claims such collision, pollution or damage to third party even if they were fully exonerated from cargo liability.

Another argument with regard to the reduction in administrative cost is the argument of 'cheaper insurer'. The gist of the argument is that the party who can insure the losses at a lower cost should bear the losses. Again, shipowners argue that insurance by cargo owners would be cheaper because as a first party insurance cargo insurance involves only one insurer and direct payment, whereas in a liability insurance there would be the involvement of two insurers (cargo insurer and liability insurer) and indirect payment.²⁸¹ They further argue that cargo owners can more easily pass the cost of insurance to consumers in the price of the products and with less transaction cost. On the other hand, cargo owners argue that liability insurance through the P&I clubs is

²⁷⁸ Sturley, "Changing Liability Rules", *supra* note 179 at 143-44.

²⁷⁹ Cargo owners need coverage even for losses which may not be limited by package/weight formula because liability will be limited by the shipowners' global limitation.

²⁸⁰ R. Hellawell, "Less-Developed Countries and Developed Country Law: Problems for the Law of Admiralty", (1968) 7 Colum. J. Transnat'l L. 203 at 212.

²⁸¹ Sturley, "Changing Liability Rules", *supra* note 179 at 145.

relatively less expensive because as mutual insurance companies the clubs do not have to make a profit on insurance services they provide.²⁸² As there is lack of empirical evidence on the actual insurance cost of both sides, the insurance argument in terms of reduction of administrative cost by shifting the burden of loss to a particular side remains unproven.²⁸³

There may be several reasons for the lack of empirical evidence. First, it is hard to calculate the cost of insurance especially for cargo-related liability alone because the liability insurance (P&I insurance) covers many different liabilities of the insured shipowner.²⁸⁴ Second, premium varies from insured to insured as it is based on the past claims of an insured, the size of business and the area of trading.²⁸⁵ As a result, it may be difficult to determine average insurance cost for cargo loss or liability. Even where such evidence is available, insurers may not want to share the information with outsiders.²⁸⁶

With regard to the reduction of litigation and, consequently, the insurance cost through removing the ambiguity in legal provisions, the proponents of each legal regime argue that the provisions in that regime are clearer and thus would require less judicial intervention.²⁸⁷ For example, the proponents of Hamburg Rules argued that many of its provisions would clarify the various ambiguous situations in cargo liability and would

²⁸² *Ibid* at 145.

²⁸³ *Ibid* at 148-149.

²⁸⁴ Rosaeg, "The Impact of Insurance Practices", *supra* note 218 at 11.

²⁸⁵ *Ibid*.

²⁸⁶ Sweeney, "The UNCITRAL Draft Convention on Carriage of Goods by Sea (Part I)," *supra* note 142 at 108.

²⁸⁷ Sturley, "Changing Liability Rules", *supra* note 179 at 133-143.

in turn reduce litigation. As shipowners were opposed to *Hamburg Rules* because of its increased limit, they argued that the *Hamburg Rules* would bring more ambiguity in the cargo liability regime than does the *Hague* or *Hague-Visby Rules*. As both sides' analyses were based on the selective rules and not on the rules as a whole, their arguments are only partially true.²⁸⁸

The above insurance arguments ignore the main goal of liability law i.e., the deterrence from negligence or the creation of incentives to take care. When liability rules can create incentives, imposing liability on the parties who can take care will lead to the reduction of losses. This will also ultimately bring down the cost of insurance.²⁸⁹ Once the cargo is placed under shipowners' care, they should be responsible for any loss of or damage to the cargo as the cargo owners have no control over the cargo during its transportation. Although shipowners might argue that the incentive effects of imposing liability on them are diluted by various factors,²⁹⁰ such factors are present in every liability law to greater or lesser extent. In order to create optimal incentives, a liable party should bear the full liability (i.e., unlimited liability) even though the liability claimant is fully insured.²⁹¹ Optimal incentives are thus not possible in the current structure of cargo liability law because of the double limitation under the LLMC 1976 as well as under the cargo liability conventions.

²⁸⁸ *Ibid* at 141-142.

²⁸⁹ *Ibid* at 121.

²⁹⁰ Such as the potential liable party's lack of knowledge with regard to the magnitude of loss, probability of such loss both with and without precautions, cost of precautions or lack of knowledge of liability rules and absence of personal responsibility of crews for the loss; *ibid* at 125-133.

²⁹¹ Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 235-236.

3. Convention on Passengers' Liability

Although the LLMC 1976 also applies to the passengers' liability claims, the liability limit for passengers' claims is higher than that for non-passengers.²⁹² The limit for passengers' claims is set at the same amount as that prescribed under the PAL 1974.²⁹³ However, there may arise some inconsistencies between the two conventions when one convention is amended without the corresponding amendments in the other or when similar amendments to both conventions do not come into force at the same time. For example, the 1996 Protocol to the LLMC 1976 increased the limit from SDR 46,666 to SDR 170,000 per passenger in line with the 1990 Protocol to the PAL 1974.²⁹⁴ As the 1996 Protocol came into force²⁹⁵ but the 1990 Protocol was abandoned, presently the amended LLMC 1976 provides higher per passenger liability. Unfortunately, the passengers cannot take advantage of the higher limit under the amended LLMC 1976 as they can make their claims only under the PAL 1974.²⁹⁶ On the other hand, the 2002 Protocol to PAL 1974 provides higher limit²⁹⁷ than the 1996 Protocol to the LLMC 1976. However, shipowners would still be able to take advantage of the lower limit under the 1996 Protocol even when the 2002 Protocol enters into force.²⁹⁸ Like cargo owners, passengers too then would face double limitation.

²⁹² Articles 6.1(a) and 7 of LLMC 1976 for liability limit of non-passengers and passengers respectively.

²⁹³ Athens Convention Relating to the Carriage of Passengers and their Luggage by Sea, 1974; (1975) 14 ILM 945. [hereinafter PAL 1974].

²⁹⁴ See Article 4 of the 1996 Protocol to LLMC 1996.

²⁹⁵ The Protocol came into force on May 13, 2004. See the status of the IMO Conventions at IMO website: http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

²⁹⁶ Article 14 of PAL 1974.

²⁹⁷ SDR 250, 000 to SDR 400,000 per passenger; Article 4.2 of the 2002 Protocol.

²⁹⁸ Article 19 of PAL 1974. See also Griggs et al., *Limitation of Liability*, *supra* note 171 at 52-55 and 109.

With regard to the liability limit on passengers' claims, insurance arguments were made during the adoption of both the LLMC 1976, and the PAL 1974 and its Protocols. For example, the LLMC 1976 limited the total exposure of passenger ships to SDR25 million arguing the capacity and the cost of insurance market²⁹⁹ even though the liability was already limited to SDR 46,666 per passenger under the PAL 1974.³⁰⁰ Similar arguments were also made during the negotiation of the PAL 1974 and its Protocols without presenting much evidence.³⁰¹ Like the case with the general liability limit, evidence shows that substantial increase in the liability for passenger claims would raise the insurance cost by a small margin. Even the insurance industry admitted that an increase in the passenger liability limit from SDR 175,000 to SDR 350,000 per passenger would raise the insurance cost per passenger for each operating day from US\$0.88 to US\$1.10 i.e. an increase of only twenty two cents.³⁰²

Passenger claims are becoming increasingly important with regard to cruise ships. As many passengers of these ships are the US citizens, the US did not sign the PAL 1974, citing the lower liability limit as a cause. During the negotiation of the LLMC 1976, Article 7 of which contains a limit on per passenger claim and a cap on the total liability of shipowners for all passengers' claims, the US proposed to increase the liability limit on passengers' claims at least up to that of Warsaw Convention on airline's liability for

²⁹⁹ LEG/CONF.5/6 (27 Sept. 1976) (ICS) LEG/CONF.5/C.1/SR.11 (8 Nov. 1976) (comments of Norway delegate, Mr. Selvig) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 115 and 286 respectively.

³⁰⁰ Article 7 of PAL 1974. It was 700,000 francs which was converted to SDR46,666 by Article II of the 1976 Protocol, (1977)16 I.L.M. 625.

³⁰¹ Rosaeg, "Impact of Insurance Considerations", *supra* note 218 at 25.

³⁰² *Ibid* at 11.

passengers.³⁰³ The limit under Warsaw Convention was about \$300,000 per passenger during the negotiation of the LLMC 1976.³⁰⁴ The US delegation argued that there is no justifiable reason for the lower liability limit for passenger claims in marine transport than in aviation.³⁰⁵

As repeated throughout the thesis, limitation of liability affects both the deterrence and compensation goals of liability rules. Although in the case of cargo liability the lack of full compensation may not hurt cargo owners badly as they are usually insured against cargo loss, personal injury claimants (both passengers and non-passengers) are less likely than cargo owners to have insurance coverage for their personal injury and death. The delegates to the 1976 Liability Conference took notice of this fact.³⁰⁶ Yet, they failed to provide unlimited liability for the personal claims of passengers and non-passengers.

4. Conventions on Oil Pollution Liability

Until 1969 oil pollution liability was governed by the general maritime liability conventions. Following the *Torrey Canyon* incident in 1967, the inadequacy of general liability convention to cover the cleanup cost and pollution damage from an oil spill became evident.³⁰⁷ As a result, the international community adopted the Convention on

³⁰³ LEG/CONF.5/C.1/WP.33 (3 Nov.1976) (USA) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 161.

³⁰⁴ LEG/CONF.5/C.1/SR.11 (8 Nov.1976), *ibid* at 286.

³⁰⁵ *Ibid.*

³⁰⁶ LEG/CONF.5/6 (27 Sept.1976) (ICS); *ibid* at 114.

³⁰⁷ General limitation of liability at that time was governed by the 1957 Convention with the liability limit of 1000 gold francs (\$67) per limitation ton for property damage. However, as the US was not party to this convention and the liability limit was based on the value of the ship after the damage, a US District

Civil Liability for Oil Pollution Damage (CLC).³⁰⁸ A second convention, the Fund Convention, was adopted in 1971 to establish the IOPC Fund for additional compensation. With subsequent amendments to these conventions,³⁰⁹ maximum compensation under them could be up to SDR203 million.³¹⁰ Also a third tier of compensation up to SDR750 million is now available through the Supplementary Fund, which came into effect in March, 2005.³¹¹

Although oil pollution liability regime now provides adequate compensation for most of the oil pollution incidents, shipowners initially fought hard against any additional liability for oil pollution above the general liability limit.³¹² Again, their arguments revolved around the high cost of insurance and the lack of market capacity. As usual, there was not much evidence to support these arguments. After long negotiation, shipowners' liability for oil pollution was set at 2,000 francs (US\$134) per ton,³¹³ double the limit under the then existing general liability convention i.e., the 1957

Court held the liability to be only \$50, the value of the single salvaged lifeboat. The cleanup cost the British and French government about \$13 million. See *In re Barracuda Tanker Corp.*, 228 (S.D.N.Y.1960); Kiern, "OPA: A Review of the First Decade", *supra* note 150 at 503.

³⁰⁸ (1970) 9 I.L.M. 45; 973 UNTS 3.

³⁰⁹ See chapter five for various amendments.

³¹⁰ See articles V.1 of CLC and 4.4 of Fund Convention. Under article V.1 of CLC the calculation is based on the tonnage of the ships and shipowners' maximum liability limit is SDR89.77 million. However, for owners of ships with 5,000 gross register ton (grt) or less, the maximum is SDR4.51 million. Any ship above 5,000 grt may incur additional liability of SDR631 per ton, but the total could not exceed the SDR89.77 million. It is noteworthy that one grt is equivalent to 100 cubic feet of enclosed space in a ship.

³¹¹ See the status of Conventions at IMO webpage:

http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

³¹² See generally M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at chapter 5 and Appendix II.

³¹³ Article V.1 of CLC 1969.

Convention. The maximum liability was limited to 210 million francs (\$14m).³¹⁴ Yet, arguing the lack of insurance market capacity shipowners and maritime States refused to accept the new regime unless the additional amount of liability³¹⁵ on shipowners was reimbursed by oil companies.³¹⁶ Shipowners' argument led to the adoption of a resolution to the effect that Fund Convention, when adopted, would contain provisions on reimbursement.

During the negotiation of Fund Convention in 1971, the oil companies became reluctant to provide any reimbursement as it was revealed at that time that the cost of insurance for oil pollution liability was not as high as argued by shipowners during 1969. The revelation came from the cost of TOVALOP,³¹⁷ a voluntary agreement³¹⁸ whereby shipowners agreed to bear the oil pollution liability up to about \$115 (1725 francs) per ton before the entry into force of the CLC. Insurance costs for TOVALOP were only extra 7.5 cents per gross ton in 1970 and 2.5 cents in 1971. Oil companies used this information to argue that the existence of TOVALOP proved the capacity of market to cover the additional liability at a reasonable cost.³¹⁹ Further, as the cost of TOVALOP was already factored into the charter hire or freight rate, the need for relief for extra

³¹⁴ *Ibid*; see also LEG/CONF.2/5 (21 Oct. 1971) (memorandum submitted by the ICS) in *Official Records of the 1971 Fund Conference*, *supra* note 226 at 199.

³¹⁵ I.e., 1000 francs (2000 francs under CLC minus 1000 francs under 1957 Convention).

³¹⁶ *Official Records of the International Legal Conference on Marine Pollution Damage 1969*, Document LEG/CONF/C.2/SR17, IMO, 727; cited in M. Faure, an W. Hui, "Economic Analysis of Compensation for Oil Pollution Damage," (2005) (conference paper) at 19 note 44 [hereinafter Faure & Hui, "Economic Analysis of Oil Pollution Compensation"].

³¹⁷ Tanker Owners' Voluntary Agreement on Liability for Oil Pollution; (1969) 8 I.L.M. 497. See generally G. Becker, "A Short Cruise on the Good Ships TOVALOP and CRISTAL", (1974) 5 J. Mar. L. & Com 609.

³¹⁸ LEG/CONF.2/5 (21 Oct. 1971) (comments of the OCIMF i.e. Oil Companies International Maritime Forum) in *Official Records of the 1971 Fund Conference*, *supra* note 226 at 191-92.

³¹⁹ *Ibid*.

liability under the CLC 1969 ceased to exist.³²⁰ Although it was shown that the P&I premium for tankers increased from 2 to 3 cents per gross ton in 1969 to 29 cents in 1972, of which the pollution risk premium represented 15 cents and 11 cents respectively,³²¹ this increase was partially due to inflation and the past adverse claim experience.³²² Yet, in the end the oil industry agreed to reimburse shipowners through the newly created IOPC Fund for any liability exceeding 1,500 francs (\$100) per ton or any liability in excess of 125 million francs (\$10m) in total.³²³

As the victims of oil pollution are not usually insured,³²⁴ the compensation of victims was the main focus of the oil pollution conventions.³²⁵ During the negotiation of the CLC in 1969, the participating States realized that even the increased limit under the CLC would not be enough to provide adequate compensation in many cases of oil pollution. Thus, the 1969 resolution also contained that oil companies would provide additional compensation to pollution victims. As the 1971 Fund Convention was adopted to implement the 1969 resolution, the convention created the IOPC Fund not only for reimbursement to shipowners but also for the additional compensation to the victims of oil pollution up to 450 million francs (SDR30m) per incident.³²⁶ As the

³²⁰ Per ton coverage under TOVALOP was about 1725 francs per ton and the required coverage under 1969 Convention was 2000 francs, leaving the coverage gap of only 275 francs or \$19 per ton.

³²¹ LEG/CONF.2/C.1/WP.3 (30 Nov.1971) (information provided by the managing director of SKULD, who was also an advisor to Norwegian delegation), *Official Records of the 1971 Fund Conference*, *supra* note 226 at 241-243.

³²² LEG/CONF.2/C.1/WP.14 (2 Dec.1971) (information paper submitted by the OCIMF), *ibid* at 254-255.

³²³ Article 5 (1) of Fund Convention.

³²⁴ LEG/CONF.5/C.1/SR.8 (5 Nov. 1976); *Official Records of the 1976 Liability Conference*, *supra* note 9 at 266. However, sometimes only the governments may incur expenses after oil pollution.

³²⁵ This is also evident from the preamble of the conventions. The preamble of both conventions provides, "The State Parties to the present Convention.... convinced of the need to ensure that *adequate compensation* is available...." (Emphasis added).

³²⁶ Art.4.4(b) of the Fund Convention, 1971.

capacity of insurance market was one of the main concerns against high liability on shipowners, the drafters agreed that the Fund's compensation should start from a level where the insurance market capacity for shipowners' liability is exhausted.³²⁷ This is because the Fund does not have to buy insurance from market as contributions to the Fund would come from the levies on oil companies on the basis of their receipt of oil via sea. However, in reality shipowners' liability was set at a limit which does not actually reflect the maximum capacity of insurance market³²⁸ despite the fact that the argument of insurance market capacity was persistently made at the 1969 conference.³²⁹

In addition to limitation of liability, other issues such limiting the number of potential liable parties and channelling oil pollution liability only to shipowners (as opposed to charterers and operators) were also influenced by insurance considerations.³³⁰ Because the P&I clubs offer full liability coverage mainly to shipowners,³³¹ it was thought desirable that shipowners alone should be responsible for the liability. This would not usually cause any negative effect in terms of compensation for oil pollution victims if the full compensation could be recovered from the liable shipowner. However, when liability of the shipowners falls short of losses suffered by victims, channelling deprives a victim from an additional source of compensation.³³² Also, when a shipowner is insolvent and its insurance policy is voided due to wilful misconduct, the claimant

³²⁷ Rosaeg, "Impact of Insurance Practices," *supra* note 218 at 13.

³²⁸ *Ibid* 13-17.

³²⁹ See Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 295: "To bolster their case, the shipowning interests argued that the prevailing world insurance market capacity would be insufficient to meet the multitude of claims which strict liability and increased limitation could be expected to unleash."

³³⁰ Rosaeg, "Impact of Insurance Practices", *supra* note 218 at 17-19.

³³¹ Although charters also can subscribe to P&I clubs, there are restrictions on the coverage charters can obtain from the clubs. See generally Hazelwood, *P&I Clubs*, *supra* note 114 at 230-233.

³³² Faure & Hui, "Economic Analysis of Oil Pollution Compensation", *supra* note 316 at 8-9.

would not be able to bring suits against other potential liable parties.³³³ To the extent channelling liability exonerates other potential liable parties who could influence on loss reduction the incentive effect of liability rule is diluted.³³⁴ The argument in favour of channelling is that it helps the victims identify easily the liable party. As just discussed, its disadvantages probably outweigh its advantages. Both for compensation and deterrence, joint and several liability is a better alternative than channelling.³³⁵

With a maximum of SDR 750 (US\$1.1 billion) per incident, the oil pollution liability regime came a long way to provide adequate compensation to oil pollution victims. However, due to the limitation of shipowners' liability half of the compensation money comes from the oil industry and consumers of oil.³³⁶ To the extent shipowners do not have to bear the liability for oil pollution arising from their negligence, incentive effect of liability rule suffers.

5. Convention on Liability for Bunker Oil Pollution

The oil pollution liability regime covered the oil pollution from the bunkers of *tankers*; it did not cover the oil pollution from the bunkers of *non-tankers*. For the latter type of oil pollution the Bunkers Convention³³⁷ was adopted in 2001.³³⁸ Unlike other liability

³³³ Rosaeg, "Impact of Insurance Practices", *supra* note 218 at 17-19.

³³⁴ *Ibid.*

³³⁵ *Ibid.*

³³⁶ 92 FUND/WGR.3/8/3, Annex at page 7; available at the IOPC Fund website at <http://www.iopcfund.org/> (last accessed: March 11, 2009).

³³⁷ For the official version of the convention, see LEG/CONF 12/19. Bunker Convention entered into force on Nov. 21, 2008; see the status of the conventions at http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

³³⁸ Canada was among the early initiators of the Bunker Convention. In 1996, Canada submitted a joint statement with Australia, Finland, Norway, South Africa, Sweden and the UK to the IMO highlighting

conventions, the Bunkers Convention does not provide any liability limit for oil pollution from the bunkers of ships (non-tankers). It, however, provides that it would not affect the right of shipowners under the LLMC 1976.³³⁹ Thus, a State party to both the Bunkers Convention and the LLMC 1976 cannot impose higher liability for oil pollution from bunkers than the limit under the LLMC 1976. If a State is not party to the LLMC 1976, the liability for bunker oil spills may be unlimited.³⁴⁰ Following the models of the CLC and the HNS Convention, the Bunkers Convention too imposes strict liability and compulsory insurance. But insurance is compulsory up to the liability limit under the LLMC 1976.³⁴¹ The low level of compulsory insurance may deprive the liability claimants of adequate compensation and may in turn reduce the incentive effects of liability law on bunker oil pollution.

As the Bunkers Convention ties the liability limit to that of LLMC 1976, one may infer that the same insurance considerations as those discussed above in relation to the general liability conventions were present in the minds of the drafters of the Bunkers Convention.³⁴² Although during the negotiation of the Bunkers Convention Greenpeace

the need for a Convention on oil pollution from bunkers of non-tankers as half of the total oil spills arises from this source. See http://www.imo.org/Newsroom/contents.asp?topic_id=67&doc_id=457 (access date: March 11, 2009).

³³⁹ Article 6 of Bunkers Convention.

³⁴⁰ C. Wu, "Liability and Compensation for Bunker Pollution", (2002) 33 J. Mar. L. & Com. 553 at 561-62.

³⁴¹ See Bunkers Convention, articles 3 and 7 for strict liability and compulsory insurance respectively.

³⁴² See IMO document LEG 77/11.WPD: "There was general agreement in the Committee that the limits of liability in the draft bunkers instrument should be tied to those in the LLMC, and accordingly no separate limits of liability would be established." Cited in L. Zhu, *Compulsory Insurance and Compensation for Bunker Oil Pollution Damage*, (New York: Springer, 2007) at 163 note 98 [hereinafter Zhu, *Bunker Oil Pollution*].

International submitted a proposal for unlimited liability for oil pollution from bunkers,³⁴³ the proposal did not receive much support at the conference.³⁴⁴

6. Convention on Liability for Damage from HNS

Suggestions to adopt a liability convention on damage from hazardous and noxious substance (HNS) were made as early as 1969 during the negotiation of oil pollution liability regimes following the *Torrey Canyon* incident.³⁴⁵ However, the HNS Convention³⁴⁶ was finally adopted in 1996 after an abortive attempt in 1984.³⁴⁷ Like all other maritime liability conventions, the HNS Convention too incorporates limitation of liability principle.³⁴⁸ As usual, shipowners used insurance arguments to maintain this principle and to keep the limit as low as they could. Again, the insurance arguments here relate to the capacity and the cost of insurance. Without any empirical evidence, shipowners argued that if their liability is made unlimited or increased to a high limit, the existing insurance capacity would be stressed and this would affect the availability of insurance not only for HNS liability but also insurance for oil pollution and for general liability.³⁴⁹ It was, therefore, decided that the cargo interests should provide

³⁴³ IMO document, LEG 74/4/3.

³⁴⁴ See generally Zhu, *Bunker Oil Pollution*, *supra* note 342 at 166-168.

³⁴⁵ A. F.M. de Bievre, "Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea", (1986) 17 J. Mar. L. & Com. 61 at 62-63 [hereinafter Bievre, "Liability and Compensation for HNS"].

³⁴⁶ (1996) 35 ILM 1406.

³⁴⁷ Wetterstein, "Carriage of Hazardous Cargoes", *supra* note 264 at 596.

³⁴⁸ Article 9 of HNS Convention.

³⁴⁹ LEG XXXIV/7, paras.20, 22, 49 and 61; LEG XXXVI/5, para.38; cited in Bievre, "Liability and Compensation for HNS", *supra* note 345 at 71.

some of the compensation for HNS damage.³⁵⁰ Thus, the HNS convention contains the familiar two-tier liability system originally adopted for oil pollution liability regime.

If and when the HNS Convention enters into force,³⁵¹ the maximum liability for any ship with 2,000 tons or below would be SDR10 million.³⁵² For larger ships, the maximum liability could be as high as SDR100 million.³⁵³ For the second-tier of compensation, the convention would create an HNS Fund which would provide compensation up to SDR250 million inclusive of the SDR 100 million from shipowners.³⁵⁴ The contributions to the HNS Fund would come from the chemical companies in the contracting States based on total claims paid from the Fund and total HNS cargo received by a company in the preceding year.³⁵⁵ However, unlike the contributors to the IOPC Fund, all of whom are oil companies, the chemical companies are very diverse and their products pose very dissimilar risks and liabilities.³⁵⁶ This fact may cause difficulties in the calculation of contributions sought from different chemical companies. Like the CLC, the HNS Convention channels the liability only to

³⁵⁰ Although cargo interests and their insurers also expressed concerns about the cost and capacity of cargo insurance to bear the burden of this liability, establishment of an HNS Fund would address these concerns as this burden would not fall on individual cargo interests or their cargo owners but jointly on all the cargo interests. For cargo interests' concerns, see Biever, "Liability and Compensation for HNS", *ibid* at 74-77.

³⁵¹ The convention has not yet been ratified by the required number of States to enter into force. See the IMO homepage for the status of the Conventions at http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

³⁵² Article 9.1 (a) of HNS Convention.

³⁵³ See proviso to article 9.1(b) of HNS Convention. For a ship with tonnage above 2,000 tons, maximum liability for each additional ton up to 50,000 is SDR 1,500 and for any additional ton above 50,000 tons SDR 360. See article 9.1(b).

³⁵⁴ Article 14 of HNS Convention.

³⁵⁵ See Articles 16-19 of HNS Convention.

³⁵⁶ The number of hazardous and noxious substance may exceed 6,000. See Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 336.

shipowners. In addition, the HNS Convention also contains provisions of strict liability and compulsory insurance as is the case with oil pollution liability regime.³⁵⁷

Although the victims of HNS damage might receive adequate compensation from the HNS Fund, limiting shipowners' liability and providing additional compensation from HNS Fund instead of shipowners would reduce the deterrent effects of liability for negligent shipowners.³⁵⁸ As the HNS Convention is not still in force,³⁵⁹ the liability for an accident involving HNS is still governed by the general liability conventions.

7. Conventions on Nuclear Liability

A shipowner as an *owner* of nuclear materials will not be liable for any damage to third parties from a nuclear accident involving the carriage of such materials.³⁶⁰ However, a shipowner as an *operator* of nuclear ship will be held liable under the Brussels Convention.³⁶¹ This is because liability for nuclear damage is channelled to the operators of nuclear installations.³⁶² As the liability for nuclear damage is limited under various conventions, channelling liability would deprive the victims of additional sources of compensation when the actual damage exceeds the liability limit. Although the operators have right of recourse against other liable parties including shipowners,

³⁵⁷ See articles 7 and 12 respectively.

³⁵⁸ Wetterstein, "Carriage of Hazardous Cargoes", *supra* note 264 at 614.

³⁵⁹ See the IMO homepage for the status of the Conventions at http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

³⁶⁰ Articles 1 and 2 of the Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material, 1971; 11 ILM 277 (1972).

³⁶¹ Convention on the Liability of Operators of Nuclear Ships, Brussels, May 25, 1962, (1963) 57 AJIL 268.

³⁶² See Paris Convention and Vienna Convention; *supra* note 230.

limited liability of the operators would also reduce the liability of other parties in the recourse action and so would the incentive effect of nuclear liability laws.

Of course, the main argument for the limitation of operators' liability is insurance capacity.³⁶³ Although this argument is valid to a certain extent for nuclear liability, considering the potential magnitude of disaster a nuclear accident may cause, the present limit is much below the capacity of insurance market in many countries. This is proved by the fact that when some countries adopted unlimited liability for nuclear damage, the capacity of insurance market for nuclear liability grew in those countries. For example, the data from 1992/93 shows that available nuclear liability insurance coverage per operator in Switzerland, Germany and Japan, countries with unlimited liability, were \$382m, \$343m and \$241m respectively. In contrast, countries with limited liability such as the US, UK and Canada the maximum coverage was \$200m, \$39m and \$28m respectively.³⁶⁴

B. Rebuttal of Insurance Arguments

1. Insurance Capacity

Insurance capacity is not static. It changes with the change in capital market. It also has close connection with insurance cycles and with the laws of supply and demand. Although the demand for insurance is somewhat inelastic, high profit may create excess capacity in the market as more capital would flow into the market (known as soft

³⁶³ N. Pelzer, "Focus on the Future of Nuclear Liability Law", (1999) 17 J. Energy Nat. Resources L. 322 at 338-39 and 344.

³⁶⁴ See Trebilcock & Winter, "Nuclear Accident Law", *supra* note 206 at 221.

market). With the increase of capacity, competition would intensify and rate would drop. Competition to attract the relatively inelastic demand for insurance causes the insurers to undercut the price of insurance.³⁶⁵ As a result, profit decreases. In a less profitable market, capacity may shrink (hard market) as investors may leave the insurance market for more profitable ventures. This in turn leads to increased premium and consequently higher margin. Higher margin will attract more investment and the market capacity will grow again. This is what is known in the insurance industry as 'insurance cycle'.³⁶⁶ Thus capacity may increase or decrease without any change in liability law. For example, the Lloyd's capacity in 2005 was £13.7 billion, a 9 percent decrease from 2004 figure of 14.9 billion.³⁶⁷

Given the right premium, there can be virtually no shortage of capacity in the insurance market. If there is a substantial increase of liability limit taking effect immediately, market may need some time to meet the extra demand for liability insurance. In this sense, there may be temporary shortage of capacity. However, the maritime liability conventions take years to come into force after their adoption and such temporary shortage of capacity should not be an issue.³⁶⁸ In the 1976 Limitation Conference the US delegation submitted that it conducted a study on the marine insurance market and

³⁶⁵ See M. E. Brockbank, "The Crisis in Marine Insurance Market", (1992) 94 *Diritto Marittimo* 803.

³⁶⁶ See R. A. Winter, "The Liability Crisis and the Dynamics of Competitive Insurance Markets," (1988) 5 *Yale J. on Reg.* 455.

³⁶⁷ *Weathering the Storm: Insurance Market Overview 2005* (Jardine Lloyd Thompson, Feb. 2005) at 25 [hereinafter *Insurance Market Overview 2005*]. Lloyd's; cited in a presentation titled "Solvency and Security in Marine Insurance" in 2004 IMUA conference in Singapore.

³⁶⁸ Rosaeg, "Impact of Insurance Practices," *supra* note 218 at 23.

found no capacity shortage.³⁶⁹ The delegation also obtained information from marine insurance companies to the effect that high level of liability insurance coverage would be available if required by the new convention.³⁷⁰ Like any other market, insurance market is influenced by the laws of supply and demand. With the increased demand and profitability, there will be greater supply of capital and higher capacity.

Higher liability limit per se does not cause the capacity shortage and the lower limit of liability does not guarantee adequate capacity either. The increased limit of liability may cause higher premium and the prospect of higher premium may actually increase market capacity if profit is right. As mentioned in the previous section, unlimited liability for nuclear damage in Switzerland, Germany and Japan created higher capacity for nuclear liability insurance in those countries than the capacity in countries with limited liability.³⁷¹ However, a sudden and unexpected rise in liability may cause temporary shortage of capacity. This arises due to uncertainty of future exposure both in magnitude and frequency. In such situations, insurers may be unwilling to provide coverage as happened in some lines of product liability during the 1980's liability insurance crisis,³⁷² or terrorism related insurance after September 11, 2001.³⁷³ In the history of maritime liability law, there occurred some capacity shortage after the adoption of the *Oil Pollution Act of 1990* in the US due to the P&I clubs' refusal to provide coverage, fearing uncertain exposure to high or unlimited liability under the

³⁶⁹ LEG/CONF.5/C.1/WP.32 (3 Nov.1976) (USA) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 159.

³⁷⁰ *Ibid.*

³⁷¹ See Trebilcock & Winter, "Nuclear Accident Law", *supra* note 206 at 221.

³⁷² Priest, "Insurance Crisis", *supra* note 224.

³⁷³ *Reinsurance*, *supra* note 237 at 15.

new Act.³⁷⁴ This type of capacity shortage is temporary and market readjusts.³⁷⁵ This is the problem of insurability rather of capacity. Insurability requires certainty and predictability, while capacity relates to profitability. Profitability can be affected simply by market competition and price-cutting i.e., low premium rate.

2. Insurance Cost

Insurance cost i.e., premium depends on the expected liability. As mentioned at the beginning of the chapter, expected liability is determined by multiplying the probability of liability with its magnitude. If there is on average 10 percent probability of \$1,000 liability on shipowners, the expected liability would be \$100 (10% X \$1,000). The average premium would be the total of expected liability (\$100) and a return on the insurer's investment.³⁷⁶

As liability differs from one shipowner to another, their premium rate would also vary. In other words, a responsible shipowner's insurance rate will be lower than that of a negligent shipowner. For example, by taking care a responsible shipowner may be able to reduce the probability from 10 percent to 5 percent and the magnitude of loss from \$1,000 to \$800 and the premium will be about \$40 (5% X \$800). On the other hand, the lack of care may increase a negligent shipowner's probability and the magnitude of liability above average e.g., \$2,000 liability with 15 percent probability. The premium

³⁷⁴ The OPA adopted much higher liability limit than the existing limit under CLC. In addition, the OPA did not pre-empt the right of States to adopt laws with higher or unlimited liability for oil pollution in their territory. See 33 USCA § 2718(a).

³⁷⁵ *Reinsurance*, *supra* note 237 at 15.

³⁷⁶ See Rejda, *Risk Management and Insurance*, *supra* note 41 at 22.

for the second shipowner would thus be \$300 (15% x \$2,000) plus the cost of insurer's service (known as loading fees).

On the other hand, when liability is limited, the expected liability may become less and the premium will reflect the reduced liability. For example, in the above example if the liability is limited to a maximum of \$500, the expected liability and the premium would be \$50 (10% X \$500). The responsible shipowner's premium would be \$25 (5% X \$500) and the negligent shipowner's premium \$75 (15% X \$500) plus the service charge of the insurer.³⁷⁷ Limitation of liability thus subsidizes shipowners at the expense of the liability claimants as the loss above the limit is borne by the latter. Thus, when shipowners talk about the premium increase following high or unlimited liability, they are right in this sense. There is no doubt that premium would increase if the privilege of limitation is curtailed or removed. The real question is whether the premium will be unreasonably high, as argued by shipping interests during the negotiation of the maritime liability conventions. Since premium reflects the expected liability, premium cannot be unreasonably high in the absence of liability being unreasonably high. Is the shipowners' liability going to be unreasonably high, if unlimited?

The only area where fear of very high liability is real is nuclear liability. Chernobyl nuclear incident is the worst ever nuclear disaster in the world with estimated domestic

³⁷⁷ With the \$500 limit, the magnitude of liability can never be more than \$500 but it can be less; the actual loss can be more than \$500.

financial cost alone exceeding \$20 billion.³⁷⁸ In 1986 the US Accounting Office estimated that in a ‘worst-case’ scenario only the property claim would exceed \$10 billion following a nuclear accident.³⁷⁹ A nuclear accident causing \$10 billion liability with 1 percent probability of that happening in a nuclear facility would require more than \$100 million (1% X \$10,000,000,000) in premium. This may be unreasonably high cost even for a company with \$1 billion asset as insurance would cost more than 10 percent of the company’s total asset. However, if the above 1 percent probability exists only in one facility out of 100 facilities in a country,³⁸⁰ the premium would be \$1 million (1% X \$100 million) for each facility plus the loading fees. It may be questioned though whether any pool of nuclear insurers would provide coverage for that amount. If coverage is available, paying \$1 million in premium for \$10 billion liability coverage for a company with \$1 billion assets would not be unreasonably high. If the possibility of such an incident exists only once in every 10 years, for example, the premium would be further reduced by nine-tenths.

In the context of maritime liability, the damage from a shipping incident would be very unlikely to exceed \$1 billion except an occasional oil pollution incident in a very highly

³⁷⁸ Trebilcock & Winter, “Nuclear Accident Law”, *supra* note 206 at 218.

³⁷⁹ *Ibid.*

³⁸⁰ Even this probability is high considering the fact that there were only three significant accidents at nuclear power plants in the world and only one of those happened in the US, which has 109 nuclear reactors. In the US it is estimated that there is only a 5 percent probability of one accident in 50 years (i.e. for each reactor that would be the probability of .0229 of one incident each year). In the US incident the liability for third party claim was \$50 million. Other two incidents were at Chernobyl in Ukraine and at Windscale in the UK. Only the Chernobyl incident caused devastating effect on human life, with estimated domestic financial cost exceeding \$20 billion. See Trebilcock & Winter, “Nuclear Accident Law”, *ibid* at 218.

sensitive area.³⁸¹ As the probability of such an incident is very low, the increased limit of liability or even unlimited liability would not cause unreasonably high premium. Although shipowners' liability insurance premium may slightly increase if liability is unlimited, both the magnitude and the frequency of maritime losses would likely decrease because the fear of unlimited liability would induce shipowners to take better care against losses. With reduced probability and magnitude, the expected liability (i.e. probability multiplied by magnitude) will also decrease and so will the premium. Premium will be unreasonably high only for those shipowners who do not take optimal care despite the liability being unlimited.

C. The Reality of Marine Liability Insurance Market

1. Capacity of Marine Insurance Market

As for maritime liability insurance, the question of capacity mainly arises with regard to reinsurance because the primary insurers for liability insurance are shipowners themselves through their mutual P&I clubs. The capacity of marine reinsurance market remains fairly constant.³⁸² The reinsurers of International Group of P&I clubs provide coverage up to \$2.05 billion per incident.³⁸³ Lloyd's is the main reinsurance market for marine insurance and in 2005 its capacity was £13.7 billion.³⁸⁴ The reinsurance for the

³⁸¹ For example, in the *Exxon Valdez* oil pollution incident the Exxon Shipping Corp. spent US\$2.1 billion for clean up costs alone. It paid another \$1.25 billion to the US government as settlement of government claims and criminal liability compensation. See Office of Response and Restoration, National Ocean Service, National Oceanic and Atmospheric Administration at <http://response.restoration.noaa.gov/> (last accessed: March 11, 2009).

³⁸² *Insurance Market Overview 2005*, *supra* note 367 at 60.

³⁸³ *Ibid* at 52 and 64.

³⁸⁴ *Ibid* at 25.

P&I clubs is in the form of excess of loss reinsurance and is triggered only if the liability in an incident exceeds \$50 million.

Within this \$50 million, the individual club's retention is \$7 million i.e., a club pays for the liability of any of its ships up to \$7 million. The individual clubs also purchase reinsurance coverage for this retention amount.³⁸⁵ If liability exceeds \$7 million, the clubs in the group shares the burden based on entered tonnage, loss experience and some other factors³⁸⁶ up to \$50 million. There are two sub-layers in this layer. The lower sub-layer covers up to \$30 million inclusive of \$7 million individual club retention through the pooling of the clubs and the upper sub-layer covers up to \$50 million through captive reinsurance (of individual clubs) with Hydra Insurance Co. Ltd.³⁸⁷ For liability above \$50m, there are three more layers of general excess reinsurance for up to \$2 billion (first two layers are \$500 million each and third layer is for \$1 billion). Each reinsurance layer is with unlimited reinstatements. The group has recently arranged for \$1 billion collective overspill protection with one reinstatement on top of the \$2 billion reinsurance layers. Beyond this total sum of \$3.05 billion, the group can cover a loss for up to \$5.4 billion through a loss-sharing pooling agreement among the clubs. There is no premium under the pooling agreement.³⁸⁸

³⁸⁵ *Ibid* at 65.

³⁸⁶ Rosaeg, "Impact of Insurance Practices," *supra* note 218 at 8.

³⁸⁷ See the website of International Group of P&I clubs at http://www.igpandi.org/internal.php?primary_nav_selected=The+Group+Agreements&secondary=The+Pooling+Agreement (last accessed: Dec. 23, 2008).

³⁸⁸ See International Group of P&I Clubs News and Information with the attached chart to the link, http://www.igpandi.org/internal.php?primary_nav_selected=News+and+Information# News (last visited: Apr. 11, 2007). However, the reinsurance coverage including the individual club retention for oil pollution liability is only up to \$2.05 billion. See also http://www.igpandi.org/internal.php?primary_nav_selected=The+Group+Agreements&secondary=Pool+

2. Cost of Marine Insurance

The above insurance reality proves that there is no real shortage of capacity for maritime liability insurance. There has not been any incident in the history of the International Group requiring coverage above the reinsurance level,³⁸⁹ let alone \$5.4 billion overspill limit. Even if limitation of liability is abolished from all areas of maritime law, it would be an extremely rare incident for liability to exceed the overspill limit. As the capacity is not a problem, the next question is what the cost for liability insurance is. Here we have to bear in mind that the cost of liability insurance, or any insurance for that matter, varies from shipowner to shipowner as the insurance cost for individual shipowner is decided on the basis of the owner's claim history, loss experience, the size of the fleet and the condition of the ship. For example, in 1969 the individual tanker owner's premium varied from 3 cents per gross ton to 150 cents per gross ton in a Norwegian P&I club, SKULD.³⁹⁰

Statistics presented in the 1976 liability conference shows that insurance cost represents only 7 to 8 percent of the total operating costs of shipowners.³⁹¹ 50 percent of the total insurance cost relates to liability insurance. In other words, liability insurance costs 3.5 to 4 percent of the total operating cost. Any increase in the liability limit would not entail a proportionate increase in the insurance cost; increase in insurance cost would be

reinsurance+programme (last visited: March 11, 2009). http://www.igpandi.org/internal.php?primary_nav_selected=The+Group+Agreements&secondary=The+Pooling+Agreement (last visited: March 11, 2009).

³⁸⁹ Rosaeg, "Impact of Insurance Practice", *supra* note 218 at 8.

³⁹⁰ LEG/CONF.2/C.1/WP. 3 (30 Nov. 1971) in *Official Records of the 1971 Fund Conference*, *supra* note 226 at 242.

³⁹¹ LEG/CONF.5/C.1/SR.9 (5 Nov. 1976) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 275.

at a reduced ratio because not all incidents will cause liability payment above the present limit.³⁹² In other words, for the P&I clubs this will only have an impact on their excess of loss reinsurance premium cost, which is only 15 to 20 percent of the P&I premiums (i.e. 0.6 to 0.8 per cent of the total operating cost).³⁹³

We can also get some idea about the possible increase in insurance cost from the current contributions of oil companies to the IOPC Fund and the Supplementary Fund. The IOPC Fund provides oil pollution compensation up to SDR 203 million. Yet, oil companies' contribution was less than 1 cent in 2006 against per ton of oil carried via sea and it never went above 5.5 cents in the last ten years (1996-2006).³⁹⁴ This shows that the cost of insurance for very high or even for unlimited liability would not be an unbearable burden on shipowners. Therefore, the insurance arguments are aimed at keeping insurance cost at a low level as opposed to a reasonable level. Keeping insurance cost as low as possible should not be the main consideration in designing liability law. The main focus of liability law should be the deterrence from negligence.³⁹⁵ Limitation of liability reduces the deterrent effect of liability law. When shipowners do not have to pay fully for losses caused by them, they might lack the incentives to take optimal care.

³⁹² For example, if out of every two incidents today only one incident causes liability above the existing limit, doubling shipowners' liability limit would have no effect on insurance cost for the incident causing the loss below the current liability limit; insurance cost will increase only for the incident giving rise to liability above the current limit.

³⁹³ LEG/CONF.5/C.1/SR.9 (5 Nov. 1976) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 275.

³⁹⁴ See *Explanatory note prepared by the Secretariat of the International Oil Pollution Compensation Funds*, at 5; available at <http://www.iopcfund.org/npdf/genE.pdf> (date accessed: March 11, 2009).

³⁹⁵ LEG/CONF.5/C.1/SR.7 (4 Nov. 1976) (International Authority for Ports and Harbours); *Official Records of the 1976 Liability Conference*, *supra* note 9 at 259-60.

IV. Abolition of Limitation of Liability and Its Consequences

With well-developed marine insurance market, low insurance cost and almost unlimited capacity of such insurance, there is no justification for limitation of liability to exist today in the maritime liability law. If the maritime liability law is thought to have any effect in influencing the behaviour of shipowners in terms of taking precautions, limiting the liability reduces that effect. To the degree a shipowner does not take precaution because it does not find the cost of precaution worth the limited liability, though the precaution would be worth the unlimited liability (i.e., actual loss), limitation of liability causes social loss. However, it may be argued that the incidents causing losses exceeding the shipowners' limitation fund are not that many³⁹⁶ and thus the benefit of unlimited liability may be slight. Yet, if we can achieve that little extra benefit without much increase in shipowners' insurance cost, the analysis is worth the effort.

Shipowners will surely argue that abolition of limitation will greatly increase their insurance cost, as they did during the negotiation of every convention pertaining limitation.³⁹⁷ Doesn't this imply that number of accidents exceeding the shipowners' limitation funds is higher than shipowners would like to admit? As mentioned earlier, insurance cost for liability insurance should reflect the actual liability especially when

³⁹⁶ See *Official Records of the 1976 Liability Conference*, *supra* note 9; *Official Records of the 1971 Fund Conference*, *supra* note 226.

³⁹⁷ Cost of insurance predominated in every international conference on maritime liability. For example, see *ibid.* Article 8.5 of the 1996 Protocol to LLMC 1976 requires the Legal Committee of IMO to take into account the cost of insurance, among others, when an amendment to increase the liability limit is considered.

both insureds and insurers belong to the same group of people as is the case with shipowners' liability insurance through their mutual P&I clubs. If there is a significant difference between premiums for unlimited and limited liabilities, is not this an indirect admission by shipowners that liability falls short of the actual loss in many cases? However, this may also be due to very high losses in few accidents exceeding the limitation funds. Few highly costly incidents would increase the difference between a victim's expected loss and a shipowner's expected liability under limitation. There is no justification why victims of such incidents should not get their full compensation. In other words, the arguments of high cost of insurance and only few incidents exceeding slightly the liability limit are contradictory to each other. Both cannot be true at the same time.³⁹⁸ This is not to deny that unlimited liability will impose some extra cost on shipowners either in the form of additional premium or increased precaution.³⁹⁹ The increased cost will, however, be offset by the social gain from reduced accident rates due to the optimal care induced by unlimited liability.

A. Confusion between insurability and unpredictability

As mentioned in the previous section, shipowners and their representatives also warn us of the possible insurance capacity shortage if liability is unlimited.⁴⁰⁰ Here, I think, unlimited liability is mistaken for unpredictable liability. First of all, there is no

³⁹⁸ This is also proved from the fact that the cost of insurance for personal injury and death is lower than the cost of insurance for property claim. This is due to fewer personal injury and death claims and their lower magnitude despite the fact that the liability limit has always been higher in the personal injury and death claim. See LEG/CONF.5/C.1/SR.20 (Nov. 13, 1976) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 368-69.

³⁹⁹ It is possible that premium may actually decrease due to optimal care, although cost of care will increase.

⁴⁰⁰ See the statement of the ICS in *supra* note 163.

limitation for most of the ordinary liability areas such as accident liability and professional liability.⁴⁰¹ Yet, there is no shortage of insurance coverage in those areas even though liability could be very high in those cases. However, there may be coverage shortage due to the unpredictability of future loss or liability. This is understandable because predictability is the basis on which to calculate insurance premium. Insurers cannot determine premium when liability is highly unpredictable. Such unpredictability can be a short term phenomenon or a long term one. The examples of coverage shortage from short term uncertainty are terrorism-related coverage after September 11, 2001,⁴⁰² and product-related liability insurance in 1980's due to sudden increase in court awards for product-related injuries.⁴⁰³

The shortage of coverage due to long term unpredictability exists mainly in nuclear liability.⁴⁰⁴ Even in the nuclear liability some countries adopted unlimited liability and this change actually led to the growth of the market capacity for the nuclear liability insurance in those countries.⁴⁰⁵ The losses from maritime accidents are unlikely to be of as high magnitude as that of nuclear damage.⁴⁰⁶ We also need to keep in mind that the International Group of P&I clubs are able to provide coverage up to US\$5.4 billion per

⁴⁰¹ It is true that limitation of liability exists for other types of transportation. However, that should not be a justification to maintain it under maritime liability law.

⁴⁰² *Reinsurance*, *supra* note 237 at 15.

⁴⁰³ See Priest, "Insurance Crisis", *supra* note 224.

⁴⁰⁴ Even though liability is predictable, shortage of coverage may sometimes occur due to very high probability of loss or liability for each insured in the pool, making the insurers unable to spread the loss among the insureds.

⁴⁰⁵ For example, the data from 1992/93 shows that available nuclear liability insurance coverage per operator in Switzerland, Germany and Japan – countries with unlimited liability – were \$382 m, \$343 m and \$241 million respectively, whereas in the US, UK and Canada the maximum coverage was \$200 m, \$39 m and \$28 m respectively. Trebilcock & Winter, "Nuclear Accident Law", *supra* note 206 at 221.

⁴⁰⁶ Chernobyl incident, the worst ever nuclear disaster seen by the world, cost more \$20 billion in domestic financial damage alone. *Ibid* at 218. On the other hand, in maritime liability history only few oil spill incidents such as *Exxon Valdez* in highly sensitive areas caused damage exceeding \$1 billion.

incident.⁴⁰⁷ It is, however, argued that this high amount of coverage may not be available if liability becomes unlimited.⁴⁰⁸ As mentioned before, this argument equates unlimited liability with unpredictable liability. Second, unlimited *insurance* coverage may not be even desirable. In order to check the problem of moral hazard problem in the presence of insurance, insurance coverage should be limited in one way or another to keep the insured motivated towards care.⁴⁰⁹

B. Unlimited liability and cost of litigation

Unlimited liability may, however, increase the cost of litigation by reducing number of settlements and increasing the frequency of litigation. As the maximum liability is fixed under limitation of liability, both parties may have the same expectation about the trial outcome and will tend to settle in order to avoid litigation cost. Limitation of liability thus encourages settlements⁴¹⁰ and saves in litigation cost. However, mutually beneficial settlement is possible as long as the plaintiff's expectation of trial outcome does not exceed the defendant's by more than their total cost of trial,⁴¹¹ whether liability is limited or unlimited. Besides, a plaintiff may prefer trial over settlement even under

⁴⁰⁷ See the International Group of P&I clubs' website at http://www.igpandi.org/internal.php?primary_nav_selected=The+Group+Agreements&secondary=The+Pooling+Agreement (last accessed: March 11, 2009).

⁴⁰⁸ D. Steel, "Ships are different: the case for limitation of liability," (1995) LMCLQ 77 at 82.

⁴⁰⁹ See chapter six.

⁴¹⁰ Steel, "Ships are different: the case for limitation of liability," *supra*, note 408 at 81.

⁴¹¹ Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 403. For example, if the litigation cost is \$600 for each party, the total cost is \$1,200. Assume that each side has to bear its own cost. Suppose, the plaintiff thinks that it would receive \$5,000 in damages but the defendant thinks that the maximum amount it would have to pay is about \$4,000. The difference between the two expectations is \$1,000 which is less than the total litigation cost of \$1,200. As the trial cost is \$600 for each side, the plaintiff would be willing to accept any offer above \$4,400 (\$5,000 compensation – \$600 litigation cost), while the defendant would be happy to offer an amount less than \$4,600 (\$4,000 liability + \$600 litigation cost). As the defendant's highest offer (\$4,600) is more than the plaintiff's minimum acceptable amount (\$4,400), mutually beneficial settlement between them is still possible.

limited liability regime when the plaintiff believes it can prove the test to break the liability limit and can get compensation beyond the liability limit.⁴¹²

C. Unlimited liability and price of consumer goods

It is argued that an increase in shipowners' liability will ultimately hurt the consumers as the cost of marine transportation will increase and this cost will be passed on to the consumers of the products transported by sea. This argument presupposes that full liability has no effect on the behaviour of liable parties or that maritime accident rate is irreducible. As argued before, there is no point of liability if it has no impact on behaviour. In most of the maritime areas, liability is imposed for negligence and negligence implies the possibility of optimal care.⁴¹³ In fact, the imposition of full liability will in the long run reduce the cost of products by reducing maritime losses. Full liability, however, will affect the profits of *negligent* shipowners as they will have to spend more on precaution than what they spend now. Although some of these costs will be passed on to the consumers in the product price through higher freight rate, the product prices will ultimately become lower due to the reduced incidents of loss during transportation.⁴¹⁴

D. Social desirability of maritime liability laws

⁴¹² However, this is very unlikely today because under Article 4 of LLMC 1976 and similar provisions under other maritime liability conventions made the shipowners' right almost indefeasible.

⁴¹³ See the definition of negligence in 'Hand Formula'; *supra* note 23 with accompanying text.

⁴¹⁴ Product price may become higher when higher liability will be paid to third parties, whose loss so far had not be accounted for in the price the product. This type of loss is known as 'externality' in economics. See generally Pigou, *The Economics of Welfare*, *supra* note 204.

So far I have assumed that liability rules in maritime law are socially desirable because optimal precaution by shipowners is possible. If, however, such precautions are not feasible either due to the fact that the cost of precaution is higher than the expected loss or the reduction in expected loss, or no precaution is possible regardless of cost (e.g., accidents from unexpected storm), then liability is not socially desirable and there should not be any liability at all. There would be no social gain from imposing liability in such case. Maritime law does not usually impose liability in such situations. For example, even though liability is strict for oil pollution, shipowners are exonerated from liability if the incident was the result of an act of God, war, act or omission of third party, or the negligence of the government.⁴¹⁵

On the other hand, when optimal precaution is possible, liability should be imposed and it should be imposed without any limit. Limitation of liability in such cases will discourage potentially liable parties from taking precautions. In usual maritime settings, shipowners or their employees are in a better position to take precautions as they are in control of both the ship and the cargo on it.⁴¹⁶ There is thus real possibility that the abolition of limitation of liability will lead to better safety measures.⁴¹⁷

Even when optimal precaution is not possible, liability on a party may sometimes be socially desirable to internalize the losses generated from the party's activities and

⁴¹⁵ Article III (2) of CLC. LLMC 1976 does not mention these exceptions because the convention does not deal with the basis of liability but only with the limit of liability. The basis of liability for maritime claims is national law of the State parties and these exceptions are recognized in almost all national laws.

⁴¹⁶ Wetterstein, "Carriage of Hazardous Cargoes", *supra* note 264 at 614.

⁴¹⁷ Gauci, "Limitation of liability," *supra* note 164 at 67.

suffered by third parties especially when the activity level is thought to exceed its optimal level.⁴¹⁸ Strict liability for oil pollution or for damage from HNS may be explained in this light. Strict liability, compulsory insurance, and the direct action against insurers should not, therefore, be thought as justifications for limitation of liability.⁴¹⁹ Strict liability may be further justified due to the difficulty in determining the actual care or dangerousness in case of oil pollution or an accident involving HNS. Compulsory insurance and direct action against insurer are strategies to prevent shipowners from escaping liability through corporate veils and using the flag of convenience.⁴²⁰

E. The impossible test to break limitation

The problem of under-deterrence due to limitation of liability is made worse by the new test to deprive shipowners of their right to limit liability. The right is made almost indefeasible by requiring the liability claimants to prove not only the personal fault of a shipowner but also the subjective intention to cause the loss or damage.⁴²¹ As the previous test of ‘actual fault or privity’⁴²² was easier to prove and thus to break the liability limit, it created some incentives in the minds of shipowners to take optimal care

⁴¹⁸ Such losses are known as ‘externalities’. Liability is desirable in such situation only when due to high transaction costs the party generating the externality and the party suffering from it will not engage in a market transaction. See R.A. Coase, “The problem of social cost”, (1960) 3 J. L. & Econ. 1.

⁴¹⁹ Cf. the arguments of ICS in LEG/CONF.2/5 (Oct. 21, 1971) in *Official Records of the 1971 Fund Conference*, *supra* note 226 at 199.

⁴²⁰ Detailed discussion on the benefits of compulsory insurance and direct action is undertaken in chapter five.

⁴²¹ Article 4 of LLMC 1976 reads, “A person shall not be entitled to limit his liability if it is proved that the loss resulted from *his personal act or omission*, committed *with the intent* to cause such loss, or *recklessly and with knowledge* that such loss would probably result.” (italics added)

⁴²² Art. 1(1) of the 1957 Convention.

due to the fear of unlimited liability.⁴²³ This new test is incorporated into all the maritime liability conventions with minor differences in the wording.⁴²⁴

The new test reduces the incentive effect of liability law because shipowners would almost never have to pay for their negligence more than the liability limit. In order to take advantage of the right under the 1957 Convention a shipowner had to prove that there was no ‘actual fault or privity’ on its part with regard to the cause of the incident.⁴²⁵ The burden of proof was on shipowners. The new test under the LLMC 1976⁴²⁶ shifted the burden of proof to the claimants. A shipowner now automatically gets the right to limit its liability, unless the claimant proves the impossible test that “the loss resulted from his [shipowner’s] *personal act or omission*, committed *with the intent* to cause such loss, or *recklessly and with knowledge* that such loss would probably result.”⁴²⁷

As can be seen from the italicised words above, this test includes many new hard-to-prove elements. These elements have made the shipowners’ right to limit their liability practically unbreakable.⁴²⁸ For example, as the act or omission causing the loss must be *personal*, the courts can no longer impute the fault or negligence of a master or crew into that of a shipowner. Under the previous test of ‘actual fault or privity’, courts could

⁴²³ See the statement of Canadian delegation in the 1976 Liability Conference in LEG/CONF.5/C.1/SR.8 (Nov.05, 1976) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 268-69.

⁴²⁴ For the comparison of the wording and the possible effect of such difference, see Griggs et al., *Limitation of Liability*, *supra* note 171 at 31-34.

⁴²⁵ Art.1(1) of the 1957 Convention.

⁴²⁶ See article 4 of LLMC 1976.

⁴²⁷ *Ibid.* Art.4 of LLMC 1976. (Emphasis added).

⁴²⁸ EU doc. COM (2000) 802 final at 56.

hold shipowners liable for the fault or negligence of their employees through the principle of vicarious liability. For example, in *The Lady Gwendolen*⁴²⁹ the privity of the marine superintendent of a shipowning company about a prior incident of the master's speeding in fog was imputed to that of the company and, consequently, the right to limitation was denied. This would no longer be possible under the new test. If the alleged shipowners are individuals, it must be their personal act or omission; if they are corporations, the act or omission must be that of corporations' directing minds (alter ego) such as the head or managing director.⁴³⁰

In addition, the act or omission must be committed with the intent to cause the particular damage. Proving such intention is almost impossible as it 'involves exploration of complex human mind'.⁴³¹ This type of condition is normally required under criminal law in the form of *mens rea*. Although a claimant can alternatively prove recklessness instead of the wilful personal act of the shipowner, proving the alternative is almost as hard as the first option of proving intentional damage because a reckless act alone is not enough to hold a shipowner liable beyond the LLMC 1976's limit; the reckless shipowner must have the knowledge that the particular damage would probably result. It can be argued that if a shipowner is reckless about the act but neutral about its consequence, the shipowner may still have the right to limit.⁴³² Only when the shipowner is reckless about its act and aware of the probable consequence of the act,

⁴²⁹ [1965] P.294; [1965] 1 Lloyd's Rep. 335 (Probate Division).

⁴³⁰ G. Gauci, *Oil Pollution at Sea: Civil liability and Compensation for Damage*, (Chichester: John Wiley & Sons Ltd, 1997) at 167-169 [hereinafter Gauci, *Oil Pollution at Sea*].

⁴³¹ X. Chen, *Limitation of Liability for Maritime Claims: A Study of US Law, Chinese Law and International Conventions*, (The Hague: Kluwer Law International, 2001) at 75.

⁴³² *Ibid.*

will the shipowner be deprived of the right or privilege. One may wonder how a person can be reckless about an act or omission but at the same time is aware of its probable consequence, as the word 'reckless' means 'without thinking or caring about the consequences or the danger involved'!⁴³³

The claimants have to prove all these elements in order to obtain just their full compensation. It is not the case that the claimants would receive more than their actual losses if they can establish all the elements of the new test. This test obviously causes injustice towards the claimants of maritime losses when their established claims exceed the shipowners' liability limit under various maritime liability conventions.⁴³⁴ This is why Lord Donaldson in an inquiry report on the 'Prevention of Pollution from Merchant Shipping' in 1994 indicated that in the future this test may prove to be an 'unreasonable protection for reckless shipowners'.⁴³⁵

Conclusion

The identification of a problem is the first step to its solution. Wrong diagnosis can lead to wrong medicine. While the main problem arising from limitation of liability is under-deterrence, policy makers put emphasis only on adequate compensation. As a result, the usual focus in international conferences on maritime liability has been to increase compensation amount without abolishing the principle of limitation. The policy makers

⁴³³ *Oxford Advanced Learner's Dictionary of Current English*, 5th ed (Oxford, UK: Oxford University Press, 1995) at 973.

⁴³⁴ The injustice inherent in limitation of liability is recognized by the courts. For example, Lord Denning said in *The Bramley Moore* [1963] 2 Lloyd's Rep. 429, at 437, "[Limitation of liability] is not a matter of justice, it is a rule of public policy which has its origin in history and its justification in convenience."

⁴³⁵ Gauci, *Oil Pollution at Sea*, *supra* note 430 at 169.

do not usually question the desirability of this policy of limitation in terms of its effect on shipowners' behaviour.⁴³⁶ Sometimes the source of increased compensation is not the liable shipowners, as is the case with the oil and the HNS pollution. This approach ignores the very purpose of liability in inducing potentially liable parties to take optimal care. If liability does not create any deterrence, there should be no liability in the first place. On the other hand, if liability is desirable for its impact on shipowners' behaviour, liability should be full i.e., equal to the victim's actual loss. The costs of maintaining maritime liability system would be social waste if liability fails to induce deterrence due to limitation of liability. Once justified in the absence of market insurance, limitation of liability may now creates under-deterrence and social loss.

⁴³⁶ One exception is the European Commission's recent recognition of this fact in one of its proposal papers. See Commission Proposal for a Directive on ship-source pollution and on the introduction of sanctions, including criminal sanctions, for pollution offences, COM(2003) 92 final at 5-7; cited in Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 152 and 343, and notes 394 and 941. Although Canadian delegation in the 1976 Limitation of Liability Conference recognized the incentive effect of an easily-breakable limit, they did not propose the abolition of this principle. See LEG/CONF.5/C.1/SR.8 (Nov.05, 1976) in *Official Records of the 1976 Liability Conference*, *supra* note 9 at 268-69.

Chapter 3

Insurance through General Average: Its Justifications and Its Effects on Optimal Care and on Social Costs

Introduction

Like limitation of liability, general average is another peculiar maritime principle arose in the similar background of pre-insurance era.⁴³⁷ One of the main differences between the two is that while the former is a feature common to all maritime liability laws, the latter arises only in the context of maritime cargo liability law. When shipowners can successfully declare an incident as general average, they only have to partially pay for the loss of the cargo under their care. They may in fact ask cargo owners to chip in for the expenses to repair the ships necessitated by the general average incident.

Like limitation of liability, general average *served* an important function in protecting risk-averse individuals from the fear of maritime risks in the pre-insurance era and thus helped improve investment in the shipping and maritime commerce.⁴³⁸ Modern marine insurance has now taken over this function and in fact provides much better protection against maritime risks than general average can do because the latter can shift only part of the risk and only to the co-adventurers as opposed to the shift of total risk to a large pool of individuals by insurance. In addition to the above function, general average is

⁴³⁷ While it is very rare, if ever, for courts and commentators to compare limitation of liability to insurance, they usually equate general average with insurance especially in the discussion of the origin of insurance or of general average itself. See, for example, Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 5; Tetley, *Cargo Claims (2008 ed.)*, *supra* note 147 at 1751.

⁴³⁸ See Selmer, *Survival of General Average*, *supra* note 39 at 27, 190.

also thought to encourage efficient mitigation of losses in the face of a maritime peril.⁴³⁹ Yet, this argument is based on some unrealistic assumptions and consequently not very tenable.⁴⁴⁰ On the contrary, general average, despite its appearance of an innocuous venerable maritime practice, can actually lead to negligent navigation and to an increase in the costs of maritime transportation.

After a brief description of its nature and the function in Part I, I will examine various justifications behind this anachronistic maritime principle in Part II. Part III will highlight how its presence today in maritime liability law may distort the deterrent effect of liability law and may also increase the costs of goods transported via sea. The chapter will end with the recommendation that this principle should be abolished from maritime law.

I. Nature and Practice of General Average

A. Meaning and nature

General average means common loss; the word ‘average’ derives from the French word ‘*avarie*’, meaning ‘loss’,⁴⁴¹ or from old Italian ‘*avere*’ for ‘property’.⁴⁴² General average thus refers to the *losses* suffered or the *expenses* incurred by any of the parties to a maritime adventure in preventing or minimizing the impact of a peril affecting the

⁴³⁹ See Gilmore & Black, *supra* note 3 at 258.

⁴⁴⁰ See Selmer, *Survival of General Average*, *supra* note 39 at 291.

⁴⁴¹ Gold et al., *Maritime Law*, *supra* note 56 at 628-29; Tetley, *Cargo Claims (2008 ed.)*, *supra* note 147 at 1751.

⁴⁴² See Lowndes and Rudolf, *supra* note 5 at 6-7, para 00.11. However, according to some greatest authorities on etymology its origin is unknown. Lowndes & Rudolf, *ibid* at note 32.

whole venture.⁴⁴³ Under the principle of general average, all the parties to the adventure have to bear the burden of these losses and expenses in proportion to their respective saved interests. These interests comprise invariably ships and cargoes and may occasionally include freights.⁴⁴⁴ It is noteworthy at the outset that the principle of general average is not governed by any national legislation, although reference to it can be found in some legislation.⁴⁴⁵ The principle and some of its specific examples contain in the York-Antwerp Rules (YAR),⁴⁴⁶ an international codification of the rules which are regularly incorporated into the contracts of carriage by reference.

B. Modern practice of general average

While general average in the past involved mainly the jettison of cargo overboard in order to lighten the ships caught in the perils of the sea such as storm, strong wind or high wave, most incidents of general average today concern shipowners' running expenses at the ports of refuge following the perils of the sea.⁴⁴⁷ Though less frequent, the jettison of or damage to cargo may still arise in a general average situation, e.g., the

⁴⁴³ See *Birkley v. Presgrave*, (1801), 1 East. 220 at 228, 102 E.R. 86 at 89; *Northland Navigation Co. Ltd. and Northland Shipping (1962) Co. Ltd. v. Patterson Boiler Works Ltd.*, [1983] 2 F.C. 59 (T.D.); *The Star of Hope*, 76 U.S. 203 at 228 (1869); see also s.65 of the *Canadian Marine Insurance Act*, S.C.1993, c22 [hereinafter *CMIA*] and pp. 171-172.

⁴⁴⁴ Freight will be a contributing item only when it is at risk. This occurs when the earning of freight depends on the successful delivery of the goods. On the other hand, if freight is pre-paid and non-returnable, it is already earned and therefore not at risk.

⁴⁴⁵ For example, s.65 of the *CMIA* and s. 66 of the *British Marine Insurance Act*, 6 Edward VII, ch. 41 [hereinafter *MIA*]. See also article V of the *Hague-Visby Rules*; article 24 of the *Hamburg Rules*; article 87 of the *Draft Convention*.

⁴⁴⁶ The rules were first adopted in 1890 by a Conference of the Association for the Reform and Codification of the Law of Nations, held at Liverpool. Gilmore & Black, *supra* note 3 at 252. The rules have been subsequently amended in 1924, 1950, 1974, 1994 and 2004. See Bennett, *The Law of Marine Insurance*, *supra* note 53 at 763. Reference in this chapter to the rules will mainly be to their 2004 version unless indicated otherwise. The 2004 version was adopted at the CMI (Comité Maritime International) conference in Vancouver on May 31-June 4, 2008 and the rules can be found at CMI website: <http://www.comitemaritime.org/cmids/yar.html> (last accessed: March 11, 2009).

⁴⁴⁷ See Gilmore & Black, *supra* note 3 at 248, 263; see also Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 332; Selmer, *The Survival of General Average*, *supra* note 39 at 21, 180-81.

intentional destruction of some cargo in order to stop the spread of fire from the nearby cargo to the whole ship or the water damage to cargo in the process of extinguishing such fire from the adjacent cargo or from the ship itself.⁴⁴⁸ General average expenses towards the ship may include salvage charges,⁴⁴⁹ towage charges, and various other expenses at a port of refuge such as port charges, additional running expenses of the ship, the wages and maintenance of the crew etc.⁴⁵⁰ Because today in most of the cases it is shipowners who would claim general average contributions from cargo owners, I will assume this state of affairs as the representative of general average incidents throughout the discussion unless expressly stated otherwise.

C. Its function as insurance

As mentioned in chapter one, general average is one of the most ancient and the longest surviving maritime devices to contractually *transfer risks*, an essential function of modern insurance.⁴⁵¹ When market insurance did not exist at all or did not fully evolve into its modern form, general average served the function of insurance by spreading the risk of maritime losses over all the parties involved in an adventure rather than leaving the full burden of loss concentrated on shipowners or cargo owners alone. Like limitation of liability and other ancient risk-management strategies, during the absence

⁴⁴⁸ See *Century Insurance Co. of Canada v. N.V. Bocimar, S.A. (The "Hasselt")* (1987), 39 D.L.R. (4th) 465 (S.C.C.), rev'g. (1984), 53 N.R. 383 (F.C.A.); see also Gilmore & Black, *supra* note 3 at 258.

⁴⁴⁹ See *Ultramar Canada Inc. v. Mutual Marine Office Inc. (The "Pointe Levy")* (1994), 82 F.T.R. 1 (T.D.); *Edward and Charles Gurney v. Aeneas D. MacKay* (1875), 37 U.C.Q.B. 324 at 340 (C.A.).

⁴⁵⁰ See *Ainsworth v. Cusack* (1858), 4 Nfld. L. R. 236; *Canadian Transport Co. Ltd. v. Hunt, Leuchars Hepburn (The "City of Alberni")* (1947), 63 B.C.L.R. 262 at 264 (B.C.S.C.). See also rules X and XI of the YAR.

⁴⁵¹ It existed in Rhodian law (916 to 700 B.C.), from which it is copied in Justinian Digest. The Rhodian Law explained the principle, "Let that which has been jettisoned on behalf of all be restored by the contribution of all."; Dover, *A Handbook to Marine Insurance*, *supra* note 45 at 6; see also Gilmore & Black, *supra* note 3 at 3-4 and 244.

of market insurance general average helped improve investment in the maritime sector and thus increased the social utility by solving the problem of risk aversion i.e., the fear of large uncertain losses.⁴⁵²

II. Justifications of General Average

A. Justification of General Average in the Past

Like the case with limitation of liability, the justification of general average in the past rested on its function as insurance when market insurance did not develop into its modern form, if existed at all.⁴⁵³ Since spreading the burden of losses among many individuals is essentially an insurance mechanism, general average can be termed as a form of insurance. As discussed in the previous chapter, provision of insurance is a socially desirable act because its absence would discourage potential investors from investing into the maritime ventures due to the fear of loss occurring from perils of the sea. Alternatively, such fear may lead shipowners to excessive care. Both excessive care and underinvestment are the sources of social loss.⁴⁵⁴ The principle of general average solved these problems to *some* extent in the absence of insurance.⁴⁵⁵ As the losses were shared both by shipowners and cargo owners, none of them had to bear the full burden of the loss caused by a peril of the sea endangering the whole venture. The reduced fear of risk in turn led to the increased investment in maritime venture.

⁴⁵² For the definition of 'risk aversion' and its effect on investments, see *supra* notes 26-28 and 205-206 with the accompanying texts.

⁴⁵³ Selmer, *Survival of General Average*, *supra* note 39 at 27, 190.

⁴⁵⁴ See *supra* notes 26-28 and 209-210 with the accompanying texts.

⁴⁵⁵ As general average and limitation of liability did not completely eliminate the risk but only reduced it, shipowners always retained some risk of loss and liability.

As insurance became widely available and as each party to a cargo transportation contract now can and does easily insure their respective interests, the question of who bears the loss has no bearing today to the investment in the shipping and maritime commerce. The total volume of cargo transported via sea or the number of ships would be roughly the same whether the principle of general average continues to exist or is abolished. For example, if there is \$1,000 loss or expenses *on average* in each maritime voyage and shipowners bear the burden of the loss,⁴⁵⁶ their insurance premium will reflect this burden. They will in turn pass the cost of insurance to cargo owners in the freight rates. On the other hand, if the loss remains with the cargo owners, their freight rates will roughly be \$1,000 less than would otherwise be the case but their cargo insurance premium would be \$1,000 more. However, since insurance was not available when the practice of general average was first introduced, the practice made some difference in terms of total volume of cargo transported via sea or in terms of total number of ships engaged in the carriage of goods. This is because without market insurance the party who would *initially* bear the full burden of loss would be reluctant to invest in a maritime venture.⁴⁵⁷ As a result, there would have been less cargo transferred

⁴⁵⁶ In the absence of insurance, a shipowner may not be able to predict the average loss arising from general average incidents as he or she would not have the information about the losses of other shipowners. Even if the shipowner has that information, it will be of no benefit to him when his losses from general average incidents are above or below the average. On the other hand, it is the average loss which matters to an insurer in calculating the premium necessary to cover the insured losses. The insurers can determine the average loss very easily as they would have claim statistics of all the insureds.

⁴⁵⁷ Even though shipowners could pass some of the cost of general average in the freight rates, the burden of general average loss on individual shipowners would have been very heavy in the absence of insurance. Fear of such loss would have discouraged many from investing into shipping even though their *expected* profit would have been more than their *expected* loss. Again, this is because most individuals are 'risk averse' when it comes to risk of high loss despite the probability of such loss being very low. See Posner, *Economic Analysis of Law*, *supra* note 23 at 10-11; Abraham, *Distributing Risk*, *supra* note 17 at 11-12.

via sea or fewer ships to carry such cargo, as the case may be, depending on who bore the losses, had general average not existed.

Although risk-sharing through general average is much more limited than market insurance because of the smaller number of parties involved (i.e., the individual cargo owners and shipowners in a given adventure), it *was* still an important means to manage risk during the pre-market insurance era. Today, however, with the availability and the regular use of insurance both by shipowners and cargo owners, the justification of general average as a means to solve the problem of risk aversion has ceased to exist. We, therefore, need to ask whether general average serves any other function other than insurance as to justify its continuous presence in today's maritime liability law and, even if there are some justifications, whether these justifications outweigh any possible distortions of incentives to take care due to the presence of general average.

B. Possible justification of general average today

Today general average is *thought* to lead to optimal *mitigation* of losses following a peril of the sea.⁴⁵⁸ Because due to general average principle the costs of mitigatory measures will *not* fall exclusively on the owner of the ship in distress, the owner or the master of the ship will be less hesitant to spend or to take any preventive measure even at the expense of the ship such as intentional grounding of the ship to save the common

⁴⁵⁸ See Gilmore & Black, *supra* note 3 at 258.

adventure.⁴⁵⁹ On the other hand, if the loss of or damage to the ship were to remain solely with the shipowner, as would be the case in the absence of general average principle, there *may* be a tendency among the masters and crew *not* to exercise optimal preventive or mitigatory measures especially when such measures would entail damage to the ships.⁴⁶⁰ Conversely, they may make disproportionately higher sacrifice of the cargo in order to extricate the ship and cargo from the danger even though such sacrifice is less cost-efficient. With general average, they do not have to worry about which interest bears the initial losses or expenses and would consequently take proper measures to reduce the losses.⁴⁶¹ To recapitulate, the principle of general average is *thought* to reduce unnecessary cargo sacrifice and to induce optimal care in the mitigation of loss after an actual peril or in the face of an imminent one.

This justification, however, is not very credible because it is based on some unrealistic assumptions. First of all, there hardly arises any perilous situation today when the jettison of cargo is necessary either to prevent or to mitigate the possible damage due to the perils of the sea.⁴⁶² Thus, the fear of disproportionate sacrifice of cargo in the

⁴⁵⁹ For examples of intentional grounding, see *Dancey v. Burns* (1880), 31 U.C.C.P. 313 (Ont. C.A.); *Gibb v. McDonnell* (1850), 7 U.C.Q.B. 356 (C.A.); see also Tetley, *Cargo Claims* (2008 ed.), *supra* note 147 at 1807.

⁴⁶⁰ See generally Selmer, *Survival of General Average*, *supra* note 39 at 42, 122-124, 138-139. This was the main argument against the abolition of general average invoked in the *Report of the General Average Committee to the Council of the International Union of Marine Insurance*, (Malmö, 1949); cited *ibid* at 138 note 15.

⁴⁶¹ *Per* Vaughan Williams L.J in *Montgomery v. Indemnity Mutual Assurance Co* [1902] 1 K.B. 734 at 740 (CA), “The object of the maritime law seems to be to give the master of the ship absolute freedom to make whatever sacrifice he thinks best to avert the perils of the sea, without any regard whatsoever to the ownership of the property sacrificed; and, in our judgment, such a sacrifice is a general average act quite independently of unity or diversity of ownership.” [Emphasis added.]

⁴⁶² Selmer, *Survival of General Average*, *supra* note 39 at 291.

absence of general average is greatly exaggerated.⁴⁶³ Secondly, the argument presupposes that the master would have several ‘choices’ including the jettison of cargo to save the ship and cargo from the danger when faced with a peril of the sea. In reality the master may take just only one reasonable measure to mitigate the loss in most situations of general average.⁴⁶⁴ For example, when a master intentionally grounds the ship or jettisons its cargo, there is hardly any ‘choice’ for the master as to decide which interest should be sacrificed. What could be achieved in terms of safety by the intentional grounding of the ship may not be achieved by the jettison of cargo or vice versa.⁴⁶⁵

Even if, for the sake of argument, we assume that the above justification is valid, do we really need general average to achieve optimal mitigation? The answer seems to be in the negative because the reasonable mitigation of loss is always required under law in any incidence of loss including a general average. A shipowner, who could mitigate the loss after an accident, will be held liable for additional loss due to the failure to mitigate the loss even though the owner is not liable for the initial loss caused by a peril of the sea, which by definition is unpreventable by any cost-efficient measures.⁴⁶⁶

⁴⁶³ *Ibid.*

⁴⁶⁴ The lack of choice prompts some authors (the holders of “alternative theory”) to argue that such situations cannot amount to general average because one of the conditions of general average is ‘voluntary’ sacrifice/action and this element would be missing when there is no other safe ‘alternative’ measure to save the adventure. However, in practice courts do not follow this interpretation. See Selmer, *Survival of General Average*, *ibid* at 72-76, 214-215.

⁴⁶⁵ For example, when a ship in the middle of the sea might sink due to high waves caused by heavy storm, only jettison of cargo can lighten the ship and prevent it from the danger of sinking.

⁴⁶⁶ See *Federal Commerce and Navigation Co. v. Eisenerz-G.m.b.H. (The Oak Hill)*, [1974] S.C.R.1225, [1975] 1 Lloyd’s Rep. 105 (SCC). See also *Notara v. Henderson*, (1870) L.R. 5 Q.B. 346; (1872) L.R. 7 Q.B. 225; cited in *Lowndes & Rudolf (2008 ed.)*, *supra* note 5 para 00.61 at 36-37. *Per* Hobhouse J., “The fact that the master was acting as an agent of necessity in the interests of the joint adventure does not

III. Effects of General Average on Optimal Care and on Social Cost

A. Possible distortion of incentives towards optimal care

1. General average may not affect incentives at all

The distortion of incentives to use care due to the presence of general average is not as direct as that caused by the limitation of liability. This is because, by definition, limitation of liability is the reduction of liability and the reduced liability may affect the incentives of liability law especially when the creation of incentives requires the imposition of full liability. On the other hand, there *may not* arise any question of liability in a general average situation because, strictly speaking, an incident of general average occurs when a ship faces ‘a peril of the sea’. By definition, a peril of the sea is an element of the sea which no optimal care can prevent from occurring.⁴⁶⁷ As optimal care cannot prevent such general average losses, imposing liability on shipowners in such situations neither improves nor affects the incentives or deterrent effect of liability law. Thus, a shipowner is not liable for cargo losses caused by the perils of the sea under the cargo liability regimes.⁴⁶⁸

Again, since general average incidents occur due to the perils of the sea, they are situations of necessity. In such situations, if the sacrifice of cargo/ship or the expenses necessary to extricate the ship and cargo from the peril is not made, greater loss might ensue. In this sense, the initial incidents of general average are *inevitable*. From the

relieve him of his duty to exercise reasonable care in the preservation of the cargo.” in *Corfu Navigation Co v. Mobil Shipping (The Alpha)* [1991] 2 Lloyd’s Rep. 515 at 522.

⁴⁶⁷ ‘Peril of the sea’ is defined as “something so catastrophic as to triumph over those safeguards by which skilful and vigilant seamen usually bring ship and cargo to port in safety.” Per Hough J. in *The Rosalia*, 264 F. 285 at 288, (2d Cir. 1920).

⁴⁶⁸ See article IV.1 (d) and (c) of the *Hague-Visby Rules*; article 18.3 (a) and (b) of the *Draft Convention*.

deterrence perspective, it does not really matter who bears the burden of losses or expenses in such situations. Whether each party bears its respective loss or whether one of them pays for all the losses and expenses, both the magnitude and the probability of general average incidents will remain the same simply because no efficient care could possibly prevent such incidents. However, as we will see below, if we delve into the actual practice of general average, we will find some general average situations which arise at least *partially due to the negligence of shipowners or their employees* and for which the shipowners would have been liable but for the general average principle. In other words, general average in these instances partially exonerates negligent shipowners from their liability as well as reduces their financial burden to repair their damaged ships.

2. Divergence in care level before and after an incident

As repeated throughout the thesis, in order to induce a potentially liable person to exercise optimal care, the *expected liability* should be at least equal to the *expected loss*. General average contribution from cargo interests reduces the expected liability of a shipowner. In fact, today in most of the general average situations shipowners do not pay for any cargo loss but instead receive contribution for the expenses to repair their ships at a port of refuge.⁴⁶⁹ Without general average, cargo owners might claim for the loss of or damage to their cargo in the shipowners' care and the shipowners have to bear their own expenses to repair the damaged ships due to a maritime peril. The sharing of losses and expenses by the co-adventurers and the consequent reduction of shipowners'

⁴⁶⁹ See Gilmore & Black, *supra* note 3 at 248, 263; see also Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 332; Selmer, *The Survival of General Average*, *supra* note 39 at 21, 180-81.

liability and of the burden of repair costs lead some shipowners to the *suboptimal maintenance* of their ships *before* an occurrence of general average incident and to the *excessive care after* the incident, according to a study by the United Nations Conference on Trade and Development (UNCTAD).⁴⁷⁰

To elaborate, as shipowners and cargo owners share the expenses incurred to minimize the impact of a peril in a general average situation, such sharing may distort the incentives to take optimal care in two ways. First, a shipowner may decide *not* to take optimal care to make its ship seaworthy because the cost of furnishing a seaworthy ship falls exclusively on the shipowner, while the expenses incurred for the repair of the ship after a general average incident will be partially borne by the cargo interests.⁴⁷¹ Secondly, as the cargo interests would pay for the partial cost of care (i.e., repairs and other improvements of the ship) after a general average situation, the post-general average care may be excessive. As mentioned earlier, both inadequate care and excessive care are the sources of social loss.⁴⁷²

The possibility of this divergence in actual care level before and after a general average supported by the findings in the UNCTAD study that older ships with less contributing

⁴⁷⁰ UNCTAD Doc. “The Place of General Average in Marine Insurance Today”, UNCTAD/SDD/LEG/1 (8 March 1994) [hereinafter “The Place of General Average”]; available at <http://r0.unctad.org/ttl/docs-legal/rep-doc/The%20Place%20of%20General%20Average%20in%20Marine%20Insurance%20Today.pdf> (last accessed: March 11, 2009).

⁴⁷¹ It is true that no shipowner wants its ship to suffer a maritime peril because time wasted in the repair of the ship will deprive the owner of the profit the ship could make in such time. Yet, as the odds of peril are low, a shipowner may think that it would be able to escape any such peril despite its suboptimal care.

⁴⁷² See *supra* notes 209-210 and accompanying texts.

value have a higher tendency to claim for general average.⁴⁷³ In other words, the existence of general average encourages the owners of these ships towards substandard maintenance of their ships in the hope that they can declare general average if they find themselves in danger and a substantial part of the costs will be shifted to the cargo interest.⁴⁷⁴ This tendency is more prevalent in older ships because the low value of these ships reduces the proportionate contribution of the shipowners and increases that of the cargo owners.⁴⁷⁵ Conversely, the high value of new ships will make the owners of such ships bear most of the contribution and will consequently induce them towards better care. Once in danger, the owners of older ships would be more generous towards the expenses at the ports of refuge again because the substantial burden of the costs will be passed on to cargo interests. General average thus creates a ‘double-jeopardy’ for cargo owners because they face higher risk of ‘perils’ due to not-so-well-maintained ships and, once faced with peril, they pay higher contribution due to the lower contributing value of such sub-optimally maintained older ships.

3. Negligence may be shadowed by peril of the sea

The social loss from substandard ships arises due to the increased accidents of cargo losses by these ships in the face of perils. Technically, any loss attributable to suboptimal care (i.e., negligence) of the ship would *not* amount to a general average loss

⁴⁷³ “The Place of General Average”, *supra* note 470 at 17.

⁴⁷⁴ It is found in a survey of 400 cases that ships with ‘flag of convenience’ represent only 12.2% of total number of ships, but have 34.2% of total general average incidents, indicating suboptimal care. See “The Place of General Average”, *ibid* at 5, 17-18. This may also be corroborated by the evidence that the highest causative factor in general average incidents is the failure of ships’ machinery (37%). Many other causes such as grounding (24%), fire (14%), collision and contact (11%) are also indicative of lack of proper care on the part of shipowner. See *ibid* at 19-25.

⁴⁷⁵ It can be recalled here that contribution of the parties towards general average expenses is based on the value of their respective saved interests.

because the absence of negligence is a pre-requisite to general average claims.⁴⁷⁶ In practice, however, it is sometimes next to impossible to determine each causative factor among many giving rise to a loss. The most apparent factor may decide the matter. For example, any damage to a ship or to the cargo onboard during a severe storm or heavy wind will likely be considered as general average even though a different ship in the same or similar weather may escape unscathed. The fact that one ship suffers loss and another passes unharmed may be an indication of suboptimal maintenance of the former. Yet such fact may be hard to establish or, when established, the reasons for its existence may be difficult to explain. Unless a negligent conduct is very obvious and its presence contributed to the loss by a large extent, negligence in the maintenance of a ship is *unlikely* to prevent shipowners from claiming general average which is in most part due to a peril of the sea.

4. Express exoneration of employees' negligence

Even when negligence is an obvious contributing factor to the loss claimed as general average, the proof and the detection of negligence will not necessarily deprive a shipowner of general average contribution from cargo owners *if* the negligence is that of the master or crew in the operation or management of the ship. This exception to negligent navigation and management by the crew is expressly granted in article IV.2

⁴⁷⁶ See *The Portsmouth*, 76 U.S. (9 Wall.) 682 (1870); *Western Canada Steamship Co v. Canadian Commercial Corp.*, [1960] S.C.R. 632 (S.C.C); *St. Lawrence Construction v. Federal Commerce and Navigation Co.*, [1985] 1 F.C.767 at 788 (F.C.A.). This principle is somewhat modified by r. D of the YAR as the negligence of anyone is ignored for the purpose of calculating the contribution. However, the innocent parties are able to seek reimbursements from the negligent party for any contribution they had to make due to the latter's negligence.

(a) of the *Hague-Visby Rules*,⁴⁷⁷ the most commonly used cargo liability regime. Yet negligence of this nature is the cause behind most incidents of general average today.⁴⁷⁸ The negligence of shipowners' employees in a general average situation causes cargo owners to bear the losses not only for the cargo damage but also for damage to the ship.⁴⁷⁹ This is obviously not a just situation.

5. Exemption of liability of negligent shipowners

To make the matter worse, there are even situations where a loss caused by the negligence of shipowners themselves as opposed to that of their employees may give shipowners the right to claim general average contributions from cargo owners. For example, when a ship is accidentally grounded, the expenses incurred to extricate the ship from grounding are considered general average regardless of the cause/s that led to the grounding in the first place.⁴⁸⁰ Possible causes of such grounding may, of course, include the failure of the owner to furnish a seaworthy ship.

⁴⁷⁷ See *Louis Dreyfus & Co. v. Tempus Shipping Co.*, [1931] A.C. 726; *Drew Brown Ltd. v. The Orient Trader*, [1974] S.C.R. 1286, 1333 (S.C.C.). Although this was not so in the USA (see *The Irrawaddy*, 171 U.S. 187 (1898)), the shipowners' insertion of a clause ('Jason clause'/'New Jason clause') in the bill of lading to exclude liability in such case was upheld by the US Supreme Court. See *The Jason*, 225 U.S. 32, 32 S.Ct. 560 (1912); *Gilmore & Black*, *supra* note 3 at 266-67; Selmer, *Survival of General Average*, *supra* note 39 at 80-81. As the *Hamburg Rules* and the *Draft Convention* do not contain this negligent navigation exception, the 'Jason clause' will not have this effect under the latter regimes.

⁴⁷⁸ "The Place of General Average", *supra* note 470 at 24-25.

⁴⁷⁹ However, if a loss occurs or is aggravated due to the negligence of shipowner, as opposed to the crew, in providing a seaworthy ship or in caring for the cargo, the shipowner cannot claim for general average contribution from the cargo owners. See *Century Insurance Co. of Canada v. N.V. Bocimar, S.A. (The "Hasselt")*, (1987), 39 D.L.R. (4th) 465 (S.C.C.), rev'g. (1984), 53 N.R. 383 (F.C.A.), where the shipowner was found negligent to provide the proper training to the crew to extinguish fire and was consequently denied general average contribution. See also *St. Lawrence Construction Ltd. v. Federal Commerce & Navigation Co. Ltd.*, [1985] 1 F.C. 767, 56 N.R. 174 (C.A.); *Western Canada Steamship Co. Limited v. Canadian Commercial Corp.*, [1960] S.C.R. 632; *Canadian Transport Co. Ltd. v. Hunt, Leuchars Hepburn (The "City of Alberni")* (1947), 63 B.C.L.R. 262 at 264 (B.C.S.C.); *Montreal Trust Co. v. Canadian Surety Co.*, [1939] 4 D.L.R. 614 (Que. C.A.), aff'g. (1937), 75 R.J.Q. 278 (Que. S.C.); cited in Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 329 note 52.

⁴⁸⁰ *Grover v. Bullock* (1849), 5 U.C.Q.B. 297.

Another indirect and partial exoneration of shipowners from the liability for negligence exists due to the combined effect of general average and limitation of liability. As general average contribution has to be calculated without regard to the fault of any of the parties to the common adventure,⁴⁸¹ a negligent shipowner also has the right to claim from the innocent cargo owners for its loss. Although it may initially appear that the innocent parties will be able to claim reimbursement from the negligent shipowner for their additional expenses of paying both the negligent shipowner and other co-adventurers, such reimbursement may be subject to the shipowner's limitation of liability.⁴⁸² Consequently, the reimbursed amount would be less than the contribution made by the innocent parties under the general average principle even though such contribution would not have arisen in the first place but for the shipowner's negligence.

B. Possible social costs arising from general average

General average involves some additional administrative costs which would not have otherwise been incurred. Once a party suffers damage or incurs expenses, any cost to redistribute the damage or expenses is a social waste *unless* such redistribution would bring some social benefits.⁴⁸³ As we have already seen, in the presence of modern

⁴⁸¹ Rule D of the YAR

⁴⁸² Selmer, *Survival of General Average*, *supra* note 39 at 81-84. Although there is no decided case on the issue of the limitation of shipowners' liability in a general average situation, it was held in *The Ettrick* (1881) 6 P.D. 127 that the payment of limited liability by a shipowner does not give him the right to claim contribution later on for general average expenses caused by their own negligence. However, there are cases where shipowners had to contribute for general average despite the validity of contractual or statutory exoneration from total liability. Such cases may be taken to infer that shipowners have to pay full contribution for general average despite the availability of limitation for their ordinary liability. See *Schmidt v. Royal Mail S.S. Co* (1876) 45 L.J.Q.B. 646, *Crooks v. Allen* (1879) 5 Q.B.D. 38, *Burton v. English* (1883) 12 Q.B.D. 218 and *Greenshields, Cowie v. Stephen & Sons Ltd* [1908] A.C. 431. These cases are cited in *Lowndes & Rudolf* (2008 ed.), *supra* note 5 168-169.

⁴⁸³ For example, redistribution from a negligent party to an innocent one would deter the former from similar negligence in the future and will thus reduce social loss or increase social utility. In addition to

insurance general average today serves no such social benefit. It increases the total costs related to the transportation of goods via sea. These costs will ultimately reflect in the price of the goods carried by sea and the consumers of these goods have to pay higher prices.⁴⁸⁴ Below is the discussion of some additional expenses necessitated by the presence of general average.

1. Costs to determine various items for contribution purpose

First, in order to calculate the respective *contribution* the value of both the ship and the cargo on it has to be determined and, of course, such determination involves costs. Second, in the case of *damage*, the value of the damaged goods and/or the ship needs to be determined and the separation of general average damage from other types of damage has to be made.⁴⁸⁵ Third, in the case of *expenses*, there is a further need to determine how much of these expenses are solely due to general average.⁴⁸⁶ Although it is true that regardless of general average any damage or loss will necessitate the determination of both the market value of the goods and/or ships and their value after

creation of incentives, redistribution sometimes may further increase social utility if the money redistributed has more value to its subsequent owner than its earlier owner. The second benefit of redistribution is the main justification of income tax on the rich and income subsidy to the poor. See generally Calabresi & Melamed, "Property Rules", *supra* note 202.

⁴⁸⁴ Higher price may also reduce the consumption (utility) of the goods if there are perfect substitutes to such goods.

⁴⁸⁵ For example, damage caused by fire is not general average but the damage done in extinguishing the fire is general average. See Rule III of 1994 York-Antwerp Rules; Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 318-19.

⁴⁸⁶ Expenses not allowed under general average are termed 'particular average'; these expenses are borne by individual interests for whose benefit they are incurred. However, the distinction between 'general average' and 'particular average' is sometimes arbitrary and depends mainly on historical distribution. For example, expenses to dry the wet cargo due to a general average incident are not allowed under general average and are thus 'particular average', while expenses to store the cargo safely on the shore while the ship is repaired are considered general average. See Selmer, *Survival of General Average*, *supra* note 39 at 260-261.

the damage or loss for the purpose of their respective insurance claims,⁴⁸⁷ in the absence of general average there would arise *no* need to determine the value of the goods not damaged or sacrificed following the peril.

2. Costs to obtain bonds and guarantee

Another source of administrative costs due to general average which would not otherwise arise is the transaction costs involving general average bond from cargo owners and/or guarantee from their insurers.⁴⁸⁸ Although this may cost very little if all the goods belong to just one or few cargo owners, such cost would be considerable and will rise in proportion to the increase in the number of cargo owners.⁴⁸⁹ Again, this administrative cost would be a social waste if such cost is not offset by the possible benefit of general average, if any.

3. Costs of collecting contribution

A third possible source of administrative cost flowing from the existence of general average is the costs incurred in collecting the contributions from each interest. Again, this cost will be insignificant if the number of the contributing interests is small and will increase proportionately with the increase of such interests. In most of the time collecting contributions may involve very little administrative costs as the shipowners would have already obtained bonds or financial guarantees from the cargo insurers

⁴⁸⁷ See Selmer, *Survival of General Average*, *supra* note 39 at 160-161.

⁴⁸⁸ See Gilmore & Black, *supra* note 3 at 249-50. If a cargo owner is not insured or its insurer's solvency is doubtful, shipowner may require cash deposit or letter of credit from bank. See Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 332-33.

⁴⁸⁹ For example, in one instant the ship was carrying 920 containers under 900 bills of lading with general average claim of more than \$1 million. See H. L. Myerson, "General Average – A Working Adjuster's View", (1995) 26 J. Mar. L. & Com. 465 at 472 [hereinafter Myerson, "General Average"].

before the release of the cargo from their ships. Money secured through the bonds or guarantees will suffice in most cases of contributions.⁴⁹⁰ However, if the money deposited earlier falls short of the contribution required, there may be additional expenses in collecting the difference. Also, the cargo interests who provide the bonds incur costs in obtaining these bonds; these costs, no matter how little, would *not* have been incurred but for the existence of general average.

4. Costs may be more than total contribution

Even though shipowners will usually receive contribution which would offset their settlement costs,⁴⁹¹ the *total* settlement costs may sometimes be more than the contribution shipowners receive from cargo owners.⁴⁹² As profit-maximizing rational individuals, shipowners would not count the possible costs on the other side in deciding whether to proceed with general average claim or not.⁴⁹³ Similar problem exists in every claim of adversarial nature including litigation. Yet, litigation brings some social benefits in the form of future incentives to take care. This benefit may offset the administrative costs of litigation.⁴⁹⁴ No such social benefit flows from general average

⁴⁹⁰ See Gilmore & Black, *supra* note 3 at 249-250.

⁴⁹¹ Otherwise, they would not pursue such settlement except for mistaken calculation. Such mistakes do occur as there are instances where shipowners' or their insurers' settlement costs outweighed the contributions they received from cargo owners or their insurers. See Selmer, *Survival of General Average*, *supra* note 39 at 164.

⁴⁹² For example, if the cargo's contribution is \$2,000 but the total settlement costs are \$3,000, a shipowner would press for settlement because he would only bear half of the settlement costs with \$500 margin.

⁴⁹³ See Selmer, *Survival of General Average*, *supra* note 39 at 164.

⁴⁹⁴ Although many writers contend that the administrative costs in some liability settings may be more than the social benefit from litigation, no one denies the presence of such benefits. See M. E. Landes, "Insurance Liability and Accidents: A Theoretical and Empirical Investigation of the Effect of No-Fault Accidents," (1982) 25 J. Law & Econ. 49; Posner, *Economic Analysis of Law*, *supra* note 23 at 201-202; Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 281-82.

settlements because the payers i.e., the cargo owners here cannot do much to prevent general average incidents in the future.

5. Social costs due to moral hazard

Even if general average is still thought to be justified as a form of insurance for some *uninsured* expenses of shipowners,⁴⁹⁵ if any, it is insurance with high possible moral hazard. Moral hazard is the tendency of the insured either to reduce care level or to inflate claims in the presence of insurance.⁴⁹⁶ As shown above, both of these tendencies exist among shipowners because of general average; some shipowners take less than optimal care before an incident of general average and spend more than usual after the incident.⁴⁹⁷ In market insurance, insurers have various tools such as deductibles, policy limits, policy exceptions etc. to check the moral hazard by the insureds.⁴⁹⁸ In a typical modern day general average situation, cargo owners' position is comparable to that of the market insurers. Yet, they cannot use any of the above tools because, unlike market insurers, cargo owners cannot negotiate and attach any conditions to the payment of their general average contributions to shipowners. On the other hand, market insurers

⁴⁹⁵ The possibility of totally *uninsured* ships is almost non-existent. Some ships, however, may be *underinsured* or there may be *deductibles*. Such underinsurance and deductibles are mostly voluntary on shipowners' part and thus negates any real *need* for general average to fill the gap between actual value and insured value of ships or the proportionate gap between actual loss and insured loss. However, there are still cases where the cargo is uninsured. Yet, since most of the time general average contribution flows from cargo owners to shipowners, insurance through general average is of no use for *uninsured* cargo. In fact, uninsured cargo is a problem for shipowners claiming general average as the shipowners have difficulty in securing guarantee from such cargo interests. Besides, uninsured cargo tends to be of trifling value. See Selmer, *Survival of General Average*, *supra* note 39 at 190-194.

⁴⁹⁶ See Rejda, *Risk Management and Insurance*, *supra* note 22 at 5, 31-33.

⁴⁹⁷ See *supra* notes 470 to 475 with accompanying texts.

⁴⁹⁸ I will examine the issue of moral hazard and insurance mechanisms to prevent it in chapter six.

are able to use the above insurance tools in order to maintain shipowners' incentives towards care despite the presence of insurance.⁴⁹⁹

C. Abolition of General Average

As general average today does not have any justifications in terms of its function as insurance and as it may in fact cause social loss due to both the distortion of incentives of liability law and the additional administrative costs, it is time to abolish this anachronistic principle from the maritime law together with the principle of limitation of liability. Designed originally to serve the insurance function, both these principles now outlive their intended purpose and hinder the deterrent effect of maritime liability law. Like the case with limitation of liability, the abolition of general average will not create any insurance vacuum for any of the parties to a maritime transportation contract. Both shipowners and cargo owners already have adequate insurance.⁵⁰⁰ There may arise some need to rearrange the current insurance undertakings as is done in some hull insurance policies through the 'absorption clauses'.⁵⁰¹

1. Absorption clause as substitute for general average

A positive development in general average settlements is the use of 'absorption clauses'. Such clauses appear in hull insurance policies and save the administrative

⁴⁹⁹ See generally S. Shavell, "On Liability and Insurance", (1982) 13 Bell J. of Econ. 120.

⁵⁰⁰ As for the evidence on insurance coverage obtained by both cargo owners and shipowners, see Part III of the next chapter.

⁵⁰¹ For various wordings of 'absorption clauses', see "The Place of General Average", *supra* note 470 at 11-12.

costs which would have otherwise been incurred in general average.⁵⁰² As the name indicates, through these clauses hull underwriters undertake to absorb the insured shipowners' total losses or expenses arising from general average incidents up to a certain limit, thus making it unnecessary for shipowners to claim contributions from cargo interests.⁵⁰³ However, such clauses are not uniform and, despite the presence of absorption clauses, some shipowners may still insist on general average contributions from the cargo interests in order to improve their claim history with the hull insurers.⁵⁰⁴

The use of absorption clauses also proves that the abolition of general average will not cause any coverage shortage or unreasonably high premium for shipowners. Through these clauses the hull underwriters already provide coverage for all the losses and expenses of *many* general average incidents despite the applicability of general average principle. Following its abolition, the hull insurers will more likely than not provide coverage for all incidents of general average. Hull insurance policies would have to be slightly modified. Instead of containing a limit, the absorption clauses in hull insurance policies need to cover all the losses which now fall under general average.⁵⁰⁵ Besides, if

⁵⁰² Saving of administrative costs is the main motivation behind such clauses. In most of the cases where absorption clauses apply, the marginal recovery (gross recover minus administrative costs) from cargo owners would have been either little or negative. See generally Selmer, *Survival of General Average*, *supra* note 39 at 164.

⁵⁰³ See Lowndes & Rudolf (2008 ed.), *supra* note 5 at 18.

⁵⁰⁴ See Selmer, *Survival of General Average*, *supra* note 39 at 165, 195-197.

⁵⁰⁵ Another indirect proof that hull insurers are willing to cover any losses which are now termed as general average is that the insurers provide general average coverage to a *ship in ballast* for losses and expenses in ballast voyage even though technically a ship in ballast cannot declare general average as there is *no* other interest exposed to perils in such voyage. Clause 8.3 of the International Hull Clauses (IHC) 2003 expressly provides for such losses and expenses. *Kemp v. Halliday* (1866) L.R. 1 Q.B. 520; *The Brigella* [1893] P. 189; cf. *Montgomery v Indemnity Mutual Assurance Co* [1902] 1 K.B. 734 (C.A.). However, in the US a vessel in ballast voyage can claim general average because the interest of the hull insurer is also at stake in addition to that of the shipowner. *Potter v. Ocean Assurance Co* (1837) 3 Sumner 27 (USSC); *Dollar v. La Fonciere* (1908) 162 Fed. Rep. 563. If a vessel in ballast is under time-

hull insurance does not cover fully for all general average losses, the shipowners' P&I clubs can easily cover any such residual loss as they usually do so.

2. Possible increase in freight rate following the abolition

It might be argued that the abolition of general average will raise the freight rates and the increased freight rates may simply be equal to the *expected* general average contribution from the cargo.⁵⁰⁶ However, the *expected increase in freight rate* is likely to be less than the *expected general average loss*. This is because abolition of general average is likely to induce shipowners to improve their care level because after its abolition shipowners alone would have to bear any loss arising in a general average situation. Improved care will logically reduce those losses hitherto termed as 'general average' and reduced losses will ultimately lower the total costs of cargo carriage i.e., freight rates plus loss of cargo during transportation. Another reason why the expected increase in freight rates would be less than the present general average loss is that the tendency to incur higher repair costs and port-of-refuge expenses after an incident of general average will be checked because following the abolition of general average shipowners alone will have to pay for such costs and expenses.

3. Salvage in general average situation

charter, the bunker of the charterer would amount to a second interest, thus making more than one interest exposed to common peril. See *Lowndes & Rudolf (2008 ed.)*, *supra* note 5 at 106-108, 689-690.

⁵⁰⁶ For example, if a ship on average receives \$1,000 contribution in a year from cargo interests, abolition of general average will lead to an increase of \$1,000 freight rate for each ship annually because in the absence of general average shipowners or their insurers would have to bear the loss which heretofore has been borne by cargo interests.

Except the latest version of the YAR, adopted in 2004,⁵⁰⁷ all versions of the YAR recognize salvage costs incurred due to a general average incident as general average expenses.⁵⁰⁸ The principle of salvage itself serves a valuable economic function as it contributes to the reduction of losses following maritime incidents. The generous common law salvage reward⁵⁰⁹ encourages potential salvors to invest in salvage operation and the profit or benefit from such investment outweighs salvage operation costs.⁵¹⁰ As salvage expenses in most of the incidents today are considered general average,⁵¹¹ such expenses are shared by both shipowners and cargo owners.⁵¹²

If general average is abolished, some changes would also be necessary in the law of salvage. When a peril of the sea necessitates salvage operation in order to save both the cargo and the ship from the peril, shipowners alone should bear the salvage expenses following the abolition of general average.⁵¹³ As argued before, when cargo is under the

⁵⁰⁷ R.VI (a) of the YAR 2004 reads: "Salvage payments, including interest thereon and legal fees associated with such payments, shall lie where they fall and shall not be allowed in general average..."

⁵⁰⁸ See r. VI of YAR 1994.

⁵⁰⁹ Common law salvage is the opposite of contractual salvage. Interestingly the generous reward for common law salvage may be also attributed to the absence of *insurance* for salvors in the past. As salvors were more risk averse against losing their salving vessel without insurance, stronger incentive in the form of higher reward was necessary. Since salvors, like other maritime players, today carry insurance, the reward does not have to be as high as that in the past to maintain incentives. As a result, 'moiety rule' (half the value of salvaged property), which was minimum reward in the past, now became 'a ceiling instead of a floor.' This may, however, also be due to the high value of the today's salvaged property. Yet the value of salving ship and instruments has also increased proportionally. See generally Gilmore & Black, *supra* note 3 at 563-64.

⁵¹⁰ This is obvious because salvors would not take salvage operation if their cost is more. Similarly, an owner of a property in danger would not seek salvage service if the value of such property is not more than the salvage charge.

⁵¹¹ The YAR 2004 did not gain much support from the shipping interests. Most contracts of carriage still contain the YAR 1994; consequently, most salvage expenses would still be considered as general average. See Lowndes & Rudolf (2008 ed.), *supra* note 5 at 64-65 in para 00.111-00.112.

⁵¹² Although salvage expenses can be incurred without an incident of general average, costs of salvage measures become part of general average expenses once an incident is considered as general average.

⁵¹³ i.e., both the cargo and the ship have to contribute to the salvage award according to their respective value. See Gilmore & Black *supra* note 3 at 560-562. See also Rule VI of the YAR.

shipowners' custody, they should be responsible for the care of the cargo regardless of whether the cargo alone or both the cargo and the ship are at risk. If salvage is what it takes for proper care of the cargo in a perilous situation, it should be shipowner's responsibility because cargo owners have no control over the cargo in such situation.⁵¹⁴ After the abolition of general average even if salvage expenses are still shared by both cargo owners and shipowners, the removal of general average principle will likely to cut the number of claim settlements involving salvage and general average by more than two thirds of the present level.⁵¹⁵

Conclusion

It is in our human nature that we like to stick to the known practices even though such practices lost their original justifications and may now in fact cause social loss. Sometimes we try to justify these practices with new rationales, unknown and even unthinkable at the time when these practices originated.⁵¹⁶ In other times we repeat the

⁵¹⁴ The only exception where a cargo owner may still need to contribute to salvage costs is when the contract of carriage is frustrated without any fault of the shipowner, e.g., when the ship is wrecked with the cargo because 'frustration of contract' absolves the shipowner from any responsibility towards the cargo. For the effect of frustration, see *Taylor v. Caldwell* (1863), 3 B. & S. 826, 122 E.R. 309; *Appleby v. Myers* (1867), L.R. 2 C.P. 651; *Jackson v. Union Marine Insurance Co* (1874), L.R. 10 C.P. 125. Some of today's general average situations may also amount to frustration of contract.

⁵¹⁵ Prof. Selmer investigated all the incidents of general average in Norway for the year 1952 and found that out of 82 cases of general average only 26 (or about 30 percent) cases involved salvage. He also investigated 367 cases adjusted by one Swedish adjuster for the period 1946 – 1955 and found only 102 (or 27 percent) cases were general average. See Selmer, *Survival of General Average*, *supra* note 39 at 180-181, 203.

⁵¹⁶ Justice O. Holmes eloquently described this tendency in his time-honoured book, *The Common Law*, *supra* note 75 at 5: "A very common phenomenon, and one very familiar to the student of history, is this. The customs, beliefs, or needs of a primitive time establish a rule or a formula. In the course of centuries the custom, belief, or necessity disappears, but the rule remains. The reason which gave rise to the rule has been forgotten, and ingenious minds set themselves to inquire how it is to be accounted for. Some ground of policy is thought of, which seems to explain it and to reconcile it with the present state of things; and then the rule adapts itself to the new reasons which have been found for it, and enters on a new career. The old form receives a new content, and in time even the form modifies itself to fit the meaning which it has received...."

old reasons without paying much attention to the fact that the needs which led to these practices can now be met even better by their alternatives. The principle of general average belongs to the latter group of historical practices. Its historical justification lied in its function as insurance in the absence of market insurance. The presence of widespread modern market insurance negates any functional need of general average. On the contrary, it may motivate some shipowners to maintain substandard ships as the losses arising from these ships would not be fully borne by their owners but would be passed on to cargo interests. It is thus the high time to abolish it from maritime liability laws together with the principle of limitation of liability.

Chapter 4

Maritime Cargo Liability Regimes in the Light of Insurance Realities

Introduction

As mentioned in chapter two, liability rules traditionally served two functions: deterrence and compensation.⁵¹⁷ While compensation can be an important function when victims are not insured and are more risk averse than injurers,⁵¹⁸ the deterrence from negligence is the main function of liability under an economic analysis.⁵¹⁹ This is because compensation only transfers the burden of loss from one party to another, while deterrence reduces social loss by inducing a liable party to take care. In the maritime cargo liability context, both shipowners and cargo owners are almost invariably insured against their liability or loss.⁵²⁰ Yet some liability rules in the maritime cargo transportation designed mainly for compensation and indirect insurance are still in existence. These are the same two concepts of maritime liability law we discussed in the last two chapters i.e., the general average and the limitation of liability. Through compensation, these rules *served* the function of insurance by transferring the risk of loss from more risk-averse parties to less risk-averse parties or by spreading the risk among shipowners and cargo owners in the days of scarcity of insurance.⁵²¹ With the widespread modern insurance market today, the justifications of these principles are

⁵¹⁷ See Brown, "Deterrence and Accident Compensation Schemes" *supra* note 12 at 111.

⁵¹⁸ See *infra* Part III.B for definition of risk aversion and why reduction or elimination of risk aversion is socially desirable.

⁵¹⁹ See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 267-69.

⁵²⁰ For empirical evidence, see *infra* Part IV.

⁵²¹ As compensation served the function of insurance, I will use the words 'compensation' and 'insurance' interchangeably. I will also use the word 'compensation' in a broader sense in that when a liable person does not have to pay at all or pay only partially for the loss generated from his activity, he is compensated at the expense of victim. The principle of limitation of liability is thus designed to compensate shipowners.

seriously in question. Yet there is no conspicuous sign for any change in these rules under the new cargo liability regime currently being considered by the UNCITRAL.⁵²² However, the maritime cargo liability regimes in general do serve the function of *deterrence* because negligence or fault is the basis of liability under all the cargo liability regimes.⁵²³ Also, some of the cargo liability rules, though initially designed to serve the function of compensation or insurance, have been gradually modified to serve deterrence function. These liability rules are the strict liability of common carrier, the absolute warranty of seaworthiness, and the automatic cancellation of the contract of carriage after deviation.

This chapter analyzes both the actual and ideal functions of the international cargo liability regimes in the presence of modern insurance. After a brief description of cargo liability regimes in part I and the economic analysis of liability law in part II, the chapter examines in part III.A the functions of the fault-based liability rule with its exceptions in the cargo liability regimes; the main function of this rule and most of the exceptions has always been deterrence from negligence. Part III.B examines those cargo liability rules which were intended mainly for compensation or insurance. This subsection is further divided into two groups of rules: first, rules those were initially designed to serve insurance/compensation function but are now modified to serve deterrence function; and second, rules those were also designed for the same purpose of

⁵²² Draft Convention on Carriage of Goods [fully or partially] [by sea], UN Doc. A/CN.9/WG.III/WP.101 (Nov. 14, 2007) [hereinafter *Draft Convention*]; available online: UNCITRAL's website at <http://daccessdds.un.org/doc/UNDOC/LTD/V07/881/07/PDF/V0788107.pdf?OpenElement> (last visited: March 11, 2009).

⁵²³ They are the *Hague Rules*, *Hague-Visby Rules* and the *Hamburg Rules*; *supra* note 11. If the *Draft Convention* is finally adopted, a new cargo liability regime will come into existence.

insurance/compensation but now outlive their purpose. Part IV contains some empirical evidences of widespread insurance practice in maritime cargo transport setting. With these empirical evidences, the chapter concludes that the only function of maritime cargo liability rules should be the deterrence from negligence and not compensation/insurance.

I. Cargo Liability Regimes in Brief

The loss of or damage to cargo in the shipowners' care occurs in a contractual situation. The contracts of carriage between shipowners and cargo owners are evidenced by the bills of lading or other similar documents.⁵²⁴ They are governed by one of the two international conventions: the *Hague-Visby Rules*,⁵²⁵ and the *Hamburg Rules*.⁵²⁶ There is a new cargo liability regime now under consideration of the UNCITRAL.⁵²⁷ The main liability rule for cargo loss or damage⁵²⁸ under these international conventions is negligence or fault-based liability. In the *Hague-Visby Rules* this fault-based liability is elaborated by imposing two overriding duties on the shipowners: the duty to exercise

⁵²⁴ Although cargo is also carried under charterparties, I will confine my discussion mainly to non-charterparty situations because charterparties are not generally governed by the current cargo liability regimes except when a third party consignee is involved. See article V of the *Hague-Visby Rules*; article 2.3 of the *Hamburg Rules*; and articles 6.1 (a) and 7 of the *Draft Convention*, *ibid*. It is noteworthy that while the *Hague-Visby Rules* [article I (b)] apply only to negotiable bill of lading, the *Hamburg Rules* [arts.1.6 and 2] and the *Draft Convention* [articles 1.16 and 5] also apply straight bills of lading and electronic documents.

⁵²⁵ *Ibid*; Canada is not party to any of the cargo liability conventions but incorporated the *Hague-Visby Rules* in its *Marine Liability Act*, S.S.2001, c.6, Part 5 and Sch. 3. On the other hand, the United States is party to the *Hague Rules* and implements the convention with slight modification through its *Carriage of Goods by Sea Act of 1936*, 49 Stat. 1207, former 46 USCA Appx §§ 1300-1315.

⁵²⁶ It entered into force on Nov 01, 1992. See R. Force, "A Comparison of the Hague, Hague-Visby, and Hamburg Rules: Much Ado About (?)" (1995-1996) 70 Tul. L. Rev. 2051, 2053 [hereinafter Force, "A Comparison of the Rules"].

⁵²⁷ *Supra* note 522.

⁵²⁸ Under the *Hamburg Rules* and the *Draft Convention*, a shipowner is also liable for the delay of the goods; see art.5.1 and art. 18.1 respectively. I will avoid using the word 'delay' as it falls under wider definition of loss i.e., economic loss without any physical damage to goods.

due diligence to make their ships seaworthy at the commencement of the voyage, and the duty to properly carry and care for the cargo during the voyage.⁵²⁹ Simply put, shipowners are liable only for their negligence either in making the ship seaworthy or in caring for the cargo.⁵³⁰

Similarly, in the *Hamburg Rules* negligence also forms the basis of shipowners' liability, although the liability rule is stated in the form of 'presumptive fault' with a reversed burden of proof.⁵³¹ When a cargo owner brings evidence of cargo loss, damage or delay during the carriage, the shipowner is presumed to be liable unless it proves that it "took all measures that could reasonably be required to avoid the occurrence and its consequences."⁵³² In other words, as long as shipowners prove that there is no negligence on their part, they bear no liability for cargo damage or loss. The *Draft Convention* also provides the same basis of liability.⁵³³ Although the question of whether cargo owners bear the burden to prove shipowner's negligence, as is the case in most of the *Hague-Visby Rules* situations,⁵³⁴ or shipowners have to disprove negligence on their part, as is required under the *Hamburg Rules* and the *Draft Convention*, may make a world of difference in the actual liability cases,⁵³⁵ the basis of liability rule remains the same under all these regimes. It is negligence rule as opposed to either strict liability or no liability (i.e., loss lies where it falls) rules.

⁵²⁹ Articles III and IV.1 of the *Hague-Visby Rules*.

⁵³⁰ See Gilmore & Black, *supra* note 3 at 169.

⁵³¹ See article 5.1 and Annex II of the *Hamburg Rules*.

⁵³² *Ibid.*

⁵³³ See article 18 of the *Draft Convention*.

⁵³⁴ *Cf.* Gilmore & Black *supra* note 3 at 183-5.

⁵³⁵ See *ibid* at 141.

This negligence-based liability law is further clarified by enumerated ‘exceptions’ in article IV.2 of the *Hague-Visby Rules*. Most of these exceptions are not exceptions to negligence-based liability in the real sense of the word ‘exceptions’, but are ‘explanations’ of the negligence rule itself. However, two of them are real exceptions to the negligence rule. They are: the exemption of shipowners from the liability for negligent navigation and management of the ship by their employees,⁵³⁶ or for fire damage caused by the negligence of the employees.⁵³⁷ These real exceptions are objectionable under an economic analysis as we will shortly discuss the reasons. The good news is that none of these two exceptions appears in the *Hamburg Rules*⁵³⁸ or in the *Draft Convention*.⁵³⁹ The bad news is that most shipping and maritime nations still follow either the *Hague Rules* or its amended version the *Hague-Visby Rules*.⁵⁴⁰

Another objectionable feature in all the cargo liability regimes is the principle of limitation of liability. This means that even when shipowners are held liable for negligence, their liability would be limited in amount.⁵⁴¹ As discussed in chapter two, the principle of limitation of liability indirectly serves the function of *insurance* for shipowners. In addition, all the cargo liability regimes preserve the principle of general

⁵³⁶ Article IV.2 (a) excludes the shipowner from liability due to “[a]ct, neglect, or default of the master, mariner, pilot, or the servants of the carrier in the navigation or management of the ship.”

⁵³⁷ Article IV.2 (b) gives a shipowner exemption from liability for “[f]ire, unless caused by the *actual fault or privity of the carrier*.” (Emphasis added).

⁵³⁸ The *Hamburg Rules* do not contain a ‘laundry list’ of exceptions. Although few of the exceptions are mentioned in various sections, they are mainly based on reasonable care on the part of the shipowner. See “A Comparison of the Rules” *supra* note 520 at 2065-69.

⁵³⁹ Although the *Draft Convention* contains a list of exceptions, the list does not include the above two.

⁵⁴⁰ See Tetley, “Reform of Carriage of Goods – The UNCITRAL Draft and Senate COGSA ’99”, *supra* note 141.

⁵⁴¹ See article IV.5 (a) of the *Hague-Visby Rules*, article 6.1(a) of the *Hamburg Rules*, and article 62.1 of the *Draft Convention*.

average,⁵⁴² a principle also designed originally to serve *insurance* function, even though market insurance is now widespread.

II. Economic Analysis of Liability Rules

As mentioned at the beginning of the chapter, liability rules may serve two functions: the deterrence from negligence, and the compensation of a party who suffered losses.⁵⁴³

In an economic analysis, these functions can be restated as the creation of incentives towards care and the resolution of the problem of risk aversion.⁵⁴⁴ While the first function has a direct economic benefit in reducing loss or damage by inducing a potentially liable party to take care, the economic benefit from the second function is not so obvious. This is because when a loss occurs, the compensation of a claimant by a liable party only shifts money from the latter to the former and does not increase the society's wealth or utility.⁵⁴⁵ However, the transfer of risk through compensation may serve an important economic function if and only if the parties are not insured *and* the

⁵⁴² Article V of the *Hague-Visby Rules*; article 24 of the *Hamburg Rules*; article 87 of the *Draft Convention*.

⁵⁴³ To be sure, however, legislatures and courts do not always give equal importance to these two functions of liability laws. One function may weigh more than the other in the decisions and public policies. See generally J. G. Fleming, *An Introduction to the Law of Torts*, (Oxford: Clarendon Press, 1985) at 1-18.

⁵⁴⁴ Although Calabresi & Melamed developed in their article "Property Rules", *supra* note 198, two main functions of liability rules (and property rules): 'economic efficiency' and 'distributional goal', the two functions of liability rules mentioned in this chapter can also be explained in the same way. Deterrence from negligence (creation of incentives to take care) brings 'economic efficiency' by reducing loss, while compensation (allocation of risk) can be termed as 'distributional goal' of liability rules. They also developed a third function 'other justice reasons'. I ignored it because the third function can largely be explained by the first two according to the authors themselves. See *ibid* at 1105.

⁵⁴⁵ There is caveat to the statement; that is, transfer of loss from more risk-averse to less risk-averse through liability rules can serve a society's distributional goal and can increase social welfare or utility. This is because a dollar has more value or utility to a poor (usually more risk-averse) than to a rich person (less risk-averse) due to 'diminishing marginal utility' of wealth with the growth of wealth. Such transfer is, however, done more efficiently through tax law than liability law. See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 648-649.

victims are more risk-averse than the injurers.⁵⁴⁶ In today's maritime cargo transport setting, both cargo owners and shipowners are invariably insured against their respective cargo loss and liability. A cargo owner will be compensated through cargo insurance regardless of the shipowner's liability. This reduces the importance of compensation (or solving the problem of risk aversion) by imposing liability. Therefore, the main function of cargo liability law should be the deterrence from negligence or the creation of incentives in the minds of shipowners to take proper care of the cargo.⁵⁴⁷

III. Economic Analysis of Cargo Liability Regimes

A. Function of Liability Rules: Deterrence

1. Incentive is created only when the cost of care is less than the expected liability

We have seen that negligence is the basic liability rule in all the maritime cargo liability regimes. The main function of negligence or fault-based liability is the *deterrence* from negligence or the creation of incentives towards optimal care.⁵⁴⁸ If there is no liability for negligence and thus losses lie where they fall, shipowners, as rational individuals, will not spend on precautionary measures especially if the cargo owners are not able to verify the shipowners' care level. Negligence is simply the failure to take reasonable care. Care is reasonable if and only if the cost of care is less than the *expected* loss. For

⁵⁴⁶ See the reasons for 'distributional goal' of liability rule in the above note. These reasons will be further elaborated *infra* Part III.B in the discussion of function of liability rules as insurance.

⁵⁴⁷ See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 267-69, 647-49.

⁵⁴⁸ Strict liability, on the other hand, focuses mainly on compensation. It may or may not produce deterrence depending on the nature of the loss. If certain losses are inevitable regardless of proper precaution, imposing strict liability will not serve the goal of deterrence. Deterrence will result from strict liability only when the loss is preventable with proper precaution. In the latter situation, strict liability may, in fact, produce stronger deterrent effect than negligence-based liability law. See Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 8-9; Shavell, *Foundations of Economic Analysis*, *ibid* at 98-99 and 189.

example, if the cost of care is \$90 and it will eliminate an expected loss of \$100, not taking care will amount to negligence. In a sure loss situation, people are hardly negligent.

Most of the time, however, the occurrence of a loss is uncertain and probabilistic, while the cost of care is certain. As discussed in the first two chapters, losses are, therefore, expressed in the *expected* or *probability-discounted figure* under an economic analysis. For example, if there is 10 percent probability of a loss of \$1,000, the expected loss is \$100 (10% x \$1,000). The optimal care here would be any amount less than \$100 if such care would completely prevent the loss. Care may not *prevent* the loss; it may only *reduce* the probability. In the latter situation, care would be optimal if the cost is less than the difference in the expected liability before and after care. Not taking optimal care amounts to negligence. We have seen in chapters one and two the use of 'Hand Formula' in economic analysis to define negligence. Under this formula, negligence occurs when $B < PL$, where B represents the cost of care, P the probability and L the loss.⁵⁴⁹ Although neither courts nor shipowners determine reasonable care and the expected liability in mathematical terms, courts' rulings on negligence and on reasonable care roughly approximate such calculation.⁵⁵⁰

⁵⁴⁹ *U. S. v. Carroll Towing Co.*, 159 F.2d 169 at 173 (2d Cir. 1947). See also Posner, *Economic Analysis of Law*, *supra* note 23 at 168; Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 19-20 note 23.

⁵⁵⁰ Courts-determined standards of 'reasonable care' in negligence settings will usually vary with the cost of care and the risk of harm arising from lack of care. The greater the harm or the higher the likelihood of its occurrence, the higher would be the standard of 'reasonable care.' For example, in a narrow channel where the probability of accident is higher in the absence of care, standard of reasonable care is correspondingly higher. Care in such situation includes slowing the speed (slow navigation means more time for the transportation of cargo, which translates into more cost for the shipowner) and employing pilots (thus incurring the pilotage fees). See *The Alletta*, [1965] 2 Lloyd's Rep. 479 (where master's

2. Exceptions to negligent navigation and fire damage not justified

Not imposing liability for negligence may lead to more cargo loss or damage because shipowners would not spend for something for which they will not be held liable for.⁵⁵¹

This is, unfortunately, the case in the two exceptions or exonerating situations under the *Hague-Visby Rules*: a shipowner is not liable (1) for any “act, neglect, or default of the master, mariner, pilot, or the servants of the carrier in the navigation or in the management of the ship,”⁵⁵² and (2) for any loss from “fire, unless caused by the actual fault or privity of the carrier.”⁵⁵³ The criticisms of these exceptions may be qualified by the following observations. Negligent navigation or management of the ship also puts the ship at risk and shipowners may, therefore, be motivated to take reasonable care⁵⁵⁴ by self-interest.⁵⁵⁵ Yet, in the absence of liability a shipowner’s incentives will be weak because the financial burden for its own loss is obviously less than the financial burden of both its own loss and the liability for cargo loss. To put it differently, a rational shipowner may weigh the cost of care against its own benefit only as opposed to the

failure to use the service of a pilot caused an accident; the master was held negligent, even though pilotage was not compulsory); see also generally, Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 190-192.

⁵⁵¹ “If ... the shipowner were immune from all liability for loss or damage which could have been avoided by physical precautions taken while the goods were in his custody, he would have no commercial inducement to expend money on precautions to preserve the cargo from loss or damage which were not also required for the safety of the vessel, *even if the cost were small in comparison with the resultant reduction in the risk of loss or damage.*” Lord Diplock, “Conventions and Morals – Limitation Clauses in International Maritime Conventions” (1970) 1 J. Mar. L. Comm. 525 at 527 (emphasis added) [hereinafter Lord Diplock, “Conventions and Morals”].

⁵⁵² Article IV.2(a) of the *Hague-Visby Rules* (emphasis added).

⁵⁵³ Article IV.2(b) of the *Hague-Visby Rules* (emphasis added) i.e., negligence of master and crew in causing fire is excluded.

⁵⁵⁴ Care in this context involves mainly employing adequate number of well-trained and properly-certified crew members. As crewing cost is highest operational cost, there is a tendency among shipowners to employ insufficient and under-trained crews in order to save costs.

⁵⁵⁵ “Lord Diplock, “Conventions and Morals,” *supra* note 551 at 528; Gilmore & Black, *supra* note 3 at 143-144.

joint benefit towards the ship and cargo.⁵⁵⁶ In assessing the cost and benefit of taking care, the shipowner would take into account only the benefit of care to its ship, while efficiency requires that the shipowner consider the joint benefit of the ship and cargo.

A shipowner may, however, still consider the benefit of care to the cargo because the shipowner may otherwise lose future business from the same cargo owner or from other cargo owners if the shipowner's business reputation is hurt by its negligent navigation. However, for the fear of reputation to work as incentive in the minds of shipowners, *cargo owners must have perfect information* about each shipowner's care level. Cargo owners then will transport their goods on those ships in which the 'full cost' of transportation would be the least.⁵⁵⁷ The full cost consists not only of how much freight charge a cargo owner pays to the shipowner but also the potential cost arising from the expected loss or damage to the cargo. Assume the freight rate for the transport of a particular cargo varies within the range of \$50 to \$100 and the possible risk of cargo damage range from \$10 to \$100 depending on care. Even if a shipowner offers the lowest freight rate i.e., \$50, a cargo owner will not do business with that shipowner when the full cost is very high, say \$150 in total because of the possible cargo damage of \$100. The cargo owner would choose another shipowner who charges the highest freight rate (i.e., \$100), but on whose ship the cargo damage is only \$10, thus costing a lower amount in full cost (\$110 only). Yet, it is next to impossible for a cargo owner to

⁵⁵⁶ For example, with 10 per cent probability of \$500 worth of damage to ship and \$500 worth of cargo loss, shipowner may not take care in the absence of liability when the cost of care is \$90 even though such care would completely eliminate the risk. However, with liability for negligent navigation he will take care as the net benefit from care will be \$10 ($10\% \times \$1,000 - \90) instead of net deficit of \$40 in no liability situation ($10\% \times 500$ (damage to ship) – \$90 (cost of care)).

⁵⁵⁷ See Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 51-53.

have such perfect information on full cost. In the absence such information and in the absence of liability on the shipowners for the negligence of their employees, shipowners are unlikely to take into account the possible cargo loss when deciding the precautionary measures. Thus, the above two exceptions in the *Hague-Visby Rules* may lead to more cargo loss or damage than would be the case if the exceptions were not available.

3. Liability may be unnecessary in a world of perfect information

In fact, the need for any liability law arises due to the lack of information on various aspects of care and loss by all the parties whose actions or omissions can harm each other. If a cargo owner were to have perfect information about the cost of care and the possible risk of loss, optimal care would always be taken either by the cargo owner or by the shipowner regardless of liability rules. This is the insight of the ‘Coase theorem’.⁵⁵⁸ The theorem states that parties will take optimal care regardless of liability rules if the transaction cost is zero or less than the sum of total gain from the transaction.

The theorem can be illustrated by a hypothetical example. Assume that in a cargo transport situation the only relevant aspect of care is to have the sufficient number of

⁵⁵⁸ Coase, “The problem of social cost”, *supra* note 418. For the ‘Coase theorem’ to hold true, the following assumptions have to be made: the parties are rational; transaction cost for each side is zero or less than the net benefit for each side; their negotiation is not affected by their relative wealth. See J.L. Coleman, “The Economic Analysis of Law”, in Pennock and J. W. Chapman eds., *Ethics, Economics, and the Law: NOMOS XXIV*, 1 (1982), 10-11.

crew members.⁵⁵⁹ Suppose also that each crew member's wage for a single trip is \$90 and the possibility of loss increases 10 per cent with the employment of one less crew member. If the value of the cargo is \$1,000, the expected loss with 10 per cent possibility would be \$100 (10% x \$1,000). Here employing one less crew member will amount to negligence as the wage of one crew member (\$90) is less than the expected loss. If both shipowners and the cargo owners have this information, the crew member will be employed regardless who bears the liability or loss. If shipowners bear the liability for the loss, they would hire the additional crew member because the wage of the crew member is less than the shipowners' expected liability. On the other hand, if there is no liability on shipowners and the loss remains with cargo owners, cargo owners will pay shipowners to appoint that additional crew as this would prevent \$100-cargo loss at a \$90-wage. Due to the presence of perfect information, liability rules do not make any difference in the ultimate decision about care.

In reality, however, the information on optimal care and possible loss are imperfect. Because of the imperfect information of a cargo owner or asymmetry of information between a shipowner and a cargo owner there may not be any agreement on who should take care in the absence of liability rules. For example, in the above example the cargo owner may think the wage of an additional crew for the trip is \$80 instead of \$90 or may not know exactly how many crew members the ship needs in a particular voyage. In other words, when care can be taken only by one side, the other side may not have the correct information about the exact nature and cost of care, and thus mutually

⁵⁵⁹ Of course, in a real case there will be many aspects of care such as seaworthiness and cargoworthiness of the ship, proper stowing of the cargo, proper training of the crew etc.

beneficial transaction or agreement with regard to taking care will not occur. Imposing liability on the party who can take care at a cheaper cost will bypass this information problem in inducing optimal care. In addition, obtaining information involves cost. There are also costs for the parties to negotiate and to reach agreement about care in the contract of carriage. All these costs can be avoided simply by imposing liability on the party who has better information about proper care and/or who can take such care with lesser cost. Proper liability rules will thus save the cost of information, negotiation and the conclusion of a mutually beneficial agreement.⁵⁶⁰

The most frequently mentioned reasons of imposing liability on shipowners under the cargo liability regimes are the ‘inequality of bargain’ between shipowners and cargo owners,⁵⁶¹ and the absence of the real ‘freedom of contract’.⁵⁶² However, the possession of perfect information by cargo owners would have solved these two problems. If cargo owners had perfect information as to the exact cost of care and as to which shipowner in fact takes care, they would offer the cost of care to that shipowner in the absence of liability⁵⁶³ or shipowners themselves would take care in the presence of liability. With perfect information, the role of liability would not make any difference in terms of actual care. Due to the lack of information cargo owners may not know the actual cost of care. Even if they know the exact cost, they may not know or are unable to verify

⁵⁶⁰ Coase, “The Problem of Social Cost”, *supra* note 418 at 15-16.

⁵⁶¹ Gilmore & Black *supra* note 3 at 146-147, 198-199; Sturley, “Scope of coverage”, *supra* note 144 at 140-143; Sturley, “UNCITRAL’s Transport Law Project”, *supra* note 144 at 89.

⁵⁶² Sturley, “Scope of coverage”, *ibid.*

⁵⁶³ This would be true even if the market is not competitive (absence of freedom of contract) and even if there is ‘inequality of bargaining power’ between the shipowner and cargo owner. Lack of perfect information may be identified as the root cause of the problems of unequal bargain and absence of real freedom in contract.

whether a particular shipowner has actually taken care or not. In the absence of information, cargo owners may not credit those shipowners who actually take care through higher freight rates. Consequently, shipowners will not take care in the absence of liability. The imposition of liability on shipowners under all the cargo liability regimes is thus important to maintain incentives towards care. On the other hand, the absence of liability for negligence in the two exceptions of the *Hague-Visby Rules* (negligent navigation and fire caused by crew) is not justified. These exceptions may lead to more incidents of cargo loss or damage. As a result, the prices of goods shipped under the *Hague-Visby Rules* might be higher.

4. Incentive is not affected by most of the exceptions in the liability regimes

Other than the above two exceptions, the enumerated exceptions in the cargo liability regimes are justified. The enumerated exceptions to the shipowner's liability in the *Hague-Visby Rules*, most of which also appear in the *Draft Convention*, do not hinder the deterrent effect of liability law because these exceptions either directly or indirectly require the absence of negligence on the part of a shipowner. The exceptions can be grouped together into four headings: a) natural incidents, b) the acts of third parties, c) the acts of cargo owner or the defect in the goods, and d) certain reasonable acts of shipowners or their employees.

Under the category of 'natural incidents' fall "act of God", "perils, dangers and accidents of the sea or other navigable waters" (perils of the sea).⁵⁶⁴ An 'act of God' is

⁵⁶⁴ Article IV.1 (d) and (c) of the *Hague-Visby Rules*; article 18.3 (a) and (b) of the *Draft Convention*.

a natural incident without any human intervention that “could not have been prevented by any amount of foresight and pains and care reasonably to be expected from [the shipowner].”⁵⁶⁵ ‘Peril of the sea’ is defined as “something so catastrophic as to triumph over those safeguards by which skilful and vigilant seamen usually bring ship and cargo to port in safety.”⁵⁶⁶ Although an act of God can also be a natural incident not necessarily a peril of sea,⁵⁶⁷ an act of God on the sea and a peril of sea are one and the same thing. What is important for our purpose here is that their definitions make it clear that such acts are *beyond the reasonable care and control* of a diligent shipowner and these acts overcome the strength of a seaworthy ship.⁵⁶⁸ Thus the imposition of liability on shipowners for such acts will not create any incentives towards optimal care. Liability in such situation may in fact lead a shipowner to take excessive care due to the risk aversion of shipowners.⁵⁶⁹ Care is excessive when the cost of care is more than the benefit in either the elimination or reduction of the expected loss. Liability in such cases would amount to strict liability without any corresponding justification for strict liability. Strict liability is justified when it is difficult or almost impossible for courts to determine actual care taken by the injurer *and* the failure to do so is significant in terms

⁵⁶⁵ *Nugent v. Smith*, [1876] 1 C.P.D. 423 at 444; cited in Gilmore & Black, *supra* note 3 at 163 note 71. See also *Turgel Fur Co. Ltd. v. Northumberland Ferries Ltd.* (1966), 59 D.L.R. (2d) 1 (N.S.S.C.); Gold et al., *Maritime Law*, *supra* note 56 at 459 note 271.

⁵⁶⁶ Per Hough J. in *The Rosalia*, 264 F. 285 at 288, (2d Cir. 1920); See also *The Xantho* (1887), 12 App. Cas. 503 at 509 (per Lord Herschell); *Charles Goodfellow Lumber Sales Ltd. v. Verreault*, [1971] S.C.R. 522 at 535 (per Ritchie, J.); cited in Tetley, *Cargo Claims* (2008 ed.) *supra* note 147 at 1038-41; see also Gold et al., *Maritime Law*, *ibid* at 459.

⁵⁶⁷ Gold et al., *Maritime Law*, *ibid* at 459.

⁵⁶⁸ Gilmore & Black, *supra* note 3 at 162-63.

⁵⁶⁹ See *infra* Part III.B, the discussion on “Function of Liability Rules: Insurance.”

of actual loss or damage.⁵⁷⁰ An extreme example of such a situation can be the liability for a nuclear accident.

Under the second group of exceptions the list of acts is long but their common characteristic is that they are caused by third parties. They are the “act of war”, the “act of public enemies”, the “arrest or restraint of princes, rulers or people, or seizure under legal process”, “quarantine restrictions”, “strikes or lockouts or stoppage or restraint of labour from whatever cause, whether partial or general”, “riots and civil commotions”.⁵⁷¹ Some of these acts are by public authorities (whether political acts such as war, administrative acts such as quarantine, or judicial acts e.g., seizure under legal process), while others are by the members of public under certain situations of political unrest. Again what is important here is that a shipowner has to prove that it was in no way negligent for the cargo loss or damage. Imposing liability on shipowners for someone else’s act does not create incentives and thus fails to serve the main function of liability unless the shipowners have aggravated the situation. For example, even if a shipowner may not have any control over a strike, it would still be negligent in knowingly proceeding to a strike-bound port with perishable cargo when there is an alternative safe port.⁵⁷²

⁵⁷⁰ Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 30; Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 197-198.

⁵⁷¹ Article IV.2 (e), (f), (g), (h), (j) and (k) of the *Hague-Visby Rules*; see also article 18.3 (c), (d) and (e) of the *Draft Convention*. While some of the categories relating to arcane language of the *Hague-Visby Rules* such as ‘restraint of prince’ were deleted from the *Draft Convention*, a new category (‘terrorism’) is added to this group; see article 18.3 (c).

⁵⁷² *Crelinsten Fruit Co. v. Mormacsaga (The)*, [1968] 2 Lloyd’s Rep. 184 (Ex. Ct.). See also *United States v. Lykes Bros. Steamship Co.*, 511 F.2d 218 (5th Cir. 1975); cited in Gold et al at., *Maritime Law*, *supra* note 56 at 460 note 279.

The third group of exceptions contains the “act or omission of the shipper or owner of the goods, his agent or representative”, “wastage in bulk of weight or any other loss or damage arising from inherent defect, quality or vice of the goods”, “insufficiency of packing”, “insufficiency or inadequacy of marks”.⁵⁷³ All these are situations where the fault or defect lies either with cargo owners or in the goods itself, and the loss should thus rightly lie where it falls. Up until now I have discussed the incentive effect of liability rules only on a shipowner. The role of liability rules in creating incentives is a two-way street. Negligence rule creates incentive to take care not only in the minds of shipowners but also in the minds of cargo owners because the failure of cargo owners to properly pack and mark their cargo will make them bear the loss or damage. As taking care involves cost, rational cargo owners would not take appropriate care if they can claim for the loss or damage caused by their own negligence from shipowners, as might be the case under strict liability.⁵⁷⁴ Negligence rule is thus the best liability rule under ordinary circumstances when both parties can take care *and* courts can determine the level of care taken by each side.

In the case of ‘inherent defect or vice’ of a goods causing loss or damage,⁵⁷⁵ neither a shipowner nor a cargo owner has any control in preventing such loss; liability rule has no role to play in such case at least in terms of creating incentives. As the main

⁵⁷³ Art. IV.2 (i), (m), (n) and (o) of the *Hague-Visby Rules*; art. 18.3 (h), (j), and (k) of the *Draft Convention*.

⁵⁷⁴ See generally Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 9-20; Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 182-192.

⁵⁷⁵ An example of inherent vice is that flour shrinks and loses weight during the voyage. See Tetley, *Cargo Claims* (2008 ed.), *supra* note 147 at 1142-43.

function of liability rule is to create incentives to take care, it does not make any difference from the point of economic efficiency either to impose liability on shipowners or to let cargo owners bear the loss in such situation.⁵⁷⁶ The same can be said with regard to all those exceptions where losses occur without anyone's lack of care such as the act of God, war, or strike.

The fourth and final group of exceptions includes "saving or attempting to save life or property at sea", "latent defects not discoverable by due diligence", and "any other cause arising without the actual fault or privity of the shipowner, or without the fault or neglect of the agents or servants of the shipowner..."⁵⁷⁷ It is clear here that even though the loss or damage is caused in these situations by an act or omission of a shipowner or its employees, such act and omission are *not* due to their lack of care, thus implying the absence of any incentive effect of liability rule. The 'catch-all' provision of article IV.2 (q) would have sufficed to set up the whole negligence-based cargo liability regimes. This is because absence of fault or negligence is the all-encompassing requirement in all the cargo liability regimes for a shipowner to be exonerated from liability for the damage to or loss of the cargo under its care.⁵⁷⁸

⁵⁷⁶ See *infra* at 163 "Function of Liability Rules: Insurance" about the function of liability rule as a form of insurance.

⁵⁷⁷ Art. IV.2 (l), (p) and (q) of the *Hague-Visby Rules*; art. 18.3 (g), (l), and (m) of the *Draft Convention*.

⁵⁷⁸ See *supra* the discussion under part I of the chapter.

Although these exceptions are not specifically mentioned under the *Hamburg Rules*, they would fall under its ‘presumptive fault’-based liability rule.⁵⁷⁹ For example, loss due to an act of God (an example from first group of exceptions), war (an incident in second group), defect in the goods (an item from third group), and the latent defect in the ship (a fourth-group situation) can all be covered by the ‘presumed fault’ liability rule under the *Hamburg Rules*. To free itself from liability in all the above cases, a shipowner under the *Hamburg Rules* has to prove the absence of its negligence in causing or aggravating the loss and that one of the above factors was the sole cause of the loss. As mentioned before, the *Draft Convention* contains most of these exceptions. Under the *Draft Convention* the shipowner is also exonerated from liability for cargo loss or damage arising from reasonable measure to protect environment.⁵⁸⁰ This may be grouped together with the fourth group of exceptions under which shipowners are not liable for the loss of cargo in their reasonable attempt to save life and property. The increasingly higher value of the environment makes such measures more cost-justified today than ever before.⁵⁸¹

5. Incentive requires imposition of liability on everyone who can take care

The incentive effect of liability rule requires that liability be imposed on every one who can take care to eliminate or reduce loss or damage whether such person is a shipowner,

⁵⁷⁹ See article 5(1) and Annex II of the *Hamburg Rules*; see also Force, “Comparison of the Rules” *supra* note 526 at 2065-2069.

⁵⁸⁰ Art. 18.3(a)-(o) of the *Draft Convention*.

⁵⁸¹ The increasing value of the environment is due not only to the decreasing number of such resources but also to the increase of their aesthetic value in the eyes of the public. On question of valuation of environmental resources, see K. T. Grady, “Commonwealth of Puerto Rico v. SS Zoe Colocotroni: State Actions for Damage to Non-Commercial Living Natural Resources” (1980-81) 9 Boston College Environmental Affairs Law Review 397.

cargo owner, their servants, agents, or independent contractors. However, the employees of a shipowner may not have the assets to pay for their liability and imposing liability on someone who is *unable* to pay may not create incentives in their minds to take care. This is because the liable parties who cannot pay full liability may find their cost of care more than their expected liability and thus may decide not to take care despite liability.⁵⁸² Second and consequently, the victims of loss may not sue such defendants as the victims' cost of litigation may be more than their expected gain.⁵⁸³ For instance, in our first example we saw that imposing liability on shipowners induces them to take care when the cost of care (\$90) is less than their expected loss or liability of \$100 ($10\% \times \$1,000$). The actual loss or liability amount here is \$1,000. If a liable party has assets less than \$1,000, say \$500, it will take care only when the cost is less than \$50 (i.e., 10% chance of its liability multiplied by its maximum liability of \$500). Now a cargo owner, whose loss is \$1,000, will not sue such a party if the cargo owner's litigation cost is more than \$500 even if it is certain to win the case because the defendant can only pay the cargo owner \$500 maximum.⁵⁸⁴

In other words, the inability to pay full liability distorts both the incentive to take care and the incentive to sue the potentially liable parties. The latter distortion may exacerbate the former if the potentially liable parties know that they would not face lawsuit. That is why it is economically efficient to impose *vicarious liability* on

⁵⁸² Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 167-169; Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 230-236.

⁵⁸³ See generally Shavell, *Foundations of Economic Analysis*, *ibid* at 387-401.

⁵⁸⁴ Even if the cost of litigation is less than \$500, the victim may not sue the injurer if he is not certain to win. For example, if chance of win is only 50 per cent, the victim will not sue if his litigation cost is more than \$250 ($50\% \times \500).

employers for the negligence of their employees,⁵⁸⁵ who may not be induced to take optimal care by the fear of liability which they cannot pay for. However, employers may induce their employees to take care by threat of firing or some internal monetary discipline. All the cargo liability regimes impose liability on shipowners for the fault and neglect of their master and crew.⁵⁸⁶ However, as discussed earlier in the chapter, under the *Hague-Visby Rules* the shipowner is not liable for the cargo loss caused by fire due to the employees' negligence or for the loss caused by their negligent navigation and management of the ship.⁵⁸⁷ As the *Hamburg Rules* and the *Draft Convention* do not contain these exceptions, these liability regimes are an improvement over the *Hague-Visby Rules* from the perspective of the function of liability rules in creating incentives.

B. Function of Liability Rules: Compensation or Insurance

Although the main goal of liability law today under economic analysis is the *deterrence* from negligence or the creation of incentives towards care, liability law has served the important function of *insurance* in the past by allocating risks from more risk-averse to less risk-averse parties or by spreading the risk between equally risk-averse

⁵⁸⁵ See A. Sykes, "The Economics of Vicarious Liability", (1984) 93 Yale L. J. 1231. See also Posner, *Economic Analysis of Law*, *supra* note 23 at 188-89.

⁵⁸⁶ Article 4.2(q) of the *Hague-Visby Rules*; article 5.1 of the *Hamburg Rules*; articles 18.2 and 19 of the *Draft Convention*.

⁵⁸⁷ Article 4.2(a) and (b) of the *Hague-Visby Rules*. In the USA, an exception to this negligent navigation exoneration occurs in a both-to-blame collision situation. This happens when a negligent carrying ship has to contribute to the liability paid by the non-carrying ship to the owner of the cargo on the carrying ship. Although the carrying ship would not have to pay to its cargo if sued separately, it pays for such loss indirectly when the cargo owner sues the non-carrying ship. Shipowners insert a 'both-to-blame clause' in bills of lading, under which cargo owner is required to indemnify the carrying ship for that amount. However, the US Supreme Court in *United States v. Atlantic Mutual Ins. Co.*, 343 U.S. 236, 72 S. Ct. 666, 1952 A.M.C. 659 (1952), refused to uphold the validity of such clause. See Gilmore & Black, *supra* note 3 at 173-176. As 'negligent navigation' is not an exception in the *Hamburg Rules* and *Draft Convention*, the carrying ship would be liable for its negligence whether sued directly or indirectly.

individuals.⁵⁸⁸ As mentioned in the previous chapters, the insurance function through liability law *was* significant in the past to encourage investment when marine insurance was not well-developed. Today with everyone fully insured in a maritime cargo liability setting, the function of liability rule as a device for risk transfer has lost its significance.

As discussed in chapter two, the need for insurance arises due the problem of ‘risk aversion’. Risk aversion is our tendency to fear more the loss or liability of a larger amount with less probability than the loss or liability of a smaller amount with higher probability even though the expected loss or liability from both situations is the same.⁵⁸⁹ Using our previous example, a cargo loss of \$1,000 worth with 10 percent probability may not be of as big concern to a cargo owner as that for losing \$10,000 worth of goods with 1 per cent probability, even though in both cases the expected loss is the same i.e., \$100 (\$1,000 x 10%) or (\$10,000 x 1%). Risk aversion is a source of social disutility as it either encourages risk-averse people to take excessive care or discourages them from engaging in the socially beneficial activities.⁵⁹⁰ For example, in all the above examples to spend *more* than \$100 on precautionary measures would amount to excessive care as the maximum preventable loss is only \$100 in a probability-discounted figure. In the absence of insurance, risk-averse people will tend to spend more than \$100 to avoid 1 percent risk of losing \$10,000 or to prevent 0.5 chance of suffering \$100,000 loss. Alternatively, they may decide not to engage in such an activity to begin with even

⁵⁸⁸ See Shavell, “On Liability and Insurance”, *supra* note 499 at 121-122.

⁵⁸⁹ See Posner, *Economic Analysis of Law*, *supra* note 23 at 10-11. See Abraham, *Distributing Risk*, *supra* note 17 at 11-2.

⁵⁹⁰ Shavell, *Economic Analysis of Accident Law*, *supra* not 28 at 191-92; see also Abraham, *Distributing Risk*, *ibid* at 11-12.

though their expected gain might be higher than the expected loss. For example, cargo owners may decide not take their goods via ship to another port where they can make a profit of \$200 because of their fear of losing \$10,000 although the odds of such loss are only 1 percent. The costs of both excessive care and forgone profit from not engaging in an activity are social loss.

The summary of the last two chapters is that in the absence of insurance the limitation of liability and the general average principles addressed the problem of 'risk-aversion' by spreading the risk of losses between shipowners and cargo owners. Insurance now solves the problem of risk aversion and an actuarially fair premium rate for all the above hypothetical situations would be \$100.⁵⁹¹ When both shipowners and cargo owners are insured, as is usually the case today in maritime cargo liability setting, the problem of risk aversion will have already been taken care of by insurance. The need for liability rules to serve insurance function thus no longer exists. Although some of the liability rules designed to serve insurance purpose in the past has been modified in the light of this reality, the general average and the limitation of liability still continue to exist in the cargo liability regimes. The problem with these anachronistic rules is that they *affect deterrent* goal of liability law.

1. Modified cargo liability rules which used to serve insurance purpose

- a. *Strict liability of common carrier*

⁵⁹¹ See Shavell, *Foundations of Economic Analysis*, *ibid* at 258 note 2. Of course, there will be some additional charge to the actuarially fair premium to reflect insurer's administrative costs and profits.

The insurance function of liability rules may explain the reason behind the imposition of strict liability in the past on ‘common’ (i.e., public) carriers.⁵⁹² Under common law a common carrier was liable for any loss or damage to the cargo under its custody regardless of its negligence. The only exceptions were the act of God, of public enemy, the inherent vice in the goods or the fault of the cargo owner.⁵⁹³ The apparent legal justification for this strict liability was the difficulty of cargo owners to prove negligence after they entrusted their goods with a shipowner for carriage.⁵⁹⁴ However, this difficulty has always been there and continues to exist in any lawsuits by cargo owners against shipowners. The law sometimes overcomes this difficulty by shifting the burden to shipowner to show the absence of negligence rather than requiring a cargo owner to prove the shipowner’s negligence.⁵⁹⁵ Thus the above justification for strict liability on common carriers is not very persuasive.

The real justification of strict liability on common carriers seems to lie in its insurance function. This can be inferred from the very definition of ‘common carriage’ and

⁵⁹² Common carriers are ships which carry goods of many shippers, while private carriers are chartered ships and carry only the goods of the charterers. See Y. F. Chiang, “The Characterization of a Vessel as a Common or Private Carrier”, (1973) 48 Tul. L. Rev. 299. For a historical evolution of the common carrier liability, see Holmes, *Common Law*, *supra* note 75 at 180-205.

⁵⁹³ See *Propeller Niagara v. Cordes*, 62 U.S. (21 How.) 7, 23 (1859); *The Willdomino*, 300 F. 5, 9, 1924 A.M.C. 889 (3d Cir. 1924), affirmed 272 U.S. 718, 47 S.Ct. 261 (1927); cited in Gilmore & Black, *supra* note 3 at 140 note 2.

⁵⁹⁴ Per Holt C.J. in *Coggs v. Bernard*, (1672) 93 Eng. Rep. 107 at 112 (K.B.), “The law charges this person thus entrusted to carry goods, against all events but acts of God, and of the enemies of the King. For though the force be never so great, as if an irresistible multitude of people should rob him, nevertheless he is chargeable. And this is a politick establishment, contrived by the policy of the law, for the safety of all persons, the necessity of whose affairs oblige them to trust these sorts of persons, that they may be safe in their ways of dealing; for else these shipowners might have an opportunity of undoing all persons that had any dealings with them, by combining with thieves, &c. and yet doing it in such a clandestine manner, as would not be possible to be discovered. And this is the reason the law is founded upon in that point”; cited in Chiang, “The Characterization of a Vessel as a Common or Private Carrier”, *supra* note 592 at 304.

⁵⁹⁵ See Articles 4.1, 4.2(q) of the *Hague-Visby Rules*; article 5.1 of the *Hamburg Rules*; article 18.2 of the *Draft Convention*.

'private carriage'. A private carriage is where a cargo owner employs the service of the whole ship (e.g., charter party), while in a common carriage there are usually many cargo owners (e.g., liner service).⁵⁹⁶ A cargo owner who hires the whole ship is likely to be wealthier and less risk-averse merchant than a cargo owner in a common carriage situation who only hires some space for his or her cargo.⁵⁹⁷ As a result, a cargo owner in private carriage has less need for insurance protection from the shipowner and both the shipowner and the cargo owner were probably on par in terms of their wealth. The same was not usually the case in a common carriage situation. Common carriers (i.e., the shipowners) were likely to be wealthier individuals and thus comparatively less risk-averse than their cargo owners.

Common carriers were also in a better position than cargo owners to spread the extra cost of lost or damaged cargo over many individuals because they could pass such cost in the freight they charged.⁵⁹⁸ In fact, courts expressly compared the position of common carriers to that of insurers.⁵⁹⁹ As insurance is now widely available and is purchased regularly by all cargo owners regardless of their wealth, it is no longer

⁵⁹⁶ See Chiang, "The Characterization of a Vessel as a Common or Private Carrier", *supra* note 592 at 327-27. See also *The Wildenfels*, 161 F. 864 at 866 (2d Cir. 1908), cert. denied, 215 U.S. 597 (1909); *Continental Ins. Co. v. Anchor Line Ltd.*, 53 F.2d 1032 at 1033 (E.D.N.Y.1931); cited *ibid*.

⁵⁹⁷ See *supra* note 545 about the connection between wealth and risk-aversion. In general, the wealthier a person the less risk-averse he or she is.

⁵⁹⁸ "As a 'common' carrier, entitled to make a reasonable charge for carriage, he could distribute the total cost of precautions that were economically productive among all his customers, and his charges in effect included an insurance premium against the risks..." Lord Diplock, "Conventions and Morals", *supra* note 551 at 526 (emphasis added).

⁵⁹⁹ Per Lord Mansfield in *Forward v. Pittard*, (1785) 1 T. R. 27, "A carrier is in the nature of an insurer." Cited in Beale, Jr., "The Carrier's Liability: Its History", *supra* note 129 at 168. Per Lord Wright in *Paterson Steamship Ltd. v. Canadian Cooperative Wheat Producers Ltd.*, "At common law, he [shipowner] was called an insurer, that he was absolutely responsible for delivering in like order and condition at the destination the goods bailed to him for carriage." [1934] A.C. 538 at 544 (PC) (emphasis added); cited in E. Gold et al., *Maritime Law*, *supra* note 56 at 363. See also Gilmore & Black, *supra* note 3 at 176-82.

necessary or desirable for liability rules to serve insurance function. The strict liability of common carrier has thus lost its appeal. Negligence became the basis of most liability laws including the cargo liability law. In adopting negligence as the basis of liability the present cargo liability laws are in alignment with this reality.

b. Automatic cancellation of contract of carriage after deviation

Later on even when cargo insurance became widespread, shipowners continued to be placed in the position of insurers in the cases of deviation from the contracted routes. Shipowners were liable for any loss suffered by cargo owners after deviation *regardless of any causal connection between the loss and deviation*.⁶⁰⁰ Shipowners could not exclude their liability for such loss through exoneration clauses as deviation would automatically cancel the contract of carriage together with all its terms and conditions.⁶⁰¹ The justification for this strict liability was that cargo owners used to lose their cargo insurance when the ships carrying their cargo deviated from the contracted or customary course.⁶⁰² Under common law after deviation the shipowners were deemed to take up the position of cargo insurer.⁶⁰³ The liability of the shipowners for

⁶⁰⁰ *Davis v. Garrett* (1830), 6 Bing. 716 at 724, 130 E.R. 1456 at 1459; *Edwards v. Newland*, [1950] All E.R. 1072 at 1081; cited in Tetley, *Cargo Claims* (2008 ed.), *ibid* at 1828 note 86.

⁶⁰¹ See Gilmore and Black, *supra* note 3 at 176-177.

⁶⁰² *Ellis v. Turner* (1800), 8 T.R. 531, 101 E.R. 1529; cited in Tetley, *Cargo Claims* (2008 ed.), *supra* note 147 at 1827 note 84. See generally H.S. Morgan, Jr., "Unreasonable Deviation under COGSA", (1978) 9 J. Mar. L. Comm. 481.

⁶⁰³ *Paterson S.S. Ltd. v. Canadian Co-operative Wheat Producers*, [1934] A.C.538 at 544-45 (P.C.); *S.S. Willdomino v. Citro Chemical Co.*, 272 U.S. 718 at 725, 1927 AMC 129 at 130 (1927); cited in Tetley, *Cargo Claims* (2008 ed.), *supra* note 147 at 1827 note 85.

cargo loss was not excused even by the fact that the loss after deviation was caused by an act of God, of public enemy, or due to inherent vice of the goods.⁶⁰⁴

Imposing liability on a shipowner for a loss not caused by its act (i.e., deviation) does not have any deterrent effect in preventing the future losses. If a loss would have occurred any way due to an act of God, the coincidence of its occurrence after deviation cannot make a shipowner blameworthy and liable for the loss. The only conceivable function of such liability was to provide insurance for the benefit of cargo owners who lost their cargo insurance after deviation.⁶⁰⁵ For deterrence purpose, it does not really matter who bears such loss as most of such losses could not be prevented by optimal care. One can speculate though that leaving such losses to cargo owners would probably save the costs of unnecessary litigation. The change of the common law in this regard through the *Hague-Visby Rules* is, therefore, justified; the *Hague-Visby Rules* and other cargo liability regimes now exonerate shipowners from liability in the cases of reasonable deviation.⁶⁰⁶ Insurance market responded to this change by incorporating a

⁶⁰⁴ *Tate & Lyle Ltd. v. Hain S.S. Co. Ltd.* (1936), 55 Ll. L. Rep. 159 at 177 (per Lord Wright); see Tetley, *Cargo Claims* (2008 ed.), *ibid* at 1882 note 88. These defences were acceptable in non-deviation cases. See *F. Kanematsu & Co. Ltd. v. The Shahzada* (1956), 96 C.L.R. 477 at 487, 30 A.L.J. 478; *Paterson S.S. Ltd. v. Canadian Co-operative Wheat Producers*, [1934] A.C.538 at 545 (P.C.); cited in Tetley, *Cargo Claims* (2008 ed.), *ibid* at 1828 note 89.

⁶⁰⁵ For the consequence of deviation in marine insurance policy, see s.43 of *CMIA* and s.46 of *MIA*. See also *Green v. Young* (1702), 2 Salk 444; *Elliott v. Wilson* (1776), 4 Bro PC 470; *David v. Garrett* (1830), 6 Bing 716.

⁶⁰⁶ Art. 4.4. Although there is no similar provision in *Hamburg Rules* and the *Draft Convention*, shipowner would not be liable for reasonable deviation under these Conventions because there has to be some 'fault' on the part of a shipowner to be liable and there can be no fault when deviation is reasonable. See art. 5.1 of the *Hamburg Rules* and art.15 of the *Draft Convention*. See also Force, "A Comparison of the Rules", *supra* note 526 at 2065-2069.

‘held-cover’ clause in the contract of marine insurance,⁶⁰⁷ which extends the coverage to the situations where ships deviate from the contracted routes.

In order to hold a shipowner liable for deviation today, it is not enough that the deviation is unreasonable but it also has to be the *cause* of the cargo loss or damage.⁶⁰⁸ Requiring the causal connection is also in agreement with the main function of liability rules i.e., the creation of incentives to take care. For example, if a sudden storm causes damage to cargo after deviation, imposing liability on a shipowner for the damage will not change the future behaviour of the shipowner in terms of taking care because such a peril may happen on the contracted route as well.⁶⁰⁹ However, the courts’ requirement of causal connection may still be somewhat narrower than what would be justified under an economic analysis. For example, in *The Tai Shan*⁶¹⁰ excusable fire damage occurred after deviation.⁶¹¹ Although the court required the claimant to prove causal connection between the deviation and the fire, the court held that the connection would be established if the day the incident of fire occurred was after the original delivery date.⁶¹² Under an economic analysis, non-negligent fire damage would be excused whether the day of the incidence happens to be before or after the day of delivery

⁶⁰⁷ See Gilmore & Black, *supra* note 3 at 176-77.

⁶⁰⁸ *General Electric v. Nancy Lykes*, 706 F.2d 80, 1983 AMC 1947 (2d cir. 1983); *Thiess Bros Ltd. v. Australian Steamships Ltd.*, [1955] 1 Lloyd’s Rep. 459 (Supreme Court of N.S.W); *Drew Brown Ltd. v. The Orient Trader*, [1974] S.C.R. 1286 (S.C.C); cases cited in Tetley, *Cargo Claims* (2008 ed.), *supra* note 147 at 1840 note 141.

⁶⁰⁹ Unless that part of the sea where the ship deviated to has more unusual weather pattern. See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 249-256.

⁶¹⁰ *Frederick H. Cone & Co. Inc. v. The Tai Shan*, 111 F. Supp. 638, 1953 AMC 887 (S.D.N.Y.1953), *aff’d* 218 F.2d 822, 1955 AMC 420 (2d Cir. 1955); cited in Tetley, *Cargo Claims* (2008 ed.), *supra* note 147 at 1841-42 and Gilmore & Black, *supra* note 3 at 141.

⁶¹¹ Under US Fire Statute, 46 U.S.C. §182, liability for fire damage is exonerated if the fire is not caused by the actual fault or privity of the shipowner.

⁶¹² 111 F. Supp. 638 at 647, 1953 AMC 887 at 899.

because the incidence of fire, or any peril for that matter, is a mere happenstance and imposing liability would not create any incentives in the future.

c. *Warranty of Seaworthiness*

Although the warranty of seaworthiness in the past was not as strict as deviation in disregarding the causal connection, it was still considered as an ‘absolute warranty’ and the presence or absence of fault on the part of the shipowner was irrelevant.⁶¹³ A shipowner used to be liable for the cargo damage or loss from unseaworthiness regardless of its fault to make the ship seaworthy.⁶¹⁴ Making shipowners liable for a defect in the ship, which optimal care (due diligence) would not have detected, does not deter them from negligence. However, in the past this rule may have again served the *insurance* function of liability. Shipowners were likely to be wealthier and less risk-averse than cargo owners, although they both were individual merchants as opposed to corporations. Shipowners were also in a better position to pass on and spread the losses over many cargo owners through extra charge in freight rates, a function similar to that of cargo insurance today.

In the presence of well-organized cargo insurance market, shipowners do not need to serve as insurers for the cargo. Thus the ‘absolute obligation’ on a shipowner to make

⁶¹³ In *Putnam v. Wood*, 3 Mass. 481 (1807) the court held, “If the goods are lost by reason of any defect in the vessel, *whether latent or visible, known or unknown*, the owner is answerable to the freighter, upon the principle that he tacitly contracts that his vessel shall be fit for the use, for which he thus employs her.” (Italics added); cited in G. H. Chamlee, “The Absolute Warranty of Seaworthiness: A History and Comparative Study”, (1974) 24 Mercer L. Rev. 519 at 523-24. See also *Work v. Leathers*, 97 U.S. 379 (1878); *The Caledonia*, 157 U.S. 124 (1895).

⁶¹⁴ See *Propeller Niagara v. Cordes*, 62 U.S. (21 How.) 7 at 23 (1859); *The Xantho*, [1887] 12 A.C. 503 at 515; *Lockett Co. v. Cunard S.S. Co.*, 21 F. 2d 191, 1927 A.M.C. 1057 (E.D.N.Y. 1927); cited in Gilmore & Black, *supra* note 3 at 140 note 4.

the ship seaworthy is now replaced by a requirement of 'due diligence' to do so under the *Hague-Visby Rules*.⁶¹⁵ The difference between the previous 'absolute' obligation and the present due diligence is that now a shipowner would not be liable for a loss caused by a defect in the ship which is so latent that proper investigation and care cannot detect and eliminate the defect.⁶¹⁶ As a latent defect⁶¹⁷ would remain un-detected whether the obligation of seaworthiness is absolute or not, imposing liability for a loss caused by such defect would not have any deterrent effect on the shipowner's behaviour. The change of cargo liability law in this regard is thus justified under an economic analysis, which considers deterrence as the primary goal of liability law.⁶¹⁸ Cargo insurers responded to the change through the insertion of a clause in the insurance contract in which they acknowledge the seaworthiness of the cargo-carrying ship as between themselves and the cargo owners.⁶¹⁹

2. Surviving cargo liability rules designed to serve insurance purpose

The surviving cargo liability rules which were designed for insurance purpose are the principles of general average and the limitation of liability. As these principles have

⁶¹⁵ Articles 3 (1) and 4 (1) of the *Hague-Visby Rules*; article 5.1 of the *Hamburg Rules*; article 15 of the *Draft Convention*. Under the *Hague-Visby Rules* and *Draft Convention* this duty is specifically assigned at the beginning of the voyage, while under the *Hamburg Rules* this falls under the 'presumptive fault' principle and extends throughout the voyage.

⁶¹⁶ Tetley, *Cargo Claims* (2008 ed.), *supra* note 147 at 878-80.

⁶¹⁷ Latent defect is expressly excluded by article 4.2(p) of the *Hague-Visby Rules* and article 18.3 (g) of the *Draft Convention*. As such defect cannot be attributed to 'fault' of the shipowner, it would also be excused under the *Hamburg Rules*. See article 5.1 of the *Hamburg Rules*.

⁶¹⁸ See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 267-69 and 635-38. See also Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 208.

⁶¹⁹ See Gilmore & Black, *supra* note 3 at 154-155. See also cl 5 of the Institute Cargo Clauses (A), (B), and (C); cl 4 of the Institute War Clauses (Cargo) and Strikes Clauses (Cargo).

already been discussed in detail in the last two chapters, the discussion here will be brief and will be supplementary to the previous materials.

a. General average

Before the innovation of modern market insurance, merchants used to distribute or spread their risk of loss by various means.⁶²⁰ One of the most ancient and longest surviving of these means is the principle of general average.⁶²¹ Under the general average principle,⁶²² when a sacrifice is made in the form of either a loss to a cargo or to a ship for the safety of the common adventure in a time of peril, the loss is shared by the shipowner and the cargo owners in proportion to the value of their respective saved interests in the adventure.⁶²³

In the pre-insurance era general average served the function of insurance by spreading the risk over all the parties involved rather than leaving the burden on the shipowners alone. It solved the problem of shipowners' risk aversion arising from the fear to bear

⁶²⁰ See chapter one. For example, the ancient practice of Chinese merchants on the Yangtze River of sending their cargoes on more than one vessel so as to spread the risk of loss. This practice goes back as far as 3,000 B.C. Another practice was bottomry and respondentia under which the risk of adventure was shared by the financiers as they would receive their money with interests back only if the ship and/or cargo arrived safely. It can be traced back to the *Code of Hammurabi* in 2050 B.C. See Dover, *A Handbook to Marine Insurance*, *supra* note 45 at 3, 5; see also Vance, "The Early History of Insurance Law," *supra* note 35.

⁶²¹ It existed in Rhodian law (916 to 700 B.C.), from which it was copied in Justinian Digest. The Rhodian Law explained the principle, "Let that which has been jettisoned on behalf of all be restored by the contribution of all."; Dover, *A Handbook to Marine Insurance*, *ibid* at 6; see also Gilmore & Black, *supra* note 3 at 3-4 and 244.

⁶²² For its classical definition, see *Birkley v. Presgrave*, (1801), 1 East. 220 at 228, 102 E.R. 86 at 89; *The Star of Hope*, 76 U.S. 203 at 228 (1869); see also s.65 of the Canadian *Marine Insurance Act*, S.C.1993, c22 [hereinafter *CMIA*] and pp. 117-118.

⁶²³ Of course, general average is not limited to sacrifice of cargo; on average cargo sacrifice accounts for only 6.7% of total general average. In fact, today it is the shipowners who claim more often general average contribution from cargo owners for expenditures incurred for the ships. See "The Place of General Average", *supra* note 470 at 28; see also Gilmore & Black, *supra* note 3 at 262 and Selmer, *Survival of General Average*, *supra* note 39 at 180.

not only their own losses (damage to ships) but also the liability to cargo owners for loss or damage to the cargo. Reduction of risk aversion in turn encouraged shipowners to invest into shipping, which ultimately increased the overall utility of the society (i.e., the benefits of increased shipping to shipowners, cargo owners, and the consumers of the shipped goods).⁶²⁴ As both shipowners and cargo owners now invariably have insurance, general average has lost its real purpose. Instead of providing any social benefit today it may indirectly reduce the deterrent effect of liability law, as we have seen in the previous chapter.

A seeming justification of general average today is that its presence leads to the proper mitigation of loss following a peril because the decision of the master to make sacrifice or to incur expenses for the safety of both the ship and cargo will not be affected by the consideration of who bears the loss or expenditure necessary for such mitigation.⁶²⁵ However, as shown in the previous chapter, this justification is based on some false assumptions.⁶²⁶ As the measures to mitigate the losses have to be reasonable in any way,⁶²⁷ mere common law rule of negligence would suffice to induce the master to take

⁶²⁴ Broadly defined, utility is the satisfaction a person derives from an activity. As it is almost impossible to measure how much satisfaction a person would derive from an activity (e.g., driving a car or buying a product), it is roughly measured by a person's willingness to pay for the activity. See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 1-4.

⁶²⁵ See Myerson, "General Average", *supra* note 489 at 465-66.

⁶²⁶ See *supra* notes 462-465 with the accompanying text.

⁶²⁷ See Rule Paramount in the YAR 1994 in *Documents of the Conference* in the CMI Yearbook 1992-1994, Part II, 146 (1994). This Rule has been inserted in response to the English decision of *Corfu Navigation Co. v. Mobil Shipping Co. (The Alpha)*, [1991] 2 Lloyd's Rep.515 (CA), where negligence in subsequent activities of the master (i.e., unreasonable attempt to refloat the stranded ship) was held not to bar general average because reasonableness was not specifically mentioned in the relevant numbered Rule (Rule VII) even though it was required under Rule A. *Lowndes & Rudolf* (2008 ed.), *supra* note 5 at 75-76; UN Conference on Trade and Development, *General Average – Reform of the System*, UN Doc. UNCTAD/SDD/LEG/3 at 6 (1995). Reasonableness or absence of negligence in subsequent actions has

the best care possible under the circumstances. The absence of shipowners' negligence is a prerequisite to a successful claim of general average.⁶²⁸ If a ship is in danger due to the shipowner's negligence or if the loss of cargo occurs or arises due to the shipowners' negligence, the loss cannot be attributed to a peril of the sea and the question of general average would be irrelevant.

When a peril of the sea such as storm affects *only* the cargo, the shipowner is still under a duty to take reasonable care to minimize the loss to the cargo and the shipowner is not entitled to claim for the cost of such care.⁶²⁹ Why then general average is necessary when *both* the cargo and ship are in danger? The only beneficial function the general average principle *used* to provide is that of insurance by spreading the loss between shipowners and cargo owners. As such risk of loss or damage either to cargo, ship or freight is already shifted to various insurers, the principle of general average is no longer necessary to duplicate the insurance function.⁶³⁰ In fact the administrative costs⁶³¹ and time⁶³² in determining the value of each interest in order to determine their

always been required by Canadian courts even before the insertion of Rule Paramount. See *Federal Commerce and Navigation Co. v. Eisenerz-G.m.b.H. (The Oak Hill)*, [1974] S.C.R.1225, 1235-36.

⁶²⁸ See *The Portsmouth*, 76 U.S. (9 Wall.) 682 (1870); *Western Canada Steamship Co v. Canadian Commercial Corp.*, [1960] S.C.R. 632 (S.C.C); *St. Lawrence Construction v. Federal Commerce and Navigation Co.*, [1985] 1 F.C.767, 788 (F.C.A.). However, for the purpose of determining the contribution of each party under the YAR, negligence is ignored. See r. D of the YAR.

⁶²⁹ *Wessels v. The Asturias*, 126 F.2d 999 at 1000 (2d Cir. 1942): "...although the loss occurs by a peril of the sea, yet if it might have been avoided by skill and diligence at the time, the shipowner is liable."

⁶³⁰ General average now invariably involves the contributions between insurers of shipowners and cargo owners. See "The Place of General Average", *supra* note 470 at 7; also Gilmore & Black, *supra* note 3 at 250.

⁶³¹ Such cost can be enormous if a ship is a carrying cargo of many cargo owners. In one instant, the ship was carrying 920 containers under 900 bills of lading with general average claim of more than \$1 million. See Myerson, "General Average" *supra* note 489 at 472.

⁶³² It may take several years for the final settlement. See Gold et al., *Maritime Law*, *supra* note 56 at 651. In some rare cases it took up to 10 years just to complete the statement and another 10 to 12 years to settle all claims. "The Place of General Average", *supra* note 470 at 33-34.

respective contributions is a social waste with no beneficial outcome. Yet the principle of general average still continues to exist in all the cargo liability regimes.⁶³³

As discussed in the previous chapter, even though the sharing principle of general average may be thought to induce shipowners through their masters to promptly decide the best course of action without worrying about the expenses, such sharing might in fact lead some shipowners to the *suboptimal care of their ships before an incident* giving rise to general average and to the *excessive care after the incident*. This is because shipowners alone have to bear the cost of care before a general average incident, while they will receive contributions from cargo owners for the cost of repairs after the incident.⁶³⁴ In other words, the existence of general average leads some shipowners to the substandard maintenance of their ships in the knowledge that they can declare general average if they in fact find themselves in danger and the cost of repairs will be substantially borne by the cargo interest.⁶³⁵ General average thus creates a ‘double-jeopardy’ for cargo owners as they face higher risk of ‘perils’ due to not so well-maintained ships and, when faced with peril, they pay higher contribution due to the lower contributing value of such sub-optimally maintained older ship.

To make the matter worse, under the *Hague-Visby Rules*, the most-widely accepted cargo liability convention, shipowners are not liable for the crew members’ negligent

⁶³³ Article V of the *Hague-Visby Rules*; article 24 of the *Hamburg Rules*; article 87 of the *Draft Convention*. It is noteworthy here that some hull policies include an “absorption clause” which eliminates the need to seek general average contribution from cargo interest when the contribution owed from cargo falls below the specific threshold provided in the absorption clause. See “The Place of General Average”, *ibid* at 9-13.

⁶³⁴ “The Place of General Average”, *ibid* at 17.

⁶³⁵ See *supra* note 474.

navigation and management of the ships. As discussed above, shipowners' liability for cargo damage or loss from negligent navigation and management of ship by crew is exonerated by article IV.2(a) of the *Hague-Visby Rules*; such negligence also does not bar shipowners from claiming general average contribution from cargo owners.⁶³⁶ Most of the general average incidents arise from this type of negligence⁶³⁷ and cargo owners thus end up paying not only for their own cargo loss but also for the damage to ships, both of which are caused by the negligence of the shipowners' own employees.

b. Limitation of Cargo Liability

The principle of limitation of shipowners' liability also evolved in a pre-insurance era and it too served the function of insurance in the absence of well-developed insurance market.⁶³⁸ Even though shipowners in the past were likely to be wealthier and less risk-averse than individual cargo owners, an individual shipowner would have been highly risk-averse when faced with liability claims from *all* cargo owners at the same time after a serious shipping accident such as the sinking of the ship or fire on the whole ship. As discussed in chapter two, the problem of risk aversion in the absence of proper market insurance led to excessive care and/or disincentives to investment in the minds

⁶³⁶ See *Louis Dreyfus & Co. v. Tempus Shipping Co.*, [1931] A.C. 726; *Drew Brown Ltd. v. The Orient Trader*, [1974] S.C.R. 1286 at 1333 (S.C.C.). Although this was not so in the US (see *The Irrawaddy*, 171 U.S.187 (1898)), the shipowners' insertion of a clause ('Jason clause') in the bill of lading to exclude liability in such case was upheld by the US Supreme Court. See *The Jason*, 225 U.S. 32, 32 S.Ct. 560 (1912); Gilmore & Black, *supra* note 3 at 266-67. As the *Hamburg Rules* and the *Draft Convention* do not contain this negligent navigation exception, the 'Jason clause' will not have this effect under these regimes.

⁶³⁷ "The Place of General Average", *supra* note 470 at 24-25.

⁶³⁸ To be sure, however, this was not the reason ascribed to the origin of the limitation of liability by earlier writers. Justice Oliver Holmes attributed it to the early Roman law principle of 'noxae deditio' i.e., the liability of the offending thing or the instrument of injury (deodand) itself. Other reasons include 1) the personification of ship as debtor and, of course, 2) encouragement of investment to shipping. See Holmes, *The Common Law*, *supra* note 75 at 6-7.

of shipowners.⁶³⁹ In order to resolve the problem of risk aversion and its resultant effects of excessive care and/or reduced investment into shipping, maritime nations adopted the principle of limitation of liability in their legislation.⁶⁴⁰

Modern marine insurance, however, now takes care of the problem of risk aversion. Limitation of liability is thus no longer necessary to address the problem of risk aversion.⁶⁴¹ Limitation of liability reduces the *deterrent* effect of liability law. As liability is imposed in order to deter shipowners from negligent navigation, limiting the same liability would obviously reduce deterrence. Imposing liability initially and then limiting it later are analogous to taking back with one hand what other hand had given. Whatever praise we had earlier for the negligence-based cargo liability regimes in terms of its deterrent effect has to be qualified due to the presence of this principle in the cargo liability regimes. When shipowners are negligent or even guilty of gross negligence,⁶⁴² they will not be *fully* liable for their action or omission. Their liability

⁶³⁹ See *ibid* at 19-21.

⁶⁴⁰ The intention of the government was clearly stated in the preamble of first English legislation on limitation of shipowners' liability, "Whereas it is of the greatest consequence and importance to this Kingdom, to promote the increase of the number of ships and vessels, and to prevent any discouragement to merchants and others from being interested and concerned therein...." Preamble to *Responsibility of Shipowners Act of 1733*; cited in P. Griggs, "Limitation of Liability for Maritime Claims: the search for international uniformity", *supra* note 211 at 370. Similar concern was behind the American *Limitation of Liability Act*. For example, in *Moore v. American Transportation Co.*, (1860), 65 U.S. 1 at 39, the SC held that the Act was adopted "to promote the building of ships, and to encourage persons engaged in the business of navigation."

⁶⁴¹ See chapter 2.

⁶⁴² The shipowner would be deprived of limitation only if it caused the cargo loss or damage intentionally or "recklessly and with knowledge that damage would probably result." See art. IV.5 (e) of the *Hague-Visby Rules*; art.8 of the *Hamburg Rules*; art. 64 of the *Draft Convention*.

cannot be more than the limits provided in those regimes⁶⁴³ even though actual cargo loss may far exceed the limitation amounts.

To the extent the actual liability falls short of total loss, the shipowners' expected liability would also be less and consequently their care may be suboptimal. As we have seen earlier, in a 10 percent probability of \$1,000 loss, the cost of optimal care to eliminate the loss can be any amount up to \$100 (10% x \$1,000). If, however, the liability is limited to \$500, the expected liability would proportionately reduce to \$50 (10% x \$500). As rational individuals, shipowners would not spend for care more than \$50 i.e., the amount of their expected liability, even though the expected cargo loss remains \$100.

It is noteworthy here that a shipowner and a cargo owner may stipulate a higher limit of liability than the limitation figures provided in the cargo regimes either by agreeing so or by declaring the actual value of the cargo on the bill of lading.⁶⁴⁴ Such bill of lading is known as 'ad valorem' contract, and attract higher freight rate.⁶⁴⁵ As cargo owners have cargo insurance, they would not usually want to pay the extra freight in the form of

⁶⁴³ Under the *Hague-Visby Rules* the limit is either SDR 666.67 per package or unit or SDR 2 per kg, whichever is higher [article IV.5(a)], and under the *Hamburg Rules* it is SDR 835 per package or unit or SDR 2.5 per kg, whichever is higher [article 6.1(a)]. The figure for the *Draft Convention* has not yet been decided. It is traditionally left to be decided at the end of the diplomatic process of adopting the *Draft Convention*. It is expected to be a little higher than the limit in the *Hamburg Rules* reflecting the inflation. See Sturley, *UNCITRAL's Transport Law Project*, *supra* note 144 at 99-100.

⁶⁴⁴ Article IV.5 (a) and (g) of the *Hague-Visby Rules*, article 6.4 of the *Hamburg Rules*, and article 62.1 of the *Draft Convention*.

⁶⁴⁵ Griggs et al., *Limitation of Liability*, *supra* note 171 at 154.

premium.⁶⁴⁶ However, the presence of cargo insurance does not negate the need for liability on shipowners. Liability is imposed on shipowners to deter them from negligence and this need remains unchanged whether a cargo owner has insurance or not.

Although unlimited liability is likely to increase freight rate and, conversely, the limitation of liability will reduce it, the extra freight in 'ad valorem' contract may turn out to be less than the increased cargo insurance premium paid by cargo owners when cargo insurers bear the portion of cargo loss which would have been borne by shipowners but for limitation of liability. In other words, the extra cargo insurance premium due to the cargo loss arising from the shipowner's negligence in the presence of limitation might be higher than the additional freight rate if a shipowner's liability were unlimited.⁶⁴⁷ This is because the additional freight rate would be equivalent to the cost of shipowner's optimal care, while the extra cargo premium would equal the

⁶⁴⁶ See Lord Diplock, "Conventions and Morals" *supra* note 551 at 529 ("The option to declare a higher value is practically never exercised."). Although I used the fact observed by Lord Diplock (and many of his other observations throughout the chapter), I disagree, with respect, to his reasoning regarding the fact that cargo owners would rather pay extra cargo insurance than the additional freight rate. He suggested that it was probably cheaper for the cargo owner to do so. He also used this fact to infer that the shipowner's insurance cost for unlimited liability through P&I coverage would probably be higher than the extra premium for cargo insurance. See *ibid* at 529-530, 532. The real reason of cargo owners' reluctance to declare higher value could be explained by the concept of 'moral hazard' of an insured. Even though an insured will ultimately save more in reduced premium rate by taking care (or paying others such as shipowners to take care), the insured may not do so once it purchased insurance. This is because reduction of premium rate may take some time, while the cost of care is immediate. See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 262; see also Priest, "Insurance Crisis", *supra* note 224.

⁶⁴⁷ There are opposing arguments whether the cost of cargo insurance or liability insurance is higher. These arguments are not really based on empirical evidence. See Sturley, "Changing Liability Rules", *supra* note 179 at 145.

expected loss due the shipowner's negligence.⁶⁴⁸ By definition, optimal care costs less than the expected loss in the absence of such care.⁶⁴⁹

IV. Evidence of Widespread Insurance Practice

Throughout the chapter I maintained that both shipowners and cargo owners are invariably insured. This statement is supported by the actual insurance practice in the maritime cargo liability setting. There is hardly any maritime cargo loss or liability that is not already insured against.⁶⁵⁰ As for shipowners, the relevant insurance here is their liability insurance.⁶⁵¹ The usual provider of this insurance is the shipowners' P&I (protection and indemnity) clubs. The International Group of P&I clubs covers over 90 per cent of the world tonnage.⁶⁵² This does not, however, mean that the remaining 10 per cent have no liability insurance; they are insured by other P&I clubs who are not the members of the International Group or by non-mutual market insurers.⁶⁵³ As for the cargo, about 96 per cent of the cargo transported by sea is insured.⁶⁵⁴ As a result, in a situation of cargo loss or damage the real litigation or settlement is usually between the insurers of cargo owners and shipowners.

⁶⁴⁸ "In competitive freight and insurance markets ... the cost of the precautions will be reflected in the charge for freight, but will be more than compensated for by the reduction in risk which will be reflected in the insurance premium." Lord Diplock, "Conventions and Morals" *supra* note 551 at 527.

⁶⁴⁹ See the 'Hand Formula,' *supra* note 23 and the accompanying text.

⁶⁵⁰ Gilmore & Black, *supra* note 3 at 17-18.

⁶⁵¹ However, shipowner's hull policy also covers some liability aspects through 'running-down clause' in a collision situation. See Bennett, *The Law of Marine Insurance*, *supra* note 53 at 400-401.

⁶⁵² See the group's website at <http://www.igpandi.org/> (last visited: March 11, 2009).

⁶⁵³ Rosaeg, "The Impact of Insurance Practices", *supra* note 218.

⁶⁵⁴ This is based on only five major general average adjustments done by a firm. See Myerson, "General Average", *supra* note 489 at 467. This is also supported by the 400 cases surveyed by the UNCITRAL, where it found that less than 5 per cent of total cargo (value wise) on the vessels involve in general average situations was not insured. The uninsured cargoes are mainly cargoes *en route* to developing countries. See "The Place of General Average", *supra* note 470 at 7.

Conclusion

The negligence-based cargo liability regimes apparently serve the *deterrence* function and help reduce cargo losses and damage. The reduction of cargo losses benefits not only the cargo owners but also the society in the form of reduced price for goods shipped via seas. Limitation of liability and general average inhibit the deterrent effect of liability law, although they *were* justified in the absence of modern marine insurance. In the absence of the well-developed insurance market, they functioned as a form of *insurance* and increased the social utility by encouraging risk-averse individuals to invest into shipping.

As both shipowners and cargo owners are now almost always insured, the need for liability rules to serve insurance function ceased to exist in the maritime cargo liability regimes. Yet these two principles still survive in the cargo liability regimes with no seeming justifications other than cutting shipowners' operating costs at the expense of deterrence and efficiency. There is no indication in the discussion of the UNCITRAL Working Group III, charged with developing a new cargo liability regime, about any change in these principles.⁶⁵⁵

If liability for cargo loss or damage is deemed desirable, it is desirable *only* because it deters potentially liable parties from negligence. If such incentive is worth inducing through liability law, liability should be both unlimited *and* borne by the party who can take care. Both the limitation of liability and general average shift the burden of

⁶⁵⁵ The provisions relating to limitation of liability and general average are reproduced almost *verbatim* in the *Draft Convention* from the *Hague-Visby Rules* and the *Hamburg Rules*.

liability/loss at least partially from the party who can take care to the party who has no control over the cargo during its transportation. By abolishing these two principles from all the cargo liability regimes as well as the exceptions of negligent navigation and negligent fire damage from the *Hague-Visby Rules*, cargo liability regimes may serve their main function: the deterrence from negligence or the creation of incentives towards optimal care.

Chapter 5

Role of Insurance in Providing Adequate Compensation for Oil Pollution Damage and in Reducing Oil Pollution Incidents

Introduction

In the previous chapter, I have mentioned that *deterrence* should be the main goal of liability law especially when both parties to a liability claim are insured. This, however, may not be the case with the oil pollution liability law because the victims of oil pollution are not always insured against such pollution.⁶⁵⁶ As a result, the oil pollution liability regime needs to cater for both goals of liability law: *deterrence* and *compensation*.⁶⁵⁷ However, the declared primary goal of the international oil pollution liability regime⁶⁵⁸ is to provide *adequate compensation* against oil pollution damage.⁶⁵⁹ In fulfilling this goal, the oil pollution liability regime has succeeded to a great extent.⁶⁶⁰

⁶⁵⁶ Oil pollution victims may include local fishermen, owners of hotels, restaurants and gift shops near a sea beach as well as any government entity in charge of marine resources. See claim history of any large-scale oil pollution incidents at the IOPC website: <http://www.iopcfund.org/> (last accessed: March 11, 2009).

⁶⁵⁷ See Brown, "Deterrence and Accident Compensation Schemes" *supra* note 12 at 111.

⁶⁵⁸ For conventions on oil pollution liability regimes, see *supra* note 153.

⁶⁵⁹ This goal is explicitly stated in the preamble to both CLC and Fund Convention. The preamble to both conventions reads, "The State Parties to the present Convention.... convinced of the need to ensure that *adequate compensation* is available...." (Emphasis added). However, the word 'adequate compensation' was not defined in any of the conventions; the States parties probably wanted the compensation to be as high as possible.

⁶⁶⁰ The problem with compensation as primary goal is that it ignores the possible effect of law on the behaviour of liable parties in reducing pollution incidents. Consequently, the primary focus of the negotiations leading to the adoption of CLC and Fund Convention was on *who should pay* for oil pollution damage instead of *who could be induced through liability to reduce the damage*. For an excellent account of the negotiations, see M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at Ch. V.

The success of the oil pollution liability regime in guaranteeing adequate compensation can be attributed to its various insurance arrangements. It imposes compulsory insurance on shipowners and requires them to carry the certificate of insurance as a proof. It ensures the access of oil pollution victims to insurance proceeds by allowing them to bring direct action against the insurers of shipowners. To further ensure adequate compensation, it created various compensation funds, contributed mainly by the oil industry. In the context of international liability regime, there are the International Oil Pollution Compensation (IOPC) Fund and the Supplementary Fund. In North America the Ship-Source Oil Pollution Fund (SOPF) of Canada⁶⁶¹ provides compensation for pollution damage not covered by the international regime, while the Oil Spill Liability Trust Fund (OSLTF) in the US⁶⁶² does the same in the cases of compensation above and beyond the shipowners' liability under the US oil pollution liability law. These funds function as a second or third tier *insurance* against oil pollution damage.

While intended mainly to provide adequate *compensation*, these insurance arrangements also incidentally help the cause of *deterrence*. This is because insurance premium will reflect the actual compensation paid to the oil pollution victims; higher compensation

⁶⁶¹ *Marine Liability Act*, 2001, c. 6, Part 6. Canada ratified the conventions on 24 April 1989. See S. Hawkes and R. M. M'Gonigle, "A Black (and rising) Tide: Controlling Maritime Oil Pollution in Canada" (1992) 30 Osgoode Hall L. J. 165 at 226-7 [hereinafter Hawkes & M'Gonigle, "Oil Pollution in Canada"]. Canada cast the sole negative vote against the adoption of CLC in 1969, objecting to its limited liability and narrow geographical limit in its application. At that time the geographical limit was the territorial water, although the 1992 Protocol extended its scope of application to exclusive economic zone (EEZ). See M'Gonigle and Zacher, *Pollution, Politics and International Law*, *ibid* at 176, 204 note 12.

⁶⁶² 26 U.S.C. § 9509 (c)(2)(A). The US is not a party to the international oil pollution liability regime. It has its own oil pollution liability regime provided by the *Oil Pollution Act of 1990*, PL 101-380 (HR 1465) [hereinafter OPA]. Although in structure the OPA is similar to the international regime, its scope is wider than that of international liability regime. See the discussion below.

will entail higher premium. Higher premium in turn leads the insured shipowners or the oil industry towards better care so that their premium rate decreases. This may explain the fact that the incidents of oil pollution are on the decline.⁶⁶³ It would be simplistic, however, to attribute the decreasing oil pollution incidents solely to the various insurance arrangements in the oil pollution liability regime. A combination of factors has brought about the reduction in the oil pollution incidents.⁶⁶⁴ In addition to the above-mentioned insurance arrangements, other factors leading to the reduction of oil pollution incidents include the strict and higher liability on shipowners for oil pollution, improved tanker design and construction especially fitting them with double-hulls and the strong port State enforcement of the various international instruments on maritime safety and navigation.

The success of the oil pollution liability regime despite the existence of limitation of liability principle may raise question against my earlier contention that limitation of liability leads to *under-deterrence*.⁶⁶⁵ This question can be answered by the fact that the limit of shipowners' liability for oil pollution is set at a much higher level than those under the general maritime liability law and the cargo liability regimes.⁶⁶⁶ In most cases of oil pollution, shipowners' actual liability is still within the limitation amount and

⁶⁶³ See the statistics in part IV of the chapter. The main source of these statistics is the website of the International Shipowners Pollution Federation Ltd (ITOPF) at <http://www.itopf.com/information-services/data-and-statistics/statistics/index.html> (last accessed: March 11, 2009).

⁶⁶⁴ See E. Gold, "Marine Pollution Liability After "Exxon Valdez": The U.S. "All-Or-Nothing Lottery!" (1991) 22 J. Mar. L. & Com. 423 at 427.

⁶⁶⁵ See *supra* chapter two.

⁶⁶⁶ For general limitation of shipowners' liability see LLMC 1976. The liability limit of LLMC 1976 was further increased by an average of 2.3 times by a Protocol in 1996 (LEG/CONF.10/DC.2 of May 2, 1996), which came into force on May 13, 2004, See the status of the IMO Conventions at IMO website: http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

shipowners thus pay fully for their negligence despite the existence of limitation principle.⁶⁶⁷ Therefore, the success of the oil pollution liability law is, in fact, a proof that higher liability leads to better care and fewer losses.

After a brief outline of the oil pollution liability regime in Part I, I will analyze in Part II the success of the oil pollution liability regime in providing adequate compensation through its various innovative insurance arrangements. Where appropriate, I will also discuss the challenges in the implementation of similar insurance arrangements in other comparable liability regimes. I will then shortly mention in Part III the possible effect of limitation of shipowners' liability on their incentives to take optimal care and why this effect is largely absent in the context of the oil pollution liability. Finally in Part IV, I will examine the factors leading to the reduction in oil pollution accidents despite the existence of limitation of liability principle.

I. Oil Pollution Liability Regime in Short

Up until 1969 there was no special liability law for oil pollution damage.⁶⁶⁸ Historically, oil pollution liability was not a distinct heading of shipowners' liability. Parties suffering damage due to oil spill could claim under the common law principles of

⁶⁶⁷ From 1978 to 2003, only 125 incidents required compensation from the IOPC Funds, although in most of these cases the reason for the Fund's involvement was the inadequacy of shipowners' liability limit. See T. Mensah, "The IOPC Funds: how it all started" in *The IOPC Funds' 25 Years of Compensating Victims of Oil Pollution Incidents* (London: IOPC Funds, 2003) 45 at 48. As the shipowners are required to purchase compulsory insurance against oil pollution liability, there may be some doubt about the deterrent effect of liability law in the presence of liability insurance. This issue is addressed in the next chapter.

⁶⁶⁸ Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 288.

negligence, trespass, nuisance, and strict liability.⁶⁶⁹ Shipowners could limit their liability under the general maritime liability law.⁶⁷⁰ The international community woke up to the inadequacy of the general maritime law to cover the expenses of devastating oil pollution damage in the aftermath of the *Torrey Canyon* incident in 1967.⁶⁷¹ Specific liability regime was adopted to address the problem of inadequate compensation for oil pollution, which now consists of the Civil Liability Convention (CLC) and the Fund Convention.⁶⁷² CLC deals with the shipowners' liability, which is strict but limited in amount; while the Fund Convention created the IOPC Fund to pay for oil pollution damage when compensation from shipowners is either inadequate or not available at all.⁶⁷³ However, the Fund's compensation is limited as well, albeit at a higher ceiling.

The combined maximum limit of compensation under the CLC and Fund Convention is SDR 203 million [US\$297.82m].⁶⁷⁴ In 2003, the IMO adopted a new Protocol to the Fund Convention to create a Supplementary Fund, a third tier of compensation with

⁶⁶⁹ See *Southport Corporation v. Esso Petroleum Company Ltd*, [1953] 2 Lloyd's Rep. 414 (Trial Div.); [1954] 1 Lloyd's Rep. 446 (CA); [1955] 2 Lloyd's Rep. 655 (HL); *The Wagon Mound*, [1961] A.C. 388 (P.C.); see also Kiern, "OPA: A Review of the First Decade", *supra* note 150 at 490-502.

⁶⁷⁰ In international maritime setting, shipowners' general liability law at that time contained in the 1957 Convention on the Limitation of Liability of Owners of Sea Going Ships, 10 October 1957, 52 U.K.T.S. 355 (1968). The liability was fault-based and the limit was calculated on the basis of 1,000 gold francs (\$67) per ton for property damage and 2,000 francs for personal injury and death claim. Unlike CLC, the 1957 Convention did not have any maximum ceiling for total liability.

⁶⁷¹ Cleanup alone cost the British and French governments £7.70 million (US\$18 million). Although it was impossible to estimate the damage to the environment, total quantifiable cost was £14.24 million. Burrows et al., "The Economics of Accidental Oil Pollution by Tankers in Coastal Waters", *supra* note 152. Ultimately the UK and France settled for slightly over US\$7 million. M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 153.

⁶⁷² *Supra* note 153.

⁶⁷³ See Fund Convention, article 4.1 (a) – (c).

⁶⁷⁴ See articles V.1 of CLC and 4.4 of Fund Convention. Under article V.1 of CLC the calculation is based on the tonnage of the ships and shipowners' maximum liability limit is SDR89.77 million. However, for owners of ships with 5,000 gross register ton (grt) or less, the maximum is SDR4.51 million. Any ship above 5,000 grt may incur additional liability of SDR631 per ton but the total cannot exceed SDR89.77 million. It is noteworthy that one grt is equivalent to 100 cubic feet of enclosed space in a ship.

SDR750 million (US\$1.1 billion) combined with the IOPC Fund's limit of SDR203m.⁶⁷⁵ The Protocol came into force on March 3, 2005.⁶⁷⁶ It is now very unlikely that the liability for oil pollution damage from any one incident would exceed the Supplementary Fund's limit. Although Canada is party to both the CLC and the Fund Convention⁶⁷⁷ and implements the law through the *Marine Liability Act*,⁶⁷⁸ it has not ratified the Supplementary Fund Protocol.⁶⁷⁹

The United States played a leading role during the negotiation of the CLC and the Fund Convention and their 1984 Protocols,⁶⁸⁰ but did not ratify them objecting to the inadequate liability limit and the pre-emption of state laws.⁶⁸¹ Until 1990 the US had enacted numerous federal Acts to deal with both the general and the specific geographic

⁶⁷⁵ Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992 [Hereinafter the Supplementary Fund Protocol]; the Protocol can be found in the IMO document: LEG/CONF.14/20.

⁶⁷⁶ See the status of conventions at IMO website:

http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

⁶⁷⁷ See the list of States party to both conventions at the IOPC Fund website at <http://www.iopcfund.org/92members.htm> (last accessed: March 11, 2009). As of Dec. 25, there are 102 contracting States to both Fund Convention and CLC, as amended by the 1992 Protocols. There are 19 States which are parties to CLC (1992) but not Fund Convention. See *ibid*. There are also 38 States who are parties to CLC in its original 1969 version. See at <http://www.iopcfund.org/69civilliability.htm> (last accessed: March 11, 2009).

⁶⁷⁸ *Marine Liability Act*, 2001, c. 6, Part 6. During the negotiation of the CLC, Canadian delegation played an active role and demanded unlimited liability for oil pollution. In fact, Canada cast the sole negative vote against the adoption of the CLC objecting, among others, its limited liability. See M'Gonigle and Zacher, *Pollution, Politics and International Law*, *ibid* at 176, 204 note 12.

⁶⁷⁹ As of March 9, 2009, there are 23 States parties to the Supplementary Fund; they are mainly from European Union. See at <http://www.iopcfund.org/92members.htm> (last accessed: March 11, 2009).

⁶⁸⁰ Protocol of 1984 to Amend the International Convention on Civil Liability for Oil Pollution Damage, 1969; Protocol of the 1984 to Amend the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971; reprinted in (1984) 15 J. Mar. L. & Com. 613 and 623 respectively. These protocols never came into force due to the US's non-ratification, but were reintroduced in 1992 with modification in the entry-into-force requirement.

⁶⁸¹ E. Gold, "Marine Pollution Liability After "Exxon Valdez": The U.S. "All-Or-Nothing Lottery!" *supra* note 664 at 432-3; See also Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 318-9.

area-wise oil pollution damage.⁶⁸² The need for a comprehensive oil pollution liability had long been felt and Congress had debated the issue for over fifteen years. The *Exxon Valdez* disaster in 1989, the largest oil pollution disaster ever in the US's history,⁶⁸³ brought an abrupt end to the congressional debate as Congress quickly enacted the *Oil Pollution Act of 1990* (OPA) in reaction to the incident.⁶⁸⁴ The scope of the OPA is wider than the international regime in terms of vessel types⁶⁸⁵ and polluting oil.⁶⁸⁶ Also the liability of shipowners is higher under the Act than under the CLC especially for large ships⁶⁸⁷ and the right to limit liability can be denied more easily under the OPA than under the CLC.⁶⁸⁸ Unlike the international regime, there is no ceiling for the total

⁶⁸² There were four federal statutes in this regard: s.311 of the *Federal Water Pollution Control Act*, Pub. L. No. 92-500, 85 Stat. 816 (1972); the *Deep-Water Port Act*, Pub. L. No. 93-627, 88 Stat. 2126 (1974), the *Outer Continental Shelf Lands Act Amendments*, Pub. L. No. 95-372, 92 Stat. 674 (1978), the *Trans Alaska Pipeline Authorization Act*, Pub. L. No. 93-153, 87 Stat. 589 (1973). See A. Ayorinde, "Inconsistencies Between OPA '90 and MARPOL 73/78: What is the Effect on Legal Rights and Obligations of the United States and Other Parties to MARPOL 73/78?" (1994) 25 J. Mar. L. & Com. 55 at 69-70 [hereinafter Ayorinde, "Inconsistencies Between OPA '90 and MARPOL 73/78"]. See also Kiern, "OPA: A Review of the First Decade" *supra* note 150 at 507.

⁶⁸³ A total of 37,000 tons of crude oil were spilled on the pristine water of Prince William Sound, Alaska. Although it is the largest oil spill in the US, it ranks only 35th in major oil spills worldwide. See <http://www.itopf.com/information-services/data-and-statistics/statistics/index.html> (last accessed: March 11, 2009). Its total economic cost is estimated over \$12 billion. Kiern, "OPA: A Review of the First Decade," *supra* note 150 at 481-82.

⁶⁸⁴ PL 101-380 (HR 1465). It was enacted on August 18, 1990.

⁶⁸⁵ "Vessel" is defined in OPA to include "every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water, other than a public vessel." §2701(37). (Emphasis added). On the other hand, in CLC and Fund Convention it is defined to include only oil tankers and other ships which are adapted to carry oil and are actually carrying oil. See articles I.1 of CLC as well as 1.2 of Fund Convention which adopted the same definition by cross-reference to CLC.

⁶⁸⁶ While international regime covers only pollution from "persistent oil" such as crude oil, fuel oil, heavy diesel oil, and lubricating oil (art.I.5 of CLC), OPA includes pollution damage occurring both from persistent and non-persistent oil.

⁶⁸⁷ This is because per ton liability for oil pollution from a tanker cannot be less than US\$3,000 for single-hull tanker or US\$1,900 for double-hull tankers. Under the original OPA, per ton liability could not be less than US\$1,200 for any kind of tanker. See *Coast Guard and Marine Transportation Act of 2006*, PL 109-241, which increased the limit of liability provided in OPA. On the other hand, under CLC liability could be less than SDR 450 for a large tanker of 200,000 tons because the maximum liability for a tanker owner under CLC cannot exceed SDR 89,777,000. See proviso to Art. V(1)(b) of CLC.

⁶⁸⁸ See article V.2 of CLC and 33 USC § 2704 (c) (1) (a) and (b).

liability on shipowners under the OPA other than the per ton limit;⁶⁸⁹ the higher tonnage will entail higher liability and can never be less than US\$3,000 per ton for single-hull tanker or US\$1,900 per ton for double-hull tankers.⁶⁹⁰ In addition to the shipowners' liability, the federal government created the Oil Spill Liability Trust Fund (OSLTF); the Fund is authorised to spend up to US\$1 billion for any single oil pollution incident.⁶⁹¹

II. Adequate Compensation by Various Insurance Arrangements

The oil pollution liability regimes under both the international law and the US national law have proven to be a source of adequate compensation in most of the actual oil pollution cases. Since the adoption of the OPA no oil pollution incident in the US exceeded the combined limit of the shipowner's liability and that of the OSLTF.⁶⁹² Although oil pollution damage in some of the incidents falling under the CLC/Fund Convention was above their earlier combined limit,⁶⁹³ it is highly unlikely now that the

⁶⁸⁹ See W. Chao, *Pollution from the Carriage of Oil by Sea: Liability and Compensation*, (London: Kluwer Law International Ltd, 1996) at 241.

⁶⁹⁰ See *supra* note 687. The concept of maximum ceiling on liability was something new at that time for maritime liability law. Such ceiling did not exist in the then existing general liability law, the 1957 Convention and its predecessor the 1924 Convention. It even did not appear in the IMO's Legal Committee's draft CLC. It was proposed in the 1969 IMO conference by the UK delegation and the proposal was probably inspired by the existence of similar measure in the tanker-owners' private agreement, TOVALOP, designed to provide governments' clean-cost for oil pollution. See M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 158-9, 173.

⁶⁹¹ 26 U.S.C. § 9509 (c)(2)(A).

⁶⁹² See the Report to Congressional Committees by the US Government Accountability Office, *Maritime Transportation: Major Oil Spills Occur Infrequently, but Risks to the Federal Oil Spill Fund Remain*, (Washington: US Government Accountability Office, 2007) at 28; available at www.gao.gov/cgi-bin/getrpt?GAO-07-1085 (last accessed: March 11, 2009) [hereinafter the 2007 US GOA Report].

⁶⁹³ Among these incidents are the *Amoco Cadiz* in France in 1978, the *Erika* again in France in 1999, and the *Prestige* in Spain in 2002. See the IOPC Fund's website for detail accounts of these incidents at <http://www.iopcfund.org/> (last accessed: March 11, 2009).

damage from any incident will be so especially in a country which is party to the Supplementary Fund Protocol.⁶⁹⁴

The success of the oil pollution liability regimes in providing adequate compensation can be attributed to its various insurance arrangements as well as to the higher limit of shipowners' liability. In this chapter I used the word 'insurance' in its wider sense i.e., any guaranteed source of compensation for the victims of oil pollution damage.⁶⁹⁵ Thus, not only the shipowners' insurance comes under the term, but also the IOPC Fund, the SOPF, and the OSLTF all fall under it as their common goal is to ensure adequate compensation against oil pollution damage. These funds collect contributions or premia mainly from the receivers of oil transported via seas, while liability insurers receive premium from shipowners. Following is an analysis of how various insurance arrangements in the oil pollution liability regime led to its success in providing adequate compensation for oil pollution damage.

A. Compulsory Insurance

The most important provision in oil pollution liability regime to ensure adequate *compensation* is the provision of compulsory insurance.⁶⁹⁶ The concept of compulsory

⁶⁹⁴ The limit in the Supplementary Fund is SDR 750 billion.

⁶⁹⁵ 'Insurance' in its narrower sense means only commercial insurance. See Vance, "The Early History of Insurance Law", *supra* note 35 at 2-3.

⁶⁹⁶ Under CLC, owners of tankers over 2,000 gross registered tons (grt) are required to carry insurance, while under OPA insurance is compulsory on any ship over 300 grt. See art.VII.1 of CLC and § 2716 of OPA. Although the provisions give shipowners option to have other financial security or guarantee instead of insurance, in terms of their effect they all are similar to that of insurance i.e., guarantee of compensation against oil pollution damage. Consequently, I treat them all as insurance in their functional sense. Such insurance proceeds are exclusively available for the oil pollution compensation; article VII.9 of CLC.

insurance was quite revolutionary in maritime law at the time of the adoption of the CLC, although it was not without precedent.⁶⁹⁷ It has been also in existence for quite some time in non-maritime liability law such as the automobile and workmen compensation. The main objective of compulsory insurance is to guarantee adequate compensation against certain unforeseeable accidents.⁶⁹⁸

The provision of compulsory insurance is the key element for the continuous success of the oil pollution liability regime because without compulsory insurance the imposition of liability, no matter how high the liability is, may prove useless due to the ability of a shipowning company to hide behind ‘corporate veil’.⁶⁹⁹ Compulsory insurance up to the limit of shipowners’ liability ensures the availability of insurance proceeds for the victims of oil pollution damages. The provision of mandatory insurance forces even those potentially liable parties who would not otherwise buy insurance to obtain

⁶⁹⁷ The concept of compulsory insurance existed in the 1962 Convention on the Liability of Operators of Nuclear Ships, Brussels, May 25, 1962, (1963) 57 AJIL 268. As can be seen from the name of the convention, the ships on which compulsory insurance was imposed under it were *not ordinary merchant ships*. See A. Popp, “The Civil Liability and Fund Conventions: model compensation schemes” in *The IOPC Funds’ 25 Years of Compensating Victims of Oil Pollution Incidents* (London: IOPC Funds, 2003) 81 at 82. See also E. Røsæg, “Compulsory Maritime Insurance” *Scandinavian Institute of Maritime Law Yearbook 2000*, available at: <<http://folk.uio.no/erikro/WWW/corrgr/insurance/simply.pdf>> (last accessed: March 11, 2009).

⁶⁹⁸ Although compulsory insurance is mainly thought of as providing protection for victims of accidents, it also protects the injurer from the ruinous effect of high liability. See the judgment of Stuart-Smith L.J. in *Richardson v. Pitt-Stanley* [1995] 2 W.L.R. 26 (CA), where he rationalized the provision of compulsory workmen compensation insurance as a protection for *employers* by saying that “a small or even medium-sized *employer* may be faced with disastrous consequences for his business ... if he is faced with a large claim by an injured workman, which will make large inroads into his resources”. In the same case, the dissenting justice Sir John Megaw opined that it was the “protection to a particular class of individuals, the employees” which was the purpose of compulsory insurance. Cited in J. O’Sullivan, “Industrial Injuries and Compulsory Insurance – Adding Insult to Injury” (1995) 54 Cambridge L.J. 241 at 242-3. (Emphasis added).

⁶⁹⁹ See *infra* note 705.

insurance up to the required limit.⁷⁰⁰ Empirical evidence in the automobile insurance bears out this fact. Studies have found that in the absence of compulsory insurance the number of uninsured motorists could be as high as 20%, while it is only 1% in the States where insurance is compulsory.⁷⁰¹

1. Tendency to keep assets low checked

Although it would be a rare case where the liability of a shipping company would exceed its assets, the company may artificially keep its assets low through the formation of corporate subsidiaries. A shipowning company can and usually does form a separate corporation for each ship in its fleet, thus practically limiting its liability to the value of the ship.⁷⁰² The value of the ship may be zero in case it becomes a total wreck following an incident. The practice of forming one-ship company is very wide-spread in the maritime setting⁷⁰³ and the practical consequence of this can sometimes be that the liability of the corporation is limited to the ‘congeries of wooden planks or pieces of iron’.⁷⁰⁴ This is exactly what would have happened in the case of *Torrey Canyon*, had the liability not been ultimately settled.⁷⁰⁵

⁷⁰⁰ Some people may decide not to buy liability insurance because their total assets are less than their maximum expected liability. See S Shavell, “On the Social Function and the Regulation of Liability Insurance” (2000) 25 Geneva Papers on Risk and Insurance, Issues, and Practice 166. Calabresi, *The Costs of Accidents*, *supra* note 47 at 58-59 notes 28-29.

⁷⁰¹ G. Schwartz, “A Proposal for Tort Reform: Reformulating Uninsured Motorist Plans” (1987) 48 Ohio St. L. J. 419; F. Sloan et al., “Effects of Tort Liability and Insurance On Heavy Drinking and Drinking and Driving” (1995) 38 J. L. & Econ. 49 at 54.

⁷⁰² Even though under general maritime law a ship’s liability is now calculated based on the tonnage of the ship, the only asset a plaintiff can get hold of may be the damaged ship in the absence of compulsory insurance.

⁷⁰³ See Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 34.

⁷⁰⁴ *Per* Lord Watson in *Sailing Ship “Blairmore” Co. Ltd. v. Macredie* [1898] AC 593, 603 (HL).

⁷⁰⁵ On the basis of the US *Limitation of Liability Act*, 46 USC § 183, under which liability is based on the value of the ship and pending freight after the incident, the liability of the shipowner was held by a US district court to be US\$50, the value of the single salvaged lifeboat; see *In re Barracuda Tanker Corp.*

2. 'Flag-of-convenience' tendency checked

The goal of adequate compensation calls for compulsory insurance on all ships regardless of whether or not the flag-State of a ship is a party to the international oil pollution liability regime. The CLC meets this need by requiring the contracting States to make sure that insurance is carried not only by their own ships⁷⁰⁶ but also by any foreign ship above 2,000 grt which enters their ports or off-shore terminals.⁷⁰⁷ This requirement neutralizes any competitive advantage a ship from a non-contracting State may have over the ships from contracting States.

It was something new in maritime law to require *ships from non-contracting States* to purchase compulsory insurance if they wish to trade in the contracting States to CLC. Traditionally, a ship is obliged to follow the law of its flag-State; coastal- and port-States could not usually impose their laws on a foreign vessel.⁷⁰⁸ This principle of flag-State supremacy over port- or coastal-States gives the ships of a State with less stringent maritime law some competitive advantage over the ships registered in the States with

(*The Torrey Canyon*), 281 F.Supp. 228 (SDNY 1968), rev'd on other grounds, 409 F.2d 1013 (2d Cir. 1969). See Kiern, "OPA: A Review of the First Decade" *supra* note 150 at 503. The corporate structure of the *Torrey Canyon* also illustrates the 'corporate veil' concept in its extreme. The ship was registered in Liberia and owned by a Bermudian company, the Barracuda Tanker Corporation, which was a corporate creation of the Union Oil, an American company. The ship was then bareboat-chartered to the Union Oil, which in turn voyage-chartered it to a UK company, the British Petroleum. See M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 149-150; Tan, *Vessel-Source Marine Pollution*, *ibid* at 288-289.

⁷⁰⁶ Article VII.10 of CLC.

⁷⁰⁷ Article VII.11 of CLC.

⁷⁰⁸ R. Mitchell, *Intentional Oil Pollution at Sea: Environmental Policy and Treaty Compliance*, (Cambridge, Massachusetts: The MIT Press, 1994) at 76 (hereinafter Mitchell, *Intentional Oil Pollution*). See, however, *infra* at p. 230 *et seq.* the discussion on 'strong port State control' for increased power of port State today.

more stringent law.⁷⁰⁹ For example, without the above requirement a State might decide to stay outside the CLC regime so that its shipowners do not have to incur the cost of compulsory insurance. The provision thus removes the incentives for shipowners to have their ships registered in those so-called ‘flags of convenience’ to avoid additional insurance cost. In other words, when it comes to the compulsory insurance for oil pollution liability, these ships cannot avoid the cost of insurance by hiding behind the flags of non-CLC States.⁷¹⁰

3. Compulsory insurance in other maritime liability conventions

The success of the oil pollution regime to provide adequate compensation inspired the IMO to adopt similar insurance provisions in other maritime liability law conventions. For example, the PAL 1974,⁷¹¹ the HNS Convention and the Bunkers Convention all now contain provisions on compulsory insurance.⁷¹² There were also attempts to include similar provision in the LLMC 1976 during the negotiation of its 1996 Protocol.⁷¹³

⁷⁰⁹ See Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 23-25, 34-5, 47-67; See also W. Tetley, “The Law of the Flag, ‘Flag Shopping’ and the Choice of Law”, (1992) 17 Tul. Mar. L.J. 175; R. Payne, “Flags of Convenience and Oil Pollution: A Threat to National Security”, (1980) 3 Hous. J. Int’l L. 67.

⁷¹⁰ See Hawkes & M’Gonigle, “Oil Pollution in Canada” *supra* note 661 at 224; M’Gongle & Zacher, *Pollution, Politics, and International Law*, *supra* note 122 at 226 and note 67, 236; see also Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 181-2.

⁷¹¹ Article 5 of PAL 1974, as amended by its 2002 Protocol, LEG/CONF.13/20.

⁷¹² Article VII of the HNS Convention, *supra* note 59; Art.7 of Bunkers Convention.

⁷¹³ See Organization for Economic Co-operation and Development (OECD), “Maritime Transport Committee Report on the Removal of Insurance from Substandard Shipping” (2004) at 62; available at <http://www.oecd.org/dataoecd/58/15/32144381.pdf> (last accessed: March 11, 2009) [hereinafter OECD, “Removal of Insurance”].

Although any provision on compulsory insurance is missing from the LLMC 1976, shipowners may be required to carry insurance up to its liability limit.⁷¹⁴ This is because the Bunkers Convention leaves the question of limitation of liability for the purpose of bunker oil pollution to national law, but stipulates that the maximum limit for compulsory insurance could not exceed the liability limit under the LLMC 1976 or its 1996 Protocol.⁷¹⁵ Consequently, any ship registered in a contracting State to the Bunkers Convention would be automatically required to carry insurance up to the liability limit under the general maritime liability convention.⁷¹⁶ Even when a ship is not registered in a contracting State to the Bunkers Convention but intends to enter the ports of a contracting State, the ship has to carry such insurance.⁷¹⁷

4. Compulsory insurance becomes part of all maritime laws

As the claimants of bunker oil pollution and general maritime losses would have to share the same liability fund,⁷¹⁸ the existence of compulsory insurance for bunker oil pollution would automatically provide the benefit of compulsory insurance to claimants of general maritime losses. General maritime liability law covers most of the maritime

⁷¹⁴ Bunker Convention entered into force on Nov. 21, 2008; see the status of the conventions at http://www.imo.org/Conventions/mainframe.asp?topic_id=247 (last accessed: March 11, 2009).

⁷¹⁵ Article 7(1) of Bunkers Convention. Insurance is required for any ship over 1,000 grt; *ibid*.

⁷¹⁶ Oil pollution from the bunkers of *tankers* is already covered by CLC; see the definition of ‘oil’ in article I.5: “‘Oil’ means any persistent hydrocarbon mineral oil such as crude oil, fuel oil, heavy diesel oil and lubricating oil, whether carried on board a ship as cargo or *in the bunkers* of such a ship”. (Emphasis added).

⁷¹⁷ See article 7.12 of Bunkers Convention. Like the similar provision in article VII.11 of CLC, this provision prevents competitive advantage of ships flying the flag of non-contracting States over the ships from contracting States. See Zhu, *Bunker Oil Pollution*, *supra* note 342 at 34.

⁷¹⁸ This is because unlike CLC or HNS Convention, Bunkers convention does not envisage an *exclusive fund* for bunker oil pollution. Liability for bunker oil pollution would be treated like any other liability of shipowner under general liability conventions in terms of priority of payment from the liability fund. See C. Wu, “Liability and Compensation for Bunker Pollution”, *supra* note 340 at 564; see also articles VII.9 of CLC and 12.9 of HNS Convention.

losses including those of cargo.⁷¹⁹ As a result, the compulsory insurance for bunker oil pollution would also secure the compensation for cargo liability claimants despite the fact that conventions on cargo liability do not require compulsory insurance.⁷²⁰ In short, the provision of compulsory insurance under the Bunkers Convention will indirectly guarantee availability of insurance against most of the shipowners' liability. It can thus be said that compulsory insurance has recently become a feature common to all types of maritime liability.⁷²¹

B. Direct Action against Insurers

The object of ensuring adequate compensation to oil pollution victims is further strengthened by the provision of direct action against the insurer of a liable shipowner.⁷²² This is a major departure from the traditional insurance policy under which a third party cannot bring an action against the insurer as there is no privity of contract between the insurer and the third party victim. Insurance is a contract between the insurer and the insured shipowner. This is especially the case in *indemnity* insurance as opposed to mere *liability* insurance.⁷²³ Although the purpose of both liability and indemnity insurance is the same i.e., protection of the insured against the financial

⁷¹⁹ See art. 2(1)(a) and (b) of LLMC 1976; see also Griggs et al., *Limitation of Liability*, *supra* note 171 at 134-6.

⁷²⁰ See *the Hague-Visby Rules*; *the Hamburg Rules*. The liability limit under the cargo conventions is further subject to the limit under LLMC 1976 as cargo is only one of many possible property claims to be met from the general limitation fund set up according to LLMC 1976.

⁷²¹ Bunkers Convention entered into force on Nov. 21, 2008; see *supra* note 714. However, claimants for non-bunker oil pollution may encounter difficulties to obtain compensation despite compulsory insurance because they would not be able to bring direct action against the insurer. See *infra* the discussion on 'direct action against insurers'.

⁷²² Art. VII.8 of CLC.

⁷²³ See *Hazelwood, P. & I. Clubs*, *supra* note 114 at 141. See also *West Wake Price & Co. v. Ching* [1957] 1 W.L.R. 45 at 49; *Ali Galeb Ahmed, et al. v. American Steamship Owners Mutual Protection and Indemnity Association Inc. et al.* [1978] A.M.C. 586; *Weeks v Beryl Shipping Inc.* (1988) 845 F. 2d. 304; these cases were cited in *Hazelwood, P. & I. Clubs*, *ibid* at 141 note 4.

burden of third party liability, *indemnity* insurance especially that provided by the P&I clubs is strictly based on a ‘pay-to-be-paid’ policy.⁷²⁴ An insured shipowner has to pay out the victim first in order to claim indemnification from the insurer. The oil pollution liability regime has changed this policy and practice by according pollution victims the right to direct action against insurers.⁷²⁵

1. No policy defence or exception allowed

Compulsory insurance will be of no use to a victim of oil pollution if insurers can deny compensation by pleading policy defences or exceptions against the insured shipowners.⁷²⁶ Commensurate with its primary goal of adequate compensation, the oil pollution liability regime prevents insurers from invoking the insured’s breach of contractual obligations such as failure to pay premium to deny pollution victims the insurance proceeds. The CLC stipulates that insurers cannot avail themselves against a pollution victim of any defence which they could otherwise use against their insureds.⁷²⁷ The only exception to this is the defence of ‘wilful misconduct’ of the insured. In addition, insurers never have to pay more than the liability limit under the CLC even when an insured shipowner is deprived of its right to limitation of liability due to certain conducts which may not amount to wilful misconduct.⁷²⁸

⁷²⁴ See Gauci, *Oil Pollution at Sea*, *supra* note 430 at 221-24; Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 42-3.

⁷²⁵ VII.8 of CLC provides, “Any claim for compensation for pollution damage may be brought *directly* against the insurer or the person providing financial security for the owner’s liability for pollution damage.” (Emphasis added).

⁷²⁶ Røsæg, “Compulsory Maritime Insurance”, *supra* note 697 at 10.

⁷²⁷ VII.8 of CLC.

⁷²⁸ *Ibid.* Wilful misconduct appears to be different from conducts barring limitation of liability under Article V.2 of CLC. The latter conducts are shipowner’s “personal act or omission, committed with the intent to cause [pollution] damage, or recklessly and with knowledge that such damage would probably

2. Direct action in other maritime liability convention

Again, inspired by the success of the oil pollution liability regime in providing adequate compensation, the IMO incorporated the provision of direct action against insurers in some other maritime liability conventions together with the provision of compulsory insurance. These are the HNS Convention, the PAL 1974 and the Bunkers Convention.⁷²⁹ Although provision of compulsory insurance under the Bankers Convention would benefit the liability claimants under the 1976 LLMC in securing their compensation up to the liability limit under the latter convention, these claimants cannot take advantage of the direct action provision under the Bankers Convention; only the claimants for bunker oil pollution damage could bring a direct action against the insurer.⁷³⁰ This is because the basis of general liability claims is the 1976 LLMC which does not allow direct action, while the basis of bunker oil pollution damage is, of course, the Bunkers Convention with its provision on direct insurance.

3. Arguments for direct action and compulsory insurance in general maritime liability

Direct action against insurer as well as compulsory insurance should be included in the general liability convention i.e., the LLMC 1976 if *adequate compensation* is thought to

result.” Shipowners’ personal act or omission to cause pollution damage does not appear to be a defence for the insurer against a pollution victim’s claims. In this respect, wilful misconduct seems to be a more serious offence than a personal act or omission with the intent to cause damage. Yet, for the purpose of denying the right to limited liability, wilful misconduct appears to be a lesser fault than personal act or omission as the latter not the former deprives the shipowner the right to limit liability. In practice and in their ordinary meaning, they may be one and the same thing. In that case, there seems to be some contradiction or oversight in Article VII.8 of CLC because one conduct is a defence and the other is not. Similar comments can be made also with regard to ‘a reckless conduct,’ another conduct barring the right of limitation. However, if these conducts also amount to wilful misconduct, victims of pollution will lose the right of direct action against insurers more often than would be the case otherwise.

⁷²⁹ See articles 12 (8) of HNS Convention, 5.10 of 2002 Protocol to PAL 1974 and 7.10 of Bunkers Convention.

⁷³⁰ Article 7.10 of Bunkers Convention.

be a desirable goal of general maritime liability law. Although compensation *per se* should not be the goal of liability law,⁷³¹ securing compensation through compulsory insurance and direct action may enhance the *deterrence* effect of liability law.⁷³² This is because, without compulsory insurance and direct action, there is always some possibility that shipowners may escape their liability and this possibility may in turn lead the shipowners to reduce their care level.

4. Capacity of insurance market for compulsory insurance and direct action

Naturally shipowners and their liability insurers, the P&I clubs, might be opposed to the inclusions of provisions on compulsory insurance and direct action in the general maritime liability laws. They might argue that such provisions are not feasible in non-oil pollution liability regimes because of the diverse nature of cargoes on non-tankers and the lack of insurability for such cargoes.⁷³³ These arguments would not be very persuasive as shipowners already have insurance against these types of liability through their P&I clubs. There may not be any need to change the present insurance arrangements at all. All that would be needed is to make compulsory what shipowners always purchase on their own volition and then to secure the benefit of the existing

731 Because when both injurers and victims can buy liability and first party insurance respectively, the appeal for liability law as a means of compensation greatly disappears. The only justified goal of liability in the presence of widespread insurance is the creation of deterrence, which would lead to the reduction of negligently-caused accidents. See Shavell, *Foundations of Economic Analysis of Law*, *supra* note 19 at 267-69 and 635-38.

732 It is noteworthy here that *compensation* does not affect the goal of *deterrence*, if compensation is *fully* borne by the party who can cost-effectively prevent or reduce oil pollution. On how to balance both deterrence and compensation goals through liability law, see generally M. J. Trebilcock, "Incentive Issues in the Design of 'No-Fault' Compensation System", (1989) 39 U. Toronto L. J. 19.

733 Shipowners and their P&I clubs made these and similar arguments in almost every maritime liability convention intended either to increase their liability or to provide compulsory insurance. See *Official Records of the 1976 Liability Conference*, *supra* note 9; *Official Records of the 1971 Fund Conference*, *supra* note 226.

insurance for liability claimants through direct action against insurers. As mentioned earlier,⁷³⁴ compulsory insurance will force those shipowners who try to escape liability through ‘corporate veil’ to pay for their liability. Direct action, on the other hand, will ensure that the intended beneficiaries do in fact have access to the proceeds of the compulsory insurance.

C. Certificate of Insurance

Compulsory insurance and direct action against insurers do not guarantee *adequate compensation* if shipowners can avoid verification by the State authorities of the existence or otherwise of insurance. In order to facilitate such verification, shipowners are required under the CLC to carry on board the proof of insurance in the required form of a certificate of insurance.⁷³⁵ A State party to the CLC can deny a ship without such certificate to enter its ports or terminal installations.⁷³⁶ Traditionally, a flag State used to be the authority to issue the various certificates a ship is required to carry under international laws.⁷³⁷ However, for insurance certificate under the CLC, the issuing flag State has to be a party to the CLC in order for its certificate to be acceptable to the CLC State parties.⁷³⁸

⁷³⁴ *Supra* notes 700 and 701 with accompanying texts.

⁷³⁵ Article VII.4 of CLC.

⁷³⁶ Article VII.11 of CLC.

⁷³⁷ For example, under MARPOL 73 flag States are required to issue certificates of compliance with regard to the conformity of a ship to the construction and design provisions. Similarly, it is also the duty of the flag State to issue certificate confirming that the tank size of the tankers conforms to the MARPOL provisions. See also article 217(3) of United Nations Convention on the Law of the (LOSC), United (1982) 21 I.L.M. 1261, which requires flag States to ensure the existence of necessary certificates on board their ships: “States shall ensure that vessels flying their flag or of their registry carry on board certificates required by and issued pursuant to international rules and standards...”

⁷³⁸ Art. VII.2 of CLC.

A ship from a non-CLC State wishing to trade in the CLC States thus has to obtain the certificate from a CLC State. Here the possibility of a certificate by a flag State without properly verifying the existence of insurance and the financial viability of the insurers is checked to a great extent. This provision also indirectly encourages States to become parties to the CLC so that they can issue the certificate to their own ships in order to enable them to trade with the major oil-importing countries,⁷³⁹ most of which are parties to the CLC/Fund convention regime with the noticeable exception of the US.⁷⁴⁰ In order to further ensure that insurance does not exist only in paper, a contracting State when in doubt about the financial capability of the insurer can consult with the certificate-issuing contracting State.⁷⁴¹

D. Insurance through the IOPC Fund

The primacy of the goal of adequate *compensation* over that of *deterrence* under the oil pollution liability regime is most obvious in the establishment of the IOPC Fund. As contributions to this fund come exclusively from cargo owners i.e., the oil industry and not from shipowners, the question of *deterrence* is hardly relevant here. When negligence is a causative factor in an oil pollution incident, it would be almost without exception that of shipowners or their employees.⁷⁴² Yet, compensation for pollution

⁷³⁹ The major oil importers are now US, Japan, China, Italy, and South Korea. With the exception of the US, the rest of the countries are parties to CLC. See the list of countries parties to the CLC/Fund Convention at IOPC Fund website at <http://www.iopcfund.org/92members.htm> (last accessed: March 11, 2009).

⁷⁴⁰ However, in the USA similar certificate is also required under OPA. See 26 U.S.C. § 9509 (c)(2)(A).

⁷⁴¹ Article VII.7 of CLC.

⁷⁴² Although it is true that oil spill due a shipowner's negligence may give rise to more harm and lead to higher liability than would be the case for a similar accident involving *non-oil* cargo, there is no justifications in shifting the liability to cargo owners i.e., the oil companies for shipowners' negligence, because once the cargo is in the ship, oil companies have no control over its care. Despite this, during the

damage from such an incident would also come from the IOPC Fund when the damage exceeds the shipowners' liability limit. Despite the absence of any direct *deterrence* effect from it, the IOPC Fund provides another source of *adequate compensation*, the main goal of the oil pollution liability regime. The Fund's function is similar to that of a second insurance layer.

1. Situations when the IOPF Fund comes into the scene

As a second layer of insurance, the IOPC Fund provides compensation only when a claimant for oil pollution damage is unable to obtain *full compensation* from shipowners. The claimant may fail to obtain full compensation either because no compensation is available from shipowners⁷⁴³ or because it is inadequate.⁷⁴⁴ The first of these two situations may arise in the highly unlikely event of both a shipowner and his liability insurer becoming bankrupt;⁷⁴⁵ it may also be due to the fact that shipowners are not liable at all.⁷⁴⁶ The second situation i.e., inadequate compensation is more common and exists due to the limitation of shipowners' liability. Most cases requiring

negotiations of CLC and Fund Convention some States argued to impose liability on the oil industry because of the inherent nature of the oil cargo to cause higher damage. For example, the Danish delegate reasoned during 1969 conference, "Maritime transport was not dangerous in itself: it was only dangerous if the goods carried were dangerous and it was therefore normal to impose liability on the cargo for any damage caused to a third party. The industry which made a profit from that business should also accept the risks entailed." *Official Records, International Legal Conference on Marine Pollution Damage* (1969) (London: IMCO, 1973) at 628. On the other hand, Canada's main concern was adequate compensation for oil pollution regardless of who would pay for it. See M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 172.

⁷⁴³ Article 4 (1) (b) of Fund Convention.

⁷⁴⁴ Article 4(1) (c) of Fund Convention.

⁷⁴⁵ This may also occur if a tanker does not have insurance at all because insurance is not compulsory on tankers of 2,000 grt or below.

⁷⁴⁶ E.g., oil pollution caused by an exceptional natural phenomenon. See article III.2 (a) of CLC.

compensation from the IOPC Fund in the past arose due to the inadequacy of the shipowners' liability limit.⁷⁴⁷

2. The IOPC Fund's source of contributions

The contributions to the fund come from cargo interests i.e., the oil companies who receive oil via sea in the contracting States to the Fund Convention.⁷⁴⁸ The contributions are comparable to the premium paid by shipowners to their mutual P&I clubs. In both cases, the total contribution is calculated on the basis of the Fund's and the P&I club's respective annual payouts to the victims of oil pollution. The only difference is that the P&I clubs take into account the *claim history* and/or *care level* of each shipowner for the calculation of that individual shipowner's contribution, while the IOPC Fund does not consider these factors in determining the levies it imposes on each contributing oil company. The single factor for the calculation of an individual oil company's contributions is the amount of its total oil-receipt via sea transport.⁷⁴⁹ Like the advance and supplementary "calls" made by the P&I clubs,⁷⁵⁰ the IOPC Fund also levies contribution on the oil companies first based on the anticipated liability and then based

⁷⁴⁷ See T. Mensah, "The IOPC Funds: how it all started", *supra* note 667 at 48; see also Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 305-6.

⁷⁴⁸ Article 10 of Fund Convention.

⁷⁴⁹ Some suggested imposing differentiated levies on oil companies based on actual incidents involved in the carriage of each company's oil. The justification of this suggestion is that such differentiation will force the oil companies to charter ships of best qualities and to avoid chartering sub-standard ships as a means of cutting the cost of chartering at the expense of safety. See Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 342-3. However, the benefit of such mechanism would be indirect. On the other hand, inducing shipowners to proper maintenance of their ships would be direct and more efficient. For comments on similar suggestions about the identical contribution formula to oil industry's private agreement, CRISTAL (Contract Regarding an Interim Settlement of Tanker Liability for Oil Pollution, (1971)10 I.L.M. 137), to compensate oil pollution damage, see M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 182 note 105.

⁷⁵⁰ Hazelwood, *P. & I. Clubs*, *supra* note 114 at 122.

on the actual liability.⁷⁵¹ Technically there may be credit back to the contributors if the actual liability is less than the anticipated amount, although such situation is rare.⁷⁵²

3. The IOPC Fund's effects on deterrence

Although the establishment of the IOPC Fund is a praiseworthy innovation in terms of providing adequate *compensation*, the provision of compensation from the Fund may reduce the *deterrent* effect of shipowners' liability to the extent the Fund pays for oil pollution caused by the negligence of shipowners. As can be seen, this argument is not really against the Fund's role to provide adequate compensation but against its role to partially absorb a negligent shipowners' liability. Although both roles are inseparable from each other in many cases, the Fund plays the former role without the latter in some cases. For example, there are situations under the Fund Convention where the Fund pays for compensation against oil pollution even though there is no question of shipowners' liability because the polluting incidents occurred *without any negligence* on the part of shipowners.⁷⁵³ These situations are: natural disaster,⁷⁵⁴ the action of a third party, or the negligence of the government authority in charge of maintaining lights and navigational aids.⁷⁵⁵ In the latter two situations, the Fund may claim reimbursement from the third party and the government under the principle of subrogation.⁷⁵⁶

⁷⁵¹ See *Explanatory note of IOPC Fund*, *supra* note 394 at 4-5. See also M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 192 note 131.

⁷⁵² In the IOPC Fund (1992), only in the year 2000, £3.7m was credited back to the contributors from the unused contributions of 1999; *Explanatory note of IOPC Fund*, *ibid*.

⁷⁵³ Article 4 (1)(a) of Fund Convention.

⁷⁵⁴ This situation is expressly mentioned in article III.2 (a) of CLC as an exonerating factor for shipowner's liability. Its absence among exonerating factors in Fund Convention is deliberate as article 4 (4) (b) of the convention describes the conditions for the Fund to pay compensation in such situation.

⁷⁵⁵ The liability of the Fund in these two situations is by implication as they are not mentioned among the exonerating situations. This is also clear from the negotiations of parties at the 1971 Conference, during

The payment from the IOPC Fund for oil pollution damage caused solely by natural disaster reinforces the fact that the primary goal of oil pollution liability regime is the provision of *compensation* as opposed to the creation of *deterrence* from negligence.⁷⁵⁷ However, providing adequate *compensation* from the fund in the above three situations does not interfere with the *deterrent* effect of the liability law because no optimal precautionary measures by shipowners could prevent the pollution incidents from occurring in those cases.⁷⁵⁸ Consequently, there can be no objection to the Fund's role in providing compensation where shipowners' *negligence* has *no* causal connection with an incident of oil pollution damage. In such cases, the fund works solely as the insurer for the pollution victims and not for the negligent shipowners.

4. Justification of the Fund's payment for natural disaster

The justification of compensation from the IOPC Fund in the cases of natural disaster lies in the social benefit of internalizing the cost of 'externality' arising from oil pollution.⁷⁵⁹ The oil pollution damage suffered by third parties such as fishermen is an

which some States including Canada and the US demanded that the Fund should cover *all* cases of oil pollution damage not covered by CLC. However, as a compromise the Fund is exonerated only from liability for oil pollution from unknown sources (mysterious spill) or when the cause of the damage is war or war-like situation. See M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 184-5.

⁷⁵⁶ Article 9.2 of Fund Convention.

⁷⁵⁷ It is noteworthy here that the liability of the Fund to its maximum limit applies *per natural disaster* regardless of the *number of shipping incidents* from the same disaster. See art. 4.4(b) of Fund Convention; M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 185.

⁷⁵⁸ Deterrence effect of liability is compromised when a potentially liable person who can take care to prevent or reduce the loss does not have to pay for full liability because other parties such as the IOPC Fund foot the bill.

⁷⁵⁹ 'Externality' is the cost to third parties arising from the transaction between the parties to a contract, e.g., financial damage to fishermen from oil pollution. For definition of 'externality,' see R.C. d'Arge and E.K. Hunt, "Environmental Pollution, Externalities, and Conventional Economic Wisdom: A Critique" (1972) 1 *Environmental Affairs* 266 at 266-7. See also the classic work on externality, Pigou, *The Economics of Welfare*, *supra* note 204.

external social cost (externality) flowing from the transportation of oil.⁷⁶⁰ If neither shipowners nor oil companies bear this cost, the price consumers pay for oil would not reflect this externality. Consequently, the market price of oil would be less than its real social cost and there would be an excessive consumption of oil. In other words, some people whose benefits from the consumption of oil are less than its real social costs would buy oil. On the other hand, if the oil industry pays for this kind of oil pollution damage, the price of oil will reflect its real social cost; and those consumers whose utility from the consumption of oil falls below this cost would not consume this valuable scarce resource.⁷⁶¹ Put differently, the price of oil will internalize the external cost of oil pollution. Internalization of externality leads to the optimal resource allocation and prevents social waste. This also indirectly reduces the incidents of oil pollution to the extent they are causally correlated to the amount of oil transported via sea because the reduction in consumption also brings the reduction in the transportation of oil. This is why imposing levies on oil companies for oil pollution damage from ships due to the natural elements of the sea makes economic sense.

5. A similar fund under HNS Convention

This second-tier insurance arrangement through the IOPC Fund has greatly contributed to the success of oil pollution liability regime in providing adequate *compensation*. Although provisions have been made for a similar fund under the HNS Convention,⁷⁶² the HNS Fund faces a huge challenge in terms of charging levies on a very diverse

⁷⁶⁰ Mitchell, *Intentional Oil Pollution*, *supra* note 708 at 74-75.

⁷⁶¹ See generally Calabresi, *The Costs of Accidents*, *supra* note 47 at 70-72.

⁷⁶² See article 14 of HNS Convention. The HNS Fund would cover damages up to SDR 250 million including SDR 100 m from shipowners.

group of contributors. Unlike oil, the substances covered under the HNS Convention and carried via sea are different in nature and also pose dissimilar risks. The number of such substances is likely to exceed 6,000 and they are carried in different types and sizes of vessels.⁷⁶³ This would be the main obstacle to the provision of second tier insurance through the HNS Fund if and when the HNS Convention comes into force. The contributors of the HNS Fund would be the various chemical companies.⁷⁶⁴

E. Insurance through the Supplementary Fund

The goal of *adequate compensation* for oil pollution damage has received an extraordinary boost when the Supplementary Fund was created in 2003 in a succession of initiatives following the *Erika* incident off the coast of Brittany, France, in 1999.⁷⁶⁵ As mentioned earlier, the Supplementary Fund would provide up to SDR 750 million (US\$1.10 billion) for a single oil pollution incident on the waters of a contracting State.⁷⁶⁶ The Supplementary Fund functions as the *third tier insurance* against oil pollution damage.⁷⁶⁷ It kicks in when the liability limit of the IOPC Fund is exhausted in compensating for oil pollution damage. Except the higher limit, the Supplementary Fund's compensation mechanisms are similar to those of the IOPC Fund. As a result, all

⁷⁶³ See Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 336.

⁷⁶⁴ See generally Tan, *Vessel-Source Marine Pollution*, *ibid* at 334 *et seq.*

⁷⁶⁵ The ship broke into two with 30,000 tons of heavy fuel oil; it spilled 19,800 tons of oil. A total of 796 claimants brought a total of 420 legal actions and the total claim reached as high as £288 m. See the IOPC Fund website at <http://www.iopcfund.org/erika.htm> (last accessed: March 12, 2009).

⁷⁶⁶ See *supra* note 675 with accompanying text. This amount is, however, in combination with SDR 230 m from the IOPC Fund and SDR 89.77 m from shipowners.

⁷⁶⁷ Even though no incident requiring compensation from the Supplementary Fund has yet occurred since its coming into existence on March 3, 2005, the contracting States or the oil companies in those States have been levied £0.0017223 per ton of contributing oil on March 01, 2007, for meeting the Supplementary Fund's administrative expenses. *Explanatory note of IOPC Fund*, *supra* note 394 at 6.

the above discussion relating to the IOPC Fund's effect on *deterrence* from negligent navigation equally applies to the Supplementary Fund.

1. Contribution mechanism

The contribution mechanism of the Supplementary Fund is also similar to that of the IOPC Fund; the contributions come from the oil companies in the contracting States to the Supplementary Fund Protocol. Like the IOPC Fund, the Supplementary Fund levies those oil companies which receive over 150,000 tons of oil via sea in the contracting States.⁷⁶⁸ However, one big difference between the two funds is that each *contracting State* to the Supplementary Fund has to make a minimum contribution whether or not any company in it receives oil over 150,000 tons. The minimum contribution for a State is assessed on the basis of one million tons of contributing oil.⁷⁶⁹ The responsibility to pay for any amount falling short of the threshold limit lies with the government of a contracting State⁷⁷⁰ as opposed to the oil companies in it. The purpose of this provision is to ensure that each contracting State bears some costs of the Supplementary Fund's total yearly expenses.⁷⁷¹

The compulsory payment for a threshold amount makes the Supplementary Fund resemble more a mutual *insurance* fund than a compensation fund for pollution. Like any insurance pool where each insured has to pay premium in order to obtain insurance protection, each contracting State to the Supplementary Fund Protocol has to contribute

⁷⁶⁸ Article 10 of Supplementary Fund Protocol.

⁷⁶⁹ See article 14.1, *ibid.*

⁷⁷⁰ Article 14.2, *ibid.*

⁷⁷¹ 92FUND/A.6/4; 92FUND/WGR.3/9, 7.2.26 at p. 19-20.

something in order to benefit from this extra layer of insurance protection. On the other hand, a State to the Fund Convention does not have to pay any contribution to the IOPC Fund if no oil company in the State received over 150,000 tons of oil in a fiscal year.⁷⁷² In fact, 16 out of 62 State parties to the Fund Convention in 2001 did not have to pay any contribution to the IOPC Fund because no oil companies in those States received oil over the minimum threshold.⁷⁷³ The non-contributing States are mainly some *developing* States with small economy. This formula of the IOPC Fund is a better approach to the goal of adequate compensation for oil pollution damage as well as to the protection of marine environment.⁷⁷⁴

2. Objection to the contribution mechanism

From the environmental point of view, the contribution formula of the Supplementary Fund is undesirable. The mandatory minimum contribution formula discourages the developing States to become parties to the Supplementary Fund Protocol. Yet, an oil spill incident may cause as much damage to a developing country as to a developed one and may require as much compensation both for clean-up costs and for monetary damage arising from the incident. Despite this equal need of compensation, the burden of minimum compulsory contribution under the Supplementary Fund on these developing States would be unequally heavy. This burden is an obstacle to the wider

⁷⁷² Article 10 (1) of Fund Convention.

⁷⁷³ *Annual Report 2001: International Oil Pollution Compensation Fund* (London: IOPC Funds, 2001) at 165.

⁷⁷⁴ It is noteworthy here that oil pollution compensation covers not only losses suffered by individual victims but also environmental damage and expenses for preventive measures to reduce or eliminate environmental damage from spilled oil. See article I.6 of CLC on the definition of 'pollution damage'. In fact, compensation for environmental damage represents the highest cost in total payouts for oil pollution.

ratification of the Supplementary Fund Protocol.⁷⁷⁵ Most of the ratifying States are the wealthy European countries.⁷⁷⁶

It is true that the developing States may receive less oil and may transport oil in smaller tankers; they may thus be less exposed to devastating oil pollution incidents, an observation supported by the history of the most disastrous oil pollution incidents.⁷⁷⁷ This observation, however, also supply with additional support against the minimum compulsory contribution to the Supplementary Fund by the developing countries as they would rarely require compensation from it. This, however, does not obviate their need to have the assurance of compensation from the Supplementary Fund for an unexpected large incident exceeding the limit of the IOPC Fund. In addition, the oil pollution incidents in some developing countries may occur due to the transportation of oil to the developed countries *en route* the former. For example, the oil tankers from Persian Gulf to the Western Europe, Japan and the US touch the waters of many African and Asian countries.⁷⁷⁸ Yet, if a serious oil pollution incident occurs in one of those countries, compensation will not be forthcoming from the Supplementary Fund because these countries are not parties to the Supplementary Fund Protocol, having been discouraged by its requirement of minimum contribution.

⁷⁷⁵ One of the factors for the widespread acceptance of Fund Convention is that the governments of the contracting States do not have to contribute any money to the IOPC Fund; it is only oil companies in the States on whom the burden falls. See Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 332-3.

⁷⁷⁶ As of March 9, 2009, there are 23 States parties to the Supplementary Fund; they are mainly from European Union; see at <http://www.iopcfund.org/92members.htm> (last accessed: March 11, 2009).

⁷⁷⁷ *Torrey Canyon*, *Amoco Cadiz*, *Exxon Valdez*, *Erika*, *Nakahodka* and *Prestige* all occurred on the waters the developed countries.

⁷⁷⁸ M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 115, 185-7, 233.

F. Insurance from national oil pollution funds

Although the question of compensation may seem to be fully addressed by the creation of the Supplementary Fund, neither all types of ‘oil’ nor the pollution from the recognized types are covered under the international oil pollution liability regime. Compensation is limited to the pollution damage from ‘persistent oil.’⁷⁷⁹ Even if the polluting oil is persistent oil but the source of pollution (i.e., the ship which discharged the oil) is not known, none of the two funds would provide any compensation.⁷⁸⁰ Also, as discussed in the preceding para, many States may be unwilling to become party to the Supplementary Fund due to its compulsory minimum contribution.⁷⁸¹ As a result, the Supplementary Fund would be of no help to these States. Thus, there still remains the need for some additional source of compensation.

Canada responded to this need through the establishment of the Ship-Source Oil Pollution Fund (SOPF).⁷⁸² The SOPF provides coverage for any oil pollution damage not covered by the international liability law regime due to any of the above reasons.

779 Article I.5 of CLC defines “oil” as “any *persistent hydrocarbon mineral oil* such as crude oil, fuel oil, heavy diesel oil and lubricating oil, whether carried on board a ship as cargo or in the bunkers of such a ship.” (Emphasis added). The same definition is included in article 1.2 of Fund Convention by reference. Canada’s proposal to define ‘oil’ under Fund Convention widely to include ‘liquid hydrocarbon of any kind’ was opposed by the oil industry and many oil-importing countries on the ground, inter alia, that such wide definition would cause the involvement of the Fund in a large number of minor oil spill cases. See LEG/CONF.2/C.1/SR.3 in *Official Records of the 1971 Fund Conference*, *supra* note 226 at 320-321.

⁷⁸⁰ An American proposal to require the IOPC Fund to pay compensation for ‘mysterious’ spills also rejected by the oil industry and their supporters on the same ground that it would necessitate frequent involvement of the Fund for many small spills. Yet, the Scandinavian proposal (LEG/CONF.2/C.1/WP.26) to limit the Fund’s contribution only to cases of oil pollution damage exceeding 15 million francs (US\$1m) was also rejected. See *Official Records of the 1971 Fund Conference*, *ibid* at 355-365, 384-388; M’Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 185-7 and note 118.

⁷⁸¹ For example, even Canada is not yet a party to the Supplementary Fund. However, Transport Canada recommends that Canada ratify the Supplementary Fund Protocol. See <http://www.tc.gc.ca/pol/en/Report/tp14370/1-1.htm> (access date: March 09, 2009).

⁷⁸² S. 77 of *Marine Liability Act*, 2001, c. 6.

However, this fund is heavily subsidizing shipowners at the expense of its contributors i.e., the oil companies. In many cases of domestic oil pollution, there is no connection between the contributors and the beneficiaries of the SOPF. Most of the oil pollution cases compensated by the SOPF arise from the bunker of *non-tankers*;⁷⁸³ non-tankers are not usually involved in the transportation of oil for the oil companies. The solution seems to lie in requiring non-tankers to carry compulsory insurance against the oil pollution from their bunkers.⁷⁸⁴

III. Limitation of Liability: an Impediment to the Deterrent Effect of Liability

Despite its success in providing adequate *compensation*, the oil pollution liability regime may fail to fully *deter* shipowners from negligent navigation because their liability under the regime is limited.⁷⁸⁵ However, since the limit of shipowners' liability under the CLC is set at a substantially higher level than under other maritime liability conventions, *most incidents* of oil pollution damage fall within the liability limit of the CLC.⁷⁸⁶ In other words, shipowners pay fully for their liability in most of the oil pollution cases. To the extent shipowners bear full liability for oil pollution, they will be motivated to take optimal care to prevent such pollution.

⁷⁸³ *SOPF Annual Report 2005-2006*, *supra* note 187 at 37. This was one of the reasons for the oil industry in the 1971 IMO conference to reject to provide compensation in cases of oil spills from unknown sources. See *Official Records of the 1971 Fund Conference*, *supra* note 226 at 320-321.

⁷⁸⁴ Although the entry into force of Bunker Convention will address the problem to a large extent, the convention does not apply to smaller ships with 1,000 or less gross tons. See article 7.1.

⁷⁸⁵ See chapter two for the effect of limitation of liability on deterrence.

⁷⁸⁶ From the inception of the IOPC Fund in 1978 to 2003, only 125 incidents necessitated the involvement of the Fund; most of the payments were due to the inadequacy of shipowners' limitation amount. See T. Mensah, "The IOPC Funds: how it all started", *supra* note 667.

However, due to the limitation of liability there will still be some cases where the oil pollution damage exceeds the shipowners' liability limit and the IOPC Fund would have to pay for the additional damage in those cases.⁷⁸⁷ As some of these incidents would surely be caused by the shipowners' negligence, the limited liability for oil pollution in those cases would interfere with the deterrent effect of liability law. The prospect of limited liability may influence the decision of shipowners on precautionary measures especially when the costs of such measures are more than their *expected oil pollution liability* even though they are less than the *expected oil pollution damage*. This divergence between expected liability and expected damage is caused by the limitation of liability and is the source of distortion of incentives towards optimal care level.⁷⁸⁸

This distortion, however, will not occur if the cost of care is less than the expected liability despite the liability being limited or if the accidents causing oil pollution damage above the liability limit are unusual or 'freakish' in nature and thus are not foreseeable.⁷⁸⁹ The latter possibility exists in some maritime liability cases. For example, marine insurers usually do not increase insurance premium following shipping accidents with liability above US\$2 million. This is because such high liability is normally the result of a combination of factors and not merely the consequence of negligence even though negligence might have triggered the incidents in the first place.⁷⁹⁰ These factors may include the place and the time of the incident, the post-

⁷⁸⁷ In the 125 incidents affecting 20 countries from 1978 to 2003 involving the payment from the Fund, it paid more US\$700 million. *Ibid.*

⁷⁸⁸ See *supra* notes 200 – 204 with accompanying text in chapter two.

⁷⁸⁹ See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 238-9.

⁷⁹⁰ See OECD, "Removal of Insurance", *supra* note 713.

incident control measures and the lack of proper coordination etc.⁷⁹¹ However, if the same insured incurs very high liability in more than the usual number of cases, this fact may be an indication of the insured's negligence as opposed to random mishaps.

The main objection against unlimited liability by shipowners and their P&I clubs is the un-insurability of such liability.⁷⁹² As discussed in chapter two, this objection may be rebutted by the fact that liability law in most non-maritime cases does not contain the limitation of liability principle and still there is no problem with the availability of liability insurance. Liability insurance in those cases is, of course, limited in amount; the insured bears the risk of liability exceeding the insurance limit. Same practice can be adopted in marine oil pollution liability i.e., to leave liability unlimited but to require insurance for a minimum threshold. Although unlimited liability with minimum threshold insurance would fail to guarantee compensation above the compulsory insurance limit, the fear of liability beyond the insurance limit would motivate potentially liable parties towards optimal care. In any case, there will always be the IOPC Fund to cater for the portion of oil pollution compensation which is not covered by the shipowners' insurance and for which shipowners are unable to pay from their own pockets.

⁷⁹¹ For example, the *Exxon Valdez* incident cost the highest amount of liability, despite its being only 35th largest world-wide oil spills in terms of volume. The total economic cost is estimated over \$12 billion. Kiern, "OPA: A Review of the First Decade," *supra* note 150 at 481-82.

⁷⁹² The official records of maritime liability conferences, called to adopt liability conventions, are full with this objection. See, e.g., *Official Records of the 1976 Liability Conference*, *supra* note 9 at 112-113, where the International Chamber of Shipping (ICS) said, "...the main justification of limitation of liability today is *the insurability of the risk* with its two elements, the availability of cover and economic cost." (Emphasis added.)

IV. Decrease of Accidental Oil Spills: Possible Reasons including Deterrence

The higher limit of liability may be partially responsible for the fact that the incidents of oil pollution damage are on the decline. Despite the existence of the limitation of liability principle, empirical evidence shows that incidents of *accidental* oil spills from *tankers* are steadily decreasing.⁷⁹³ A survey of oil spill incidents in Canada shows that between 1993 to 2006 only 7.5 per cent of the total spills were from *tankers*, while 75.5 were from *non-tanker* and 17 per cent from unknown ships/other sources ('mysterious spills').⁷⁹⁴ This trend can be observed not only in Canada but worldwide. Except South Korea, every country in the world saw a dramatic decrease in the number of oil spills from *tanker* in the last 30 years.⁷⁹⁵

For large spills over 700 tones, there were more than 25 spills worldwide on average per year from 1970 to 1979. The number of such spills declined to 9.3 per year during 1980-89, 7.8 incidents in the period of 1990-99 and only 3.6 spills per year over the period of 2000 to 2007.⁷⁹⁶ In addition to the number, the size of oil spills also gradually decreased. Out of almost 10,000 oil spills from 1970 to 2007, 84 per cent of them were below 7 tons, with most of the large spills occurring in the earlier years.⁷⁹⁷ Logically, the amount of oil spilled per year is also on the decline from 1980 onward except few random years when one or two large spills made the total quantity exceed the annual

⁷⁹³ Oil pollution liability regime addresses oil pollution damage from tankers only. See article I.1 of CLC.

⁷⁹⁴ *SOPF Annual Report 2005-2006*, *supra* note 187 at 37.

⁷⁹⁵ See the following link for the website of the International Shipowners Pollution Federation Ltd (ITOPF) at <http://www.itopf.com/information-services/data-and-statistics/statistics/index.html> (access date: March 11, 2009); see also the paper presented by K. Huijer at the 28th Arctic and Marine Oil spill Program (AMOP) Technical Seminar, 7-9 June 2005, Calgary, under the title *Trends in Oil Spills from Tanker Ships 1995-2004*; available at http://www.itopf.com/_assets/documents/amop05.pdf

⁷⁹⁶ See ITOPF website; *ibid*.

⁷⁹⁷ *Ibid*.

average by a large margin.⁷⁹⁸ This downward trend in the incidents of oil spill is the result of many factors including the above-mentioned insurance arrangements, the strict liability for oil pollution, high liability limit as well as some *non-liability* law factors such as improved tanker design and strong port State control. I will shortly discuss all these factors below.

A. Role of insurance in the decrease of oil pollution incidents

Although I have highlighted mainly the role of insurance in adequate *compensation* in the part III of the chapter above, the insurance arrangements in the oil pollution liability regime also incidentally improved the *deterrent* effect of liability law; improved *deterrence* in turn contributed to the reduction of oil pollution incidents. As I have occasionally alluded to the latter role of insurance when discussing the justifications of the various insurance arrangements, the discussion here will be brief.

1. Compulsory insurance increases liability for negligence

First of all, *compulsory insurance* makes it impossible for a negligent shipowner to escape liability through the ‘corporate veil’ by forming ‘one-ship’ company.⁷⁹⁹ This increases the probability of actual liability on shipowners. If shipowners could escape their liability in one case out of two in the past, for instance, they will now have to pay in both cases. As a result, their expected liability would now be higher than before. This

⁷⁹⁸ See *ibid.* As for similar progress in the US, see the statement of the US Coast Guard’s Commandant, Mr. James Loy in Joint Hearing on Oil Pollution Act of 1990 Before the Subcommittee on Coast Guard and Maritime Transportation and Water Resources and Environment of the House of Commons on Transportation and Infrastructure, 106th Cong. (1999).

⁷⁹⁹ See *supra* note 698 with accompanying text about the widespread practice of forming ‘one-ship’ corporation and its consequent evasion of shipowners’ liability.

will in turn reflect in the insurance premium they pay. Higher expected liability and insurance premium will make the expenditure on optimal care more cost-efficient. In other words, if the cost of optimal care seemed higher than the expected liability in the past due to some possibility of the escape from liability through ‘corporate veil’, the cost may now appear lower than the expected liability due to the higher probability of liability. Consequently, a shipowner will now have more incentives to take optimal care.⁸⁰⁰

2. Direct action increases liability for negligence further

Direct action against the insurers makes the *probability* of actual liability even higher than what would be the case otherwise despite the presence of compulsory insurance. The probability of liability increases in the presence of direct action because in its absence there would be some cases where an insured shipowner may be bankrupt and at the same time the insurer could deny the insurance proceeds arguing one of the following two reasons. First, despite compulsory insurance, an insurer could refuse to pay on the ground that the insured had breached a policy condition. Secondly, the insurer also could deny the proceeds to a victim of oil pollution by arguing the absence of privity of contract between the insurer and the victim. Both these possibilities are eliminated in the direct action provision of the oil pollution liability regime.⁸⁰¹

⁸⁰⁰ Cost for *optimal care* can never be higher than expected liability because *optimal care*, by definition, is care which costs less than the ‘probability-discounted’ i.e., expected liability. See G. Calabresi and J. T. Hirschoff, “Towards a Test for Strict Liability in Torts,” (1972) 81 Yale L. J. 1055 at 1056-57. However, cost of optimal care *might appear higher* due to lower probability of being held liable or higher probability of escape from paying for liability judgment. See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 230-232, 387-401.

⁸⁰¹ See article VII.8 of CLC and *supra* the discussion on direct action against insurer.

As the insurers are now more exposed to liability claims, they will increase the insurance premium. Increased premium will in turn induce the insured shipowners to reduce the insurer's exposure to oil pollution claims.⁸⁰² The only way the insureds can do this is by improving their care level. Dramatic reduction in oil pollution accidents may at least partly be due to this indirect incentive towards care caused by the provision of direct action in the oil pollution liability regime. This provision also motivates the insurers to be extra vigilant against the negligent conducts of their insured shipowners. As discussed in the next chapter, insurers have various tools such as premium rate variance, deductibles, policy limit, and even the outright denial of coverage to check the carelessness of the insureds.⁸⁰³ As insurers use these tools even when there is no provision of direct action against them, they now have added incentives to use them even more. The end result is more pressure on the owners of substandard ships to take optimal care.

3. Pressure from oil industry on shipowners

Lastly, even though the second and third tiers of insurance through the IOPC and Supplementary Funds were mainly designed for adequate compensation and are funded by the oil industry, these arrangements also indirectly put some pressures on shipowners to be more diligent in the operation of their ships. This is because oil companies, who are the main contributors to the Funds, are also the major customers of the oil-carrying ships (tankers). As the operation of these ships has direct effect on the ultimate

⁸⁰² See generally Abraham, *Distributing Risk*, *supra* note 17 at 15.

⁸⁰³ These mechanisms make the insured as 'co-insured' or 'self-insured' by making the insured bear at least partially the risk of the loss or liability. See K. J. Arrow, *Essays in the Theory of Risk-Bearing*, (Amsterdam: North-Holland Publishing Company, 1974) at 141-143.

contributions made by the oil companies to the Funds, the oil companies as a group are naturally opposed to and united against substandard shipping. This opposition in turn is translated into various oil-industry initiatives to motivate shipowners towards optimal care. One of such initiative is a database maintained by the oil industry to identify substandard ships, known as Ship Inspection Report (SIRE) Program.⁸⁰⁴

Another initiative is to demand the indemnification from shipowners for compensation paid out of the IOPC and the Supplementary Funds especially in cases of liability for smaller ships where the Funds are more likely to bear a disproportionate higher burden. In this regard, following the creation of the Supplementary Fund two voluntary agreements⁸⁰⁵ were reached between the oil companies and shipowners (through their International Group of P&I clubs). Under the agreements shipowners will indemnify the Funds for oil pollution either arising from smaller ships or requiring contribution from the Supplementary Fund. Again, the increased burden of liability on shipowners through these insurance arrangements leads to more deterrence and to the consequent reduction in oil pollution incidents.

4. 'Coase theorem' and reduction of oil pollution

⁸⁰⁴ See the following link from the website of Oil Companies International Marine Forum (OCIMF) at http://www.ocimf.com/pages.cfm?action=sire_introduction2 (last accessed: March 11, 2009).

⁸⁰⁵ They are: Small Tanker Oil Pollution Indemnification Agreement (STOPIA) 2006 and the Tanker Oil Pollution Indemnification Agreement (TOPIA) 2006. These agreements were in operation since Feb. 20, 2006. Under the first agreement, shipowners' International Group of P&I clubs (the Group) will bear the liability up to SDR 20 million for oil pollution from any ship with total tonnage of 29,584 or less in the contracting States to Fund Convention despite the lower limit of shipowners' liability under CLC. Under the latter the Group will indemnify the Supplementary Fund 50% of the payment for oil pollution arising from any ship covered by the Group. See *Explanatory note of IOPC Fund*, *supra* note 394 at 6.

The last point proves at least partially a much repeated statement in the economic analysis of any liability law, that is, if there is no transaction cost, optimal care (i.e., the optimal allocation of resources to bring such care) will be undertaken regardless of which party bears the initial liability.⁸⁰⁶ Although a transaction with zero cost may never exist in the real world, transaction cost would be minimal and the parties could allocate the resources optimally where the parties are in a bargaining position and “are of approximately equal size, number, expertise, and wealth”.⁸⁰⁷

In the context of oil pollution liability, such transactions do exist between shipowners and oil companies due to their equal bargaining power and their mutual dependency on each other.⁸⁰⁸ As a result, although the contributions to the IOPC and the Supplementary Funds come from oil companies, through market mechanisms the oil companies are able to induce the shipowners to take optimal precaution in order to reduce oil pollution incidents.

B. Higher limit of liability

Despite the existence of limitation principle in oil pollution liability regime, the liability limit in it is very high compared to other maritime liability law conventions. The higher liability limit is certainly a contributing factor in the reduction of oil pollution incidents. As discussed above, higher limit means damages for most of the oil pollution incidents

⁸⁰⁶ Coase, “The problem of social cost”, *supra* note 418.

⁸⁰⁷ Calabresi, *The Costs of Accidents*, *supra* note 47 at 172.

⁸⁰⁸ Both the oil companies and shipowners have their own organizations protecting their respective interests in any international forum and bilateral meeting. Oil Companies International Marine Forum (OCIMF) represents the former, while International Chamber of Shipping (ICS) is the main voice of the latter.

are within the shipowners' liability limit. In these cases, the liability of shipowners is *practically unlimited* because they pay for the full liability arising from these incidents.⁸⁰⁹ This high liability limit guaranteed by compulsory insurance and direct action against insurers makes negligent shipowners pay the full price of their negligence in most of the time.⁸¹⁰ Consequently, shipowners are likely to be more careful in preventing or reducing oil pollution damage than is the case with other areas of maritime liability.

C. Strict Liability for Oil Pollution Damage

In addition to higher limit, the oil pollution liability regime imposes strict liability on shipowners.⁸¹¹ A claimant for oil pollution damage does not have to prove any negligence on the part of shipowners in order to receive compensation. Strict liability creates stronger *deterrence* in the minds of polluters than negligence-based liability and consequently leads to more reduction in oil spills. This is simply because in a negligence-based liability there is always some likelihood that courts or victims will not be able to detect or prove the fault of the defendant.⁸¹² This likelihood may in turn encourage a potentially liable party to reduce its care level especially in those aspects of care which are difficult to observe or prove by other people.⁸¹³

⁸⁰⁹ Only 125 oil spills involved contributions from the IOPC Fund during 1978-2003 and even not all of these 125 contributions were due to the limit of shipowners' liability, although most of them were so. See T. Mensah, "The IOPC Funds: how it all started", *supra* note 667 at 48.

⁸¹⁰ As shipowner's liability is strict under CLC, the issue of negligence arises indirectly. For connection between premium and care level, see Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 261-265.

⁸¹¹ See article III.1 of CLC.

⁸¹² Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 8-9; Shavell, *Foundations of Economic Analysis*, *ibid* at 98-99 and 189.

⁸¹³ *Ibid*.

The above likelihood does not exist in strict liability situation because shipowners will be liable for oil pollution regardless of any proof of fault. As a result, they will be motivated to take any cost-justified care to prevent or reduce oil pollution damage notwithstanding the possibility that courts or victims may not be able to detect or prove certain aspects of care. Although it is hard to say how many incidents of oil pollution are prevented or their magnitude is reduced by the imposition of strict liability, one can surmise that strict liability certainly contributes to the improvement of care and to the reduction of oil pollution incidents.

The flip side of strict liability is that it may lead a potential victim of oil pollution to relaxing their safeguards against pollution damage,⁸¹⁴ if they can in fact take any such cost-efficient safeguards in the first place. The likelihood of being affected by oil pollution for an individual victim is, however, so low that the victim may not take any precautionary measures designed specifically against possible oil pollution damage regardless of liability rule. For example, many fishermen or tourist shops on the world's sea beaches will never be affected by oil pollution. Consequently, those few who will randomly suffer losses from oil pollution may not find it worthwhile to spend on any precautionary steps against oil pollution damage even if they do not receive any compensation from shipowners.

⁸¹⁴ See Shavell, *Economic Analysis of Accident Law*, *ibid* at 11-17.

On the other hand, the likelihood of a shipowner not taking proper precaution⁸¹⁵ and thus causing oil pollution is very high if they are not liable for such pollution. Imposing liability on shipowners would, therefore, lead to better precaution and reduce oil pollution incidents. In other words, liability on shipowners has positive incentive effect on their behaviour. As the negative incentive effect of strict liability on victims is non-existent in oil pollution liability situations, strict liability for oil pollution is the better choice than negligence-based liability law. To put it differently, as the design of liability rule for oil pollution has no or little impact on the victims' behaviour, liability rule should be based on its effect on the shipowners' behaviour.

Strict liability does not mean that shipowners bear liability for other people's fault; that would be the case in *absolute* liability.⁸¹⁶ Strict liability makes shipowners *prima facie* liable for oil pollution, which most likely occurred due to the fault of shipowners or their employees. It puts the burden of proof on shipowners to show otherwise in order to escape from liability. Where shipowners can show that the incidents of oil pollution arose due to some natural catastrophes or the negligence of the victims themselves, of third parties or of governments in charge of maintaining navigational aids and lights, shipowners will not be liable for the pollution damage.⁸¹⁷

⁸¹⁵ For example, if a ship is not equipped with properly functioning radar or up-to-date chart, or the master of the ship is not well-trained, the ship is more likely to be stranded in shallow water or hit a rock and spill oil.

⁸¹⁶ See M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 150-151.

⁸¹⁷ Article III.2 of CLC.

D. Improved Design and Construction of Tankers

1. Double-hull tankers

One of the important factors leading to the reduction of *accidental* oil pollution is the gradual improvements of tanker design and construction. Double-hull tankers are a very effective design in reducing oil pollution. As the term suggests, double-hull tankers contain an extra layer on the bottom and on the side of a ship in addition to the layer covering the oil tanks. The additional layer reduces the impact of collision or grounding and thus lowers the possibility of oil spills from the tanks containing oil.⁸¹⁸ Through various amendments to the MARPOL 73/78,⁸¹⁹ most of the world oil tankers today are fitted with double-hulls. Unlike the case with many *discharge* provisions⁸²⁰ in the MARPOL 73/78 and its predecessor the OILPOL 54,⁸²¹ the requirement of double-hulls met with unprecedented success. As of January 2007, 72% of world tankers above 10,000 dwt are fitted with double-hulls.⁸²² This success is largely due to the comparative ease in the enforcement and verification of *physical standards* such as double-hulls or “segregated ballast tanks” (SBT)⁸²³ as opposed to *discharge* or navigational standards.⁸²⁴

⁸¹⁸ See Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 139-140.

⁸¹⁹ 1973 International Convention for the Prevention of Pollution from Ships, 12 I.L.M. 1319, as amended by its 1978 Protocol, 1341 U.N.T.S. 3; 17 I.L.M. 546 (1978). Subsequent amendments will be noted below.

⁸²⁰ Discharge provisions relate to the amount of oil, mixed with waste water, which can be released on various zones of the sea by ships as part of their operation such as ballast, bilge waste, or tank-washing.

⁸²¹ 1954 International Convention on the Prevention of Pollution of the Sea by Oil, 327 UNTS 3, as amended in 1962, 600 UNTS 332, in 1969, 9 ILM 1, and in 1971, 9 ILM 25.

⁸²² Tanker Facts 2007 in *Annual Review and Report 2006/2007* (INTERTANKO, 2007), available at <http://www.intertanko.com/about/annualreports/2006/index.html> (access date: March 28, 2008). Data on small tankers is difficult to obtain as most of them are engaged in coastwise.

⁸²³ Installation of SBT obviates with the need to use oil tanks for ballast on the return voyage from unloading port to loading port. R.B. Clark, *Marine Pollution*, 5th ed., (Oxford: Oxford University Press, 2001) at 67 [hereinafter Clark, *Marine Pollution*]. See generally M’Gonigle and Zacher, *Pollution*,

Like many other oil pollution prevention initiatives, the proposal for double-hulls was first made after the historic *Torrey Canyon* oil pollution incident in 1967. Following the incident, increased public outcry against oil pollution in the US and elsewhere led to the adoption of many new initiatives against both the *operational* and *accidental* oil pollution problems. The adoption of the MARPOL 73 is one of those initiatives; the US was its main initiator and driving force. In the 1973 International Conference on Marine Pollution, which adopted the MARPOL 73, the US proposed double-hulls/bottoms and SBT for all *new* tankers over 70,000 dwt. Although the proposal for the SBT on new tankers over 70,000 dwt was incorporated in the MARPOL 1973,⁸²⁵ the proposal for double-hulls was rejected at that time as a compromise.⁸²⁶

Following the *Argo Merchant* incident on its waters in 1976, the US made another proposal in the 1978 Tanker Safety and Pollution Prevention (TSPP) Conference to require the installation of double hulls as well as SBT on *all* tankers new and existing above 20,000 dwt.⁸²⁷ Again, the US had to compromise on its demand for double-hulls. The 1978 Protocol required only that all *new* tankers above 20,000 dwt had to be fitted with SBT and that such SBT has to be ‘protectively located’ on the edge of the

Politics and International Law, *supra* note 105 at 107-122; see also Tan, *Vessel-Source Oil Pollution*, *supra* note 149 at 128-32.

⁸²⁴ Hawkes and M’Gonigle, “Oil Pollution in Canada” *supra* note 661 at 215; Mitchell, *Intentional Oil Pollution*, *supra* note 708 at 99. Tan, *Vessel-Source Marine Pollution*, *ibid* at 236-239.

⁸²⁵ Regulation 13 of Annex I to MARPOL 73. In its 1978 Protocol, SBT was required for all new tankers over 20,000 dwt.

⁸²⁶ See M’Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 108, 118-9; Mitchell, *Intentional Oil Pollution*, *supra* note 708 at 94-98; Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 128-131.

⁸²⁷ M’Gonigle and Zacher, *Pollution, Politics and International Law*, *ibid* at 126-130; Mitchell, *Intentional Oil Pollution*, *ibid* at 100-103; Tan, *Vessel-Source Marine Pollution*, *ibid* at 135.

tankers⁸²⁸ so that they can absorb the impact of collisions and prevent accidental oil spills.⁸²⁹ Although the design of SBT itself is mainly intended to reduce the *operational* oil pollution by doing away with the need to use oil tanks for ballast, a ‘protectively located’ SBT reduced also the oil spills from *accidental* collisions.

The final push for double-hulls from the US came in the aftermath of the *Exxon Valdez* incident in 1989.⁸³⁰ Following the incident Congress enacted the OPA. The OPA, though mainly concerns with oil pollution compensation issues, also contains provisions for the gradual phase-out of all single-hull tankers by the year 2015.⁸³¹ In addition to the enactment of national law on the matter, the US together with the Netherlands and the Scandinavian countries demanded similar measures in the international law.⁸³² As a result, the IMO convened a conference to amend the MARPOL 73/78 in 1992.

After the protracted negotiations and strong opposition from the shipping interests as well as from the oil industry, amendments were finally made to the Annex I of the MARPOL 73/78.⁸³³ Regulation 13F of the Annex I requires that all *new* tankers of 600 dwt and above be fitted with double-hulls. As for the *existing* tankers, crude oil tankers over 20,000 dwt and product tankers over 30,000, which were not built according to the 1978 MARPOL Protocol design (i.e., SBT design), have to be retrofitted with double-

⁸²⁸ Regulation 13E of Annex I to MARPOL 73/78.

⁸²⁹ Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 135-7; M’Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 130, 140-141.

⁸³⁰ See Mitchell, *Intentional Oil Pollution*, *supra* note 708 at 104; Tan, *Vessel-Source Marine Pollution*, *ibid* at 139-140.

⁸³¹ §4115 of the *Oil Pollution Act of 1990*, PL 101-380 (HR 1465), codified as 46 U.S.C. §3703a.

⁸³² Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 141.

⁸³³ 1992 Amendments to the Annex of the Protocol of 1978 relating to MARPOL, 1973, Resolution 52(32) of the Marine Environment Protection Committee (MEPC).

hulls by the end of twenty five years from their delivery date. The tankers which were built according to the 1978 MARPOL specifications have thirty years from the date of their delivery to be retrofitted with double hulls.⁸³⁴ Although alternative designs as effective as that of double-hulls in providing protection against oil pollution were also allowed, no such commercially viable alternatives appeared in the market.⁸³⁵

Following the *Erika* incident in 1999, the political pressure from the European Commission (EC) led the IMO to bring forward the deadline for the phasing out of single-hull tankers under the MARPOL 73/78 to that of the OPA i.e., 2015.⁸³⁶ In the aftermath of the *Prestige* incident in 2002, further pressure from the EC led to a new amendment in 2003 to Regulation 13G and rescheduled the period for phasing-out process from 2015 to 2010 for all types of tankers.⁸³⁷

⁸³⁴ See Regulation 13G of the Annex I to MARPOL 73/78. Although the US was the initiator of the 1992 amendments to MARPOL 73/78, it expressed its reservation not to be bound by the amendments, citing mainly the inconsistencies between the amendments and its OPA. Because OPA requires that *all* new tankers be fitted *only* with double hulls, while Regulation 13 F requires that vessels above 600 tons have either double hull or *alternative design* providing with equal protection. The US's reservation in fact led to the faster retrofitting of existing tankers with double hull because most major tankers cannot afford to ignore the domestic law of the US, the world's largest consumer of oil. See Ayorinde, "Inconsistencies Between OPA '90 and MARPOL 73/78" *supra* note 682 at 75-6; Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 146.

⁸³⁵ See Tan, *Vessel-Source Marine Pollution*, *ibid* at 146.

⁸³⁶ See Regulation 13G as amended by 2001 amendments to the Annex of the Protocol of 1978 relating to MARPOL, 1973, Resolution MEPC.95 (46). See also Tan, *Vessel-Source Marine Pollution*, *ibid* at 147-9. It is noteworthy that all these amendments to MARPOL 73/78 quickly came into force because MARPOL 73/78 contains tacit acceptance procedure. Under these procedures an amendment would be presumed accepted after ten months from its adoption unless there is objection to the amendment by at least one-third of the parties or by the parties whose combined merchant fleets constitute not less than fifty percent of the gross tonnage of the world's merchant fleet. However, a State can express its intention that it would be bound only by its express approval. See art. 16(2)(f)(ii), (iii) and 16(2)(g); Mitchell, *Intentional Oil Pollution*, *supra* note 708 at 98, 114.

⁸³⁷ See 2003 amendments to the Annex of the Protocol of 1978 relating to MARPOL, 1973, Resolution MEPC.111(50); see also Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 150-151.

2. Size of oil tanks

The size of oil *tanks* in a tanker, though does not reduce the *number* of oil pollution incidents, has significant impact on the actual *amount* of oil spilled after a collision or grounding. The breach of a bigger tank following an accident will cause more oil-outflow on the sea than would be the case for a relatively smaller tank. Again, the concern of tank size first arose after the devastating oil spill from the *Torrey Canyon* in 1967.⁸³⁸ There was no restriction on the size of oil tanks until the 1971 amendments to the OILPOL 1954.⁸³⁹ The 1971 amendments required that the tank size of any tanker up to 400,000 dwt not be more than 30,000 cubic meters. Any tanker above 400,000 dwt can increase the size of the tanks proportionately but not above 40,000 cubic meters.⁸⁴⁰

The 1971 amendments further required that all ships, the building contract of which is placed after January 1, 1972, would have to be built according to the above mentioned specification regardless of whether their flag States ratified the amendments.⁸⁴¹ This requirement removed the incentives for States not to ratify the amendments in order to give their ships competitive advantage over the ships from contracting States.⁸⁴² The strategy was very successful as it was found in 1973 that almost all the tankers ordered after January 1972 were built according to the 1971 specifications.⁸⁴³

⁸³⁸ See M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 102-106.

⁸³⁹ The 1971 amendments to OILPOL 54 are reprinted in (1972) 11 ILM 267.

⁸⁴⁰ Regulation 3 of Annex C to OILPOL 54.

⁸⁴¹ Article VI bis (1)(b) of OILPOL 1954. These amendments were carried forward to the MARPOL 1973 with the modification of the dates. MARPOL also contains similar enforcement strategy for fitting the new tankers with SBT. See Annex I, regulations 1(6), 13, 24. Mitchell, *Intentional Oil Pollution*, *supra* note 708 at 98, 102-103.

⁸⁴² M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 106, 235-236.

⁸⁴³ *Ibid* at 106.

The MARPOL 73/78 also contains other provisions against the *intentional* or *operational* oil pollution including the above mentioned SBT and Crude-oil-washing (COW) of oil tanks.⁸⁴⁴ The discussion of those provisions is beyond the scope of this chapter as our concern here is the reduction of *accidental* oil pollution through oil pollution liability together with some other factors. However, many incidents of oil spills on Canadian waters are from ‘mysterious’ i.e., unidentified sources and these are most likely from *intentional* discharges.⁸⁴⁵ Neither shipowners under the CLC nor the IOPC Fund under the Fund Convention provide compensation for the pollution damage and clean-up cost of such spills.⁸⁴⁶ The SOPF foots the bill in those incidents. It may be time for Canadian legislature to seriously consider ways to reduce such mysterious oil spills.

Possible ways to reduce such spills include increased monitoring by the Canadian Coast Guard as well as installing adequate reception facilities for oily waste mixtures from both tankers and non-tankers. Even when the source of spilled oil is identified, the government sometimes faces difficulty in recovering compensation from the liable

⁸⁴⁴ COW reduces oil pollution by replacing sea water with oil to wash oil tanks because the used oil will be refined as opposed to the used seawater which is usually thrown back to the sea. Another method to reduce operational discharge widely used in 1960s and 1970s is load-on-top (LOT). Under this process, oil mixed ballast water was retained in the tanks until the oil floats to top. The water was then decanted from the bottom and fresh load of oil is taken on top of the oil from ballast. Clark, *Marine Pollution*, *supra* note 823 at 65-67. LOT was introduced through the 1969 amendments to OILPOL 54, (1970) 9 ILM 1. See M’Gonigle and Zacher, *Pollution, Politics and International Law*, *ibid* at 96-102.

⁸⁴⁵ The reason why they are most likely not *accidental* is that an accident would also cause damage to the vessel and the vessel would be easily detected. An undetected source of discharge indicates that the vessels left the scene harmless after the discharge, implying the absence of any accident.

⁸⁴⁶ Although Canada together with other coastal States in the 1971 IMO Conference advocated for the provision of compensation by the IOPC Fund for such spills, the proposal was not adopted due to strong resistance from the oil companies who argued that the source of such pollution is mainly *bunker oil* as opposed to their *oil cargo*. See M’Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 185; Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 304-5.

shipowner due to the limitation of liability principle or the lack of any other assets of the liable owners.⁸⁴⁷ This difficulty may be partially overcome by requiring all ships, regardless of their size and type, to carry compulsory insurance.⁸⁴⁸ This would not be something very unprecedented as similar requirement exists for the owners of automobiles.

E. Strong Port State Control

Strong port State control over foreign ships is another contributing factor to the reduction of oil pollution incidents. The increasing power of the port-States over other countries' ships is a new phenomenon in maritime law. While there has been much legislation in the international maritime law against substandard shipping through the myriad regulations on the construction, design, equipment, crew training, pollution prevention, classification etc., the enforcement of these laws has been problematic. The root cause of this problem lies in the assignment of the responsibility to the flag States to enforce these laws.⁸⁴⁹ Such assignment of the enforcement-jurisdiction is based on the legal fiction that vessels are the 'floating land masses' of their flag States⁸⁵⁰ and thus should be subject to only the flag States' control. Yet, a flag State does not always have the best incentive to implement these laws against its ships especially when the

⁸⁴⁷ See *SOPF Annual Report 2005-2006*, *supra* note 187.

⁸⁴⁸ In fact, a similar proposal was made during the negotiations in 1969 IMO conference leading to the adoption of CLC. See LEG/CONF/C.2/WP.46; cited in M'Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 204-5 and note 14.

⁸⁴⁹ Mitchell, *Intentional Oil Pollution*, *supra* note 708 at 76.

⁸⁵⁰ T. L. McDorman, "Regional Port State Control Agreements: Some Issues of International Law", (2000) 5 *Ocean & Coastal L. J.* 207 at 210 [hereinafter McDorman, "Regional Port State Control"]. State can grant nationality to any ship, provided that there is 'a genuine link between the State and the ship'. This principle is now codified in article 91(1) of the LOSC. This condition of 'genuine link' was subject of considerable contentions among States and academics in the context of 'flag of convenience.'

pollution caused by the ships will mainly affect the waters of other States i.e., the coastal or port States.⁸⁵¹ The lack of incentives is even worse for a flag State which is landlocked or has insignificant maritime commerce; its sole purpose to let ships, most of which are owned beneficially by foreign nationals, to use its flag is to earn registration fees.⁸⁵²

The problem of flag State inertia to enforce the above laws is now largely resolved by the increasing port-State control over foreign vessels voluntarily entering the ports.⁸⁵³ The main goal of strong port-State control is to eradicate substandard shipping. To the extent substandard ships are responsible for oil pollution incidents, the control of such ships by port-States contributes to the reduction in oil pollution incidents. Although the flag States still retain the jurisdiction to enforce various international laws on its ships anywhere,⁸⁵⁴ a port- or coastal-State also has the power to demand any foreign ship on

⁸⁵¹ For example, Liberia is the flag State for about 30 percent of all oil tankers. Yet, geographically it does not lie in the major tanker routes and suffers little from oil pollution. Mitchell, *Intentional Oil Pollution*, *supra* note 708 at 76. Mitchell succinctly expressed this corresponding lack of incentive and authority by flag and coastal States to prevent oil pollution, "While nations with incentives to control pollution lack the authority to do so, those with the authority may lack the incentives." *Ibid.*

⁸⁵² Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 24, 179, 203.

⁸⁵³ See generally J. Hare, "Port State Control: Strong Medicine to Cure a Sick Industry" (1997) 26 Ga. J. Int'l & Comp. L. 571.

⁸⁵⁴ This is recognized in the preamble of all the MOUs in the following wording, "Mindful that the principal responsibility for the effective application of standards laid down in international instruments rests upon the authorities of the State whose flag a ship is entitled to fly..." See the preamble to the Paris MOU.

its water to comply with its laws⁸⁵⁵ especially those based on international conventions.⁸⁵⁶

The above power of a port- or coastal-State is based on the legal sovereignty of a State over its territorial water.⁸⁵⁷ Although the concept of sovereignty on territorial water was always recognized, it came into conflict with another equally valid concept of the ‘freedom of the high seas’ and its ancillary doctrine of the ‘freedom of navigation’. As a result, the right of a coastal- or port-State to enforce various pollution prevention laws on foreign ships even at their territorial waters was limited.⁸⁵⁸

⁸⁵⁵ See article XI of OILPOL 1954 and articles 4 and 9(3) of MARPOL 1973. See also article 5(4) of MARPOL 1973, which allowed the contracting States to enforce the convention on ships from non-contracting States “as may be necessary to ensure that no more favourable treatment is given to such ships” (i.e., to prevent any competitive advantage).

⁸⁵⁶ See articles 2, 19, 24, 211(4), 218 and 220 of the LOSC. This also alleviates the problem of non-ratification by a flag State of international instruments with the safety and pollution prevention standards in order to give its ships competitive advantage. This is because a port State can enforce its laws implementing the international instruments on any ships voluntarily entering its ports regardless of the fact whether the ships’ flag States are parties to the those instruments. See McDorman, “Regional Port State Control”, *supra* note 850 at 212.

⁸⁵⁷ The International Court of Justice (ICJ) in *Nicaragua v. USA*, 1986 I.C.J. 14, at 111 stated that “by virtue of its sovereignty that the coastal State may regulate access to its port.”; cited in McDorman, “Regional Port State Control”, *ibid* at 218. See also T. L. McDorman, “Port State Enforcement: A Comment on Article 218 of the Law of the Sea Convention” (1997) 28 J. Mar. L. & Com. 305. A port or coastal State’s sovereignty on its territorial water has, however, always been subject to the right of ‘innocent passage’ by foreign ships. See article 5(2) of Geneva Convention on the Territorial Sea and Contiguous Zone, April 29, 1958, 516 U.N.T.S. 205; articles 2, 19, 24, 211(4), 218 and 220 of the LOSC.

⁸⁵⁸ Although LOSC recognizes that the passage of a foreign ship can be denied in case of pollution (i.e., the passage is not *innocent*), the pollution has to be “wilful and serious”. This is very restrictive condition as a discharge of oil from ships can hardly be both *wilful* and *serious* at the same time. This is because while *accidental* discharges are serious, they are not wilful. On the other hand, *operational* discharges are wilful but are not usually serious when taken separately. The second limitation on port or coastal States jurisdiction is that they cannot impose on foreign ships stricter regulation than “generally accepted rules and standards” with regard to construction, design, equipment and crewing. See articles 2, 19, 24, 211(4), 218 and 220 of the LOSC; see also M’Gonigle and Zacher, *Pollution, Politics and International Law*, *supra* note 105 at 244-245.

Even though this limited enforcement jurisdiction always existed,⁸⁵⁹ in the past many port States rarely inspected foreign ships at their ports or required the observance of national or international laws due to the fear of losing the competitive advantage over the ports of their neighbouring States.⁸⁶⁰ Today, however, the regional grouping of port States for the purpose of uniform inspection on ships has been very effective to remove this fear of competitive disadvantage. As no port-State in the group can turn a blind eye to substandard ships, these ships would have no reason to prefer the ports of one State over another's. In other words, the similar measures undertaken by all the States in a region ensure that substandard ships will be driven out from all the ports in the region.

With the increasing close co-operation among the various regional port-State control authorities, the movement of substandard ships is getting confined to even narrower geographic areas. This will consequently hurt the owners of substandard ships and may finally force them either to improve their standards or to discontinue their business. The port-States in various parts of the maritime world grouped together and signed the regional port States Memorandum of Understandings (MOUs).⁸⁶¹ Again, like many

⁸⁵⁹ See article XI of OILPOL 1954 and articles 4 and 9(3) of MARPOL 1973; article 17 of the Geneva Convention on the Territorial Sea and Contiguous Zone. See generally M'Gonigle and Zacher, *Pollution, Politics and International Law*, *ibid* at Ch. VI.

⁸⁶⁰ McDorman, "Regional Port State Control", *supra* note 850 at 207-9, 211. This was clear from the IMO's survey in 1961 on twelve States which had been parties to the OILPOL 54 for four years. Among them, Belgium, Ireland, and Sweden reported no violation of the convention on their territorial waters. France and the Netherlands had reported only one offence each. UK and Germany, however, had reported 83% of about 600 offences reported, while Canada, Denmark, and Norway reported modest enforcement. M'Gonigle and Zacher, *Pollution, Politics and International Law*, *ibid* at 220, notes 43 and 44, citing 1962 CONF/2.

⁸⁶¹ The first regional MOU was signed in Paris by EU port States in 1982; Memorandum of Understanding on Port State Control in Implementing Agreement on Maritime Safety and Protection of the Marine Environment, (1982) 21 I.L.M. 1. This was followed by similar MOUs by port States in other regions such as 1992 Latin American MOU, 1993 Tokyo MOU, 1997 Mediterranean MOU, and 1998

other oil pollution preventive measures initiated as a response to a devastating oil spill, the first MOU on the port State control was adopted after the *Amoco Cadiz* oil spill in France on March 17, 1978.⁸⁶² Under such a MOU, port States in a region implement a similar set of international instruments,⁸⁶³ inspect a certain percentage of the vessels entering the ports to ensure the compliance with those instruments,⁸⁶⁴ and then share the information about the inspected vessels.⁸⁶⁵

The port-States under these regional MOUs usually deny defective or non-compliant ships entry into or departure from the ports until the defect is rectified or the required law is complied with.⁸⁶⁶ Under the Paris MOU, factors such as multiple detentions, the failure to carry ISM⁸⁶⁷ certificates or the failure to call at indicated repair yard may lead to the complete ban on the entry into any port in the region.⁸⁶⁸ The port-States under the regional MOUs require the entering ships comply with the widely accepted international

Indian Ocean MOU. All the port States MOUs follow a similar pattern as that of Paris MOU. See McDorman, "Regional Port State Control", *ibid* at 208-9.

⁸⁶² Mitchell, *Intentional Oil Pollution*, *supra* note 708 at 105, 108.

⁸⁶³ S. 2.1 of both the Tokyo and Paris MOUs.

⁸⁶⁴ Under the Tokyo MOU (Asia-Pacific region), the target is set at 75% of the total number of ships operating in the region. See s.1.4 of the Tokyo MOU. On the other hand, Paris MOU sets the goal of inspecting 25% of the ships entering the ports in the region; s 1.3. This has, however led, inspection of 90% of the vessels using the ports under Paris MOU. G. Kiehne, "Investigation, Detention and Release of Ships under the Paris MOU on Port State Control: A View from Practice", (1996) 11 Int'l J. Mar. & Coastal L. 217 at 219. Both Paris and Tokyo MOUs provide a list of factors to target vessels for inspection on a priority basis. See s.1 of Annex 1 to the Paris MOU and ss.3.3.1 and 3.3.2 of the Tokyo MOU.

⁸⁶⁵ Ss. 1.5 and 4.1 of the Tokyo MOU and s.1.4 of the Paris MOU.

⁸⁶⁶ Ss.3.6 and 3.7 of Tokyo MOU.

⁸⁶⁷ International Safety Management Code. ISM Code was made part (Chapter IX) of the International Convention for the Safety of Life at Sea, 1974, 1184 U.N.T.S. 2 [hereinafter 1974 SOLAS Convention] by its 1994 amendment. McDorman, "Regional Port State Control," *supra* note 850 at 214.

⁸⁶⁸ See ss.3.10.5 and 3.12 of the Paris MOU. The list of banned ship is posted at <http://www.parismou.org/ParisMOU/Banned+Ships/xp/menu.3971/default.aspx> (last accessed: March 11, 2009). There are two Canadian ships in the list, *Nova* and *Catalyst*, both banned in 2005 for failing to call at indicated repair yard.

instruments on construction, safety, pollution prevention and crew training.⁸⁶⁹ As all the States have to enforce the similar legal instruments, no port State can gain competitive advantage over its neighbouring port States by allowing ships not complying with those instruments (substandard ships) enter their ports.⁸⁷⁰ Canada is party to the Tokyo MOU for Asia-Pacific region⁸⁷¹ as well as to the Paris MOU.⁸⁷²

One of the most effective strategies of port State control against substandard shipping is the dissemination of information through the internet about the quality and identity of the owners, the charterers, the flag States and the classification societies of the inspected vessels.⁸⁷³ Unfavourable information on these aspects makes a ship's future insurance premium higher and the target of more inspections in the future. Frequent inspection may be costly for a shipowner or charterer especially when the ship is running on a tight schedule.

⁸⁶⁹ For example the Tokyo MOU requires compliance with the following conventions: the International Convention on Load Lines 1966 and its 1988 Protocol; the 1974 SOLAS Convention, together with its 1978 and 1988 Protocols, 17 I.L.M. 579; MARPOL 73/78; the International Convention on Standards for Training, Certification and Watchkeeping for Seafarers, 1978 (STCW); the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG), 1050 U.N.T.S. 16; the International Convention on Tonnage Measurement of Ships, 1969, T.I.A.S. No. 10,490; and the Merchant Shipping (Minimum Standards) Convention, 1976 (ILO Convention No. 147), 15 I.L.M. 1288. S. 2.1 of the Tokyo MOU. However, each State can enforce only the instruments it ratified and thus binding upon it (s.2.4). States cannot require more rigorous standards for foreign ships than those for its own ships (s.2.6).

⁸⁷⁰ This is specifically recognized in the preamble of all the MOUs.

⁸⁷¹ Canada accepted the memorandum on April 15, 1994. See the text of the Tokyo MOU with its ninth amendment made 8 Nov, 2005, and effective from 1 Jan., 2006; available at <http://www.tokyo-mou.org/> (access date: Feb 20, 2008) and the Annual Report 2006 at <http://www.tokyo-mou.org/ANN06.pdf> (last visited March 12, 2009).

⁸⁷² See the list of the countries in the updated Paris MOU with its 29th amendment effective from July 1, 2007 at <http://www.parismou.org/upload/pdf/MOU%20incl.%2029th%20Amendment.pdf> (last visited: March 12, 2009). Canada accepted the Paris MOU on May 3, 1994.

⁸⁷³ Both Paris and Tokyo MOUs' websites contain search database for inspected ships. The websites are <http://www.parismou.org/> and <http://www.tokyo-mou.org/> (last visited: March 12, 2009). There is also a new database, Equasis, which combines the information on substandard ships from various MOU regions into one source. See <http://www.equasis.org/EquasisWeb/public/HomePage> (last visited: March 12, 2009). See also Mitchell, *Intentional Oil Pollution*, *supra* note 708 at 105-106.

Even though a port or coastal State does not have the enforcement jurisdiction outside its ports and territorial waters, a vessel cannot stay outside a port forever and has to come to a port at some point of time for loading and discharging its cargo. The enhanced port State control thus compensated for the flag States' lack of incentives to implement international law on their ships.

Conclusion

The oil pollution liability law regime is the best example of how proper insurance arrangements can guarantee the success of a liability law in providing adequate *compensation* and can also incidentally *deter* shipowners from negligence. However, its excessive focus on *compensation* sometimes ignores the most important goal of liability law i.e., *deterrence* from negligence. Limiting liability of a negligent shipowner and providing compensation from various funds do not promote the goal of *deterrence*.

Luckily, however, this limitation of liability did not lead to an increase in oil pollution incidents. In fact, the accidental oil pollution incidents are on the decline. This is brought about by a multiple of factors. In addition to the innovative insurance arrangements, the strict and higher liability limit for oil pollution, the improved design and construction of oil tankers and strong port State control all contributed to this success. In other words, it is the combined effect of *liability law* and *regulations* on oil pollution which brought the reduction in oil pollution incidents. The whole set of *liability laws* and *regulations* on oil pollution is thus a classic example of interplay and

complementary effects of *liability laws* and *regulations* to achieve a desired goal as the reduction of oil pollution; the shortcoming of one is compensated by the other.⁸⁷⁴

⁸⁷⁴ On different justifications and effects of liability laws and regulations, see S. Shavell, "Liability for harm versus regulation of safety", (1984) *Journal of Legal Studies*, 357 and S. Shavell, "A model of the optimal use of liability and safety regulation", (1984) *Rand Journal of Economics*, 271. See also Brown, "Deterrence and Accident Compensation Schemes" *supra* note 12 at 122.

Chapter 6

Incentive Effect of Liability Rules in the Presence of Liability Insurance⁸⁷⁵

Introduction

In all the above chapters I have discussed either how the absence of insurance influenced the design of certain aspects of maritime liability law or what should be the ideal liability laws in the presence of widespread modern market insurance. A frequently asked question in any discussion of liability law and insurance is how to maintain incentives towards care in the mind of potentially liable parties after they purchase liability insurance. Apparently when potentially liable parties do not have to pay directly from their own pockets due to the fact that they have insurance, they will have less motivation to exercise proper care. This phenomenon is known in the insurance literature as ‘moral hazard’⁸⁷⁶ i.e., the tendency of an insured to relax precaution levels against potential loss or liability. The main questions examined in this chapter are whether liability insurance really distorts the incentive effect of liability law and whether liability together with liability insurance can create better incentives than liability law alone.⁸⁷⁷

⁸⁷⁵ A slightly modified version of the chapter is published in (2008) 31 Dalhousie Law Journal 427; the title of the paper is “Incentive Effect of Liability Rules in the Presence of Liability Insurance in the Maritime Law Context: An Economic Analysis”.

⁸⁷⁶ See Abraham, *Distributing Risk: Insurance*, *supra* note 17 at 14. See also Arrow, “Uncertainty and the Welfare Economics of Medical Care,” *supra* note 17 at 961-62; Pauly, “The Economics of Moral Hazard: Comment,” *supra* note 17 at 535.

⁸⁷⁷ Prof. F. James asked the same questions in sixty years ago in his article “Accident Liability Reconsidered: The Impact of Liability Insurance,” *supra* note 18 at 557. Although my answer to the questions coincide with his, his answer was mainly based on some empirical evidence to the effect that accident rate dropped in some areas where liability insurance is available. See *ibid* at 557-563. I, on the other hand, undertook a comparative analysis of informational strength of the courts and liability insurers and that of the financial incentives of liability law and insurance mechanisms to induce potentially liable insureds to take precautions. I also used some empirical evidence.

There are various insurance and legal mechanisms to prevent the problem of moral hazard.⁸⁷⁸ Insurance mechanisms provide financial incentives to the insureds through premium rate variance and coverage restrictions to maintain care. Insurance mechanisms used by insurers are stronger tools than the threat of liability employed by courts to influence the behaviour of insureds in taking proper care. On the other hand, legal mechanisms strengthen the existing informational advantage of an insurer about the care taken by an insured. Superior information helps insurers to determine more accurately than courts about the *expected loss/liability*⁸⁷⁹ from insured activities and the *optimal care* to prevent such loss. Thus, liability insurance can be a complementary force in the realization of the functional goal of liability law in deterring the insureds from negligence.⁸⁸⁰

I will maintain and attempt to prove that the existence of liability insurance may lead a potentially liable insured to better care and solicitude than liability law alone, the main reasons being the better information of insurers and the stronger financial incentives of insurance mechanisms. Other reasons include possibly higher price to pay for being negligent in the presence of insurance than in its absence, the development by insurers of better preventive techniques through research and innovation, the likelihood of better

⁸⁷⁸ The insurance mechanisms include rate variance, deductibles, policy limit, policy exceptions, etc., while the law prevents moral hazard through the duty of disclosure in the pre-formation stage of an insurance contract, insurance warranties and principles of insurable interest and of indemnity, among others.

⁸⁷⁹ A defendant's liability usually equals to the loss suffered by the plaintiffs. I will, therefore, use the words "loss" and "liability" interchangeably in this chapter unless expressly stated otherwise.

⁸⁸⁰ In the presence of widespread accident and liability insurance, the main justification of liability law is its deterrence effect on negligent conducts and not compensation of victims. See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 267-269. See also S. Shavell, "On the Social Function and the Regulation of Liability Insurance" (2000) 25 Geneva Papers on Risk and Insurance: Issues, and Practice 166.

knowledge of insureds about care in the presence of insurance and the dependence of very survival of the insurers' business on their ability to maintain incentives in the minds of the insureds.

In Part I, I will shortly discuss the interplay between liability law and liability insurance both in an ideal and in the real world. Part II contains the arguments in support of the main proposition of the chapter that liability insurers can induce better incentives in the mind of potentially liable insured parties towards care than do courts with liability law alone. Part III presents some empirical evidence to prove the validity of the arguments. Although the analysis is applicable to any area of liability law and insurance, the chapter will examine the question in the context of maritime liability and marine insurance.⁸⁸¹

I. Liability Law and Liability Insurance in an Ideal and in Not-so Ideal Worlds

A. No liability law and liability insurance in a perfect world

As briefly noted in chapter three, in a world of perfect information and costless transaction, there would be no need for liability law. Consequently, the question of

⁸⁸¹ Like any form of insurance, marine insurance is a means to manage risk through distribution of risk over a large number insureds ('interpersonal spreading') and/or through shifting the individual insured's future risk to the insurer in exchange of present premium ('inter-temporal spreading'). See Calabresi, *The Costs of Accidents*, *supra* note 47 at 42-43. As discussed in chapter one, insurance is only one of many means to manage risk. Other risk management strategies include personal saving, diversification, contract for future goods and services and safety precautions. Abraham, *Distributing Risk*, *supra* note 17 at 2, 67. Risk management through marine insurance involves protection against the loss of a ship (hull insurance), its potential earning capacity (freight insurance), its onboard cargo (cargo or liability insurance, depending on who bears the burden of cargo loss) and protection against liability arising from the operation of the ship (liability insurance). Marine insurance can be further divided on the basis of duration of coverage into time and voyage policies and on the basis of the amount of coverage into valued and unvalued policies.

liability insurance would be irrelevant in such a world. It takes two parties for a liability to occur. In the perfect world, whenever the benefit of a loss prevention or reduction is more than the cost of care,⁸⁸² care will be taken regardless of liability law.⁸⁸³ If victims (plaintiffs) can take such care, they would naturally do so because there will be a net benefit for them. If it is injurers (dependants) who can take care, the victims would pay the injurers to exercise precautions.

The above observations are the insight of the ‘Coase Theorem’.⁸⁸⁴ For example, if only a shipowner can prevent cargo loss by taking care or can do so at a lesser cost than a cargo owner, the cargo owner will pay the shipowner to take the precautionary measure if the default rule is that loss lies where it falls. If only the cargo owner can prevent or reduce the same loss or at a lesser cost, the cargo owner will naturally take care. Even if the default rule is changed to the cargo owner’s favour by shifting the responsibility for any loss of or damage to cargo from the cargo owner to the shipowner, the shipowner will pay the cargo owner to exercise care.

Similar reasoning would apply to the other areas of maritime liability law including the liability law for oil pollution, personal injury and death aboard a ship; the party who

⁸⁸² See Coase, “The problem of social cost”, *supra* note 418. Optimal care may also demand the reduction of activity level when the benefit from an additional level becomes less than its social cost due to ‘diminishing marginal utility’. Courts, however, rarely count activity level in determining due care. I will, therefore, limit the scope of care to the way an activity is conducted and not its level. See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 193-98.

⁸⁸³ For simplicity of the analysis, I assume here that care by any side would eliminate or reduce a loss. There are situations where optimal care would require both parties to take some precautionary measures at the same time. For discussion on unilateral and bilateral care situations, see Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 9-18.

⁸⁸⁴ Coase, “The problem of social cost”, *supra* note 418.

could eliminate or reduce a loss or could do so at a lesser cost would ultimately take care *regardless of liability*. By our assumption of perfect world, the parties know who between them is the 'cheaper cost avoider' and they can transact with each other without any transaction cost. As there would be no need for liability law in such a world, the question of liability insurance would not even arise.

B. There would be both liability law and liability insurance in the real world

In the real world, there would be the need for both liability law and liability insurance because of the lack of information and the cost of transaction. For example, prior to an oil pollution incident, there could not possibly be any transaction between a tanker owner and the potential victims of oil pollution because of the lack of information to identify each other. Even if they are able to identify each other, they may not engage in a negotiation because of prohibitively high cost of doing so.⁸⁸⁵ In the unlikely event of any such negotiation, the negotiation may not result in an agreement on the cost of care and on who would pay for such costs because of the problems of 'hold-out', 'free-loading',⁸⁸⁶ and 'free-riding'.⁸⁸⁷

⁸⁸⁵ Such cost includes time and efforts and would likely to outweigh the possible benefit. See *Shavell, Foundations of Economic Analysis*, *supra* note 19 at 87-89.

⁸⁸⁶ Both the 'hold-out' (i.e., asking more than reasonable price) and 'free-loaders' (offering less than reasonable price) problems arise in a 'bilateral monopoly' situation i.e., when the parties (e.g., the polluters and victims of pollution) have no other option but to negotiate with only each other in order to arrive at their desired agreement. See Calabresi & Melamed, "Property Rules", *supra* note 202 at 1106; Shavell, *Foundations of Economic Analysis*, *ibid* at 91-92.

⁸⁸⁷ I.e., benefiting from the negotiation of others without personally participating and incurring the cost. This mainly occurs when the number of plaintiffs/defendants is large and the individual benefit from such negotiation is small. Shavell, *Foundations of Economic Analysis*, *ibid* at 88.

In some cases such as in the contract of carriage situation,⁸⁸⁸ the parties know each other, they negotiate and arrive at a contractual agreement on transportation. Yet, they may still fail to arrive at an agreement on taking optimal care because either they may have different views on the cost of care (information asymmetry) or even if their views are similar, one party may not pay the other for taking care due to the former's inability to observe the latter's actual care. These shortcomings of market transaction or the parties' lack of information may be overcome by imposing liability on the party who could take optimal care,⁸⁸⁹ *provided* that courts can correctly determine the *expected loss* from the lack of care in order to decide *optimal care*.

In the ideal, the mere existence of liability rule should suffice to induce *optimal care* because optimal care implies that the cost of care is less than the benefit in preventing or reducing a loss or liability. As discussed before, the benefit in the form of complete prevention or partial reduction of a loss/liability is not usually a certain figure but a 'probability-discounted' or expected amount.⁸⁹⁰ The cost of care, on the other hand, is certain. A potentially liable party would take care if and only if it thinks, or better yet, knows that the *expected benefit* from such care is high enough as to justify the sure cost of care. For example, if the party knows that taking care at a cost of \$100 would reduce the likelihood of a \$1,000 loss by 20 percent (say, from 50 to 30 percent), it would take

⁸⁸⁸ Lack of due care or negligence (a tort) can occur in many contractual situations such as contract of employment, contract to buy foods or to receive medical treatment etc. See Posner, *Economic Analysis of Law*, *supra* note 23 at 171-72.

⁸⁸⁹ Coase, "The Problem of Social Cost", *supra* note 418 at 15-16. Besides liability, there are other legal rules such as regulations, corrective tax or subsidy to address the market's failure to arrive at mutually beneficial agreement. For various legal rules and their comparative strengths see Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 92-101.

⁸⁹⁰ Shavell, *Foundations of Economic Analysis*, *ibid* at 177-78.

care because the *expected benefit* in the form of reduction of the loss/liability would be \$200 (20 percent multiplied by \$1,000). As the cost of care in this example is less than the *expected liability*, taking care here is cost-efficient. Not taking care in such situation would amount to negligence.⁸⁹¹

In other words, negligence occurs in the failure of a defendant to take reasonable precautions when the cost of doing so is less than the cost of accident, discounted by the probability of its happening.⁸⁹² Being a rational individual, a potentially liable party would take care and consequently there would not be any actual imposition of liability.⁸⁹³ As we will see shortly in Part II, courts may err in their determination of expected loss and optimal care. As a result, there will be both liability and liability insurance in the real world.

C. Presence of actual liability indicates the failure of liability law to induce optimal care

⁸⁹¹ In *U. S. v. Carroll Towing Co.* 159 F.2d 169 at 173 (2d Cir. 1947), Judge Learned Hand held that not taking care amounts to negligence when $B < PL$ where B is the cost of precaution, P probability and L magnitude of loss. In economic analysis of law literature this is known as 'Hand Formula'. See Posner, *Economic Analysis of Law*, *supra* note 23 at 168.

⁸⁹² Although courts do not calculate the cost of *optimal care* and the *expected liability* in mathematical terms, yet most of the time courts' rulings on negligence will roughly approximate such calculation. Courts' determination of 'reasonable care' in negligence settings will vary with cost of care and the risk of harm arising from the lack of care. The greater the harm or the more likely for it to occur, the higher would be the standard of 'reasonable care'. For example, in a narrow channel where the probability of accident is higher, standard of reasonable care would be correspondingly higher. Care in such situation includes slowing the speed (slow navigation means more time, which translates into more cost for a shipowner), and employing local pilots (thus incurring the pilotage fees). See *The Alletta*, [1965] 2 Lloyd's Rep. 479 (where master's failure to use the service of a pilot caused an accident; the master was held negligent even though pilotage was *not* compulsory); see also Posner, *Economic Analysis of Law*, *ibid* at 169-170.

⁸⁹³ See Calabresi & Hirschoff, "Towards a Test for Strict Liability in Torts," *supra* note 800 at 1058.

In a negligence-based liability setting, the fact that a party is liable means it breached its duty of care i.e., it did not take reasonable care.⁸⁹⁴ When a party does not exercise reasonable care despite the presence of liability law, the liability law has failed to create incentives in the mind of that party. The failure of a liability system to create incentives may occur due to the *possibility of escape* by a potentially liable party from liability for some obvious reasons.⁸⁹⁵ A not-so obvious reason is the possible *underestimation* by the courts of *expected loss* from a negligent conduct due to the courts' lack of information on the magnitude and the probability of loss and on the cost of care. As a result, the courts' determination of 'due care' may be below the *optimal care* level. In this regard an insurer may naturally have superior information and may do better than the courts to fix and induce *optimal care* against an *expected loss*. The details of this point follow in section A of the next Part.

II. Why Liability Insurance May lead to Better Care?

A. Insurers possess superior information on optimal care

The simple reason why an insurer can motivate a potentially liable party to take better care is that insurers are likely to know better than courts about *optimal care* because of the insurers' natural informational advantage on the activities they insure and their long term relation with their insureds. Information is the key to the determination of *optimal*

⁸⁹⁴ This is subject to the assumption that courts or jurors are not making error in holding the party liable despite its exercise of reasonable care.

⁸⁹⁵ Such reasons include a) inability of the victim to detect the negligent person, b) courts' error in holding a negligent person not liable, c) a victims' costs of litigation may not make it worthwhile for them to pursue the litigation and d) inability of the negligent person to pay the liability judgment (or the ability to shield assets against liability). Each possibility of escape makes expected liability less than actual loss arising from negligence and lower expected liability may not induce the potentially liable party to expend on optimal care. See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 217-18, 224-32, 275, 387-401; Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 167-169.

care. In order to find out optimal care, three pieces of information are needed: the magnitude of a loss, its probability, and the cost of care.⁸⁹⁶ Insurers' knowledge on all three pieces of information is likely to be superior to that of courts. In our previous example, we knew that the *cost of care* (\$100) was optimal because of the information we had on the *magnitude of loss* (\$1,000) and *its probability* both before care (50%) and after care (30%). Misinformation on any of these three aspects may affect the determination of optimal care and lead to suboptimal care.

1. Information on the magnitude

Information on the magnitude of a loss may be easy to obtain when the number of victims is small and when the loss manifests itself within a short period of time from a negligent conduct. Yet, on some occasions the number of victims may be large and the loss may occur over a span of few years. An example in the maritime context can be that of oil spills from tankers. There may be many victims from a large scale oil spill and they may suffer long term health conditions and financial consequences. All the victims may not appear before the same court or/and at the same time. As a result, it may be difficult for a court to determine the actual *magnitude* of the loss and the court will likely to *underestimate* the magnitude because of the separate appearance of the claimants in different courts and/or at different times.⁸⁹⁷

⁸⁹⁶ See the 'Hand Formula' mentioned in *supra* note 23 with accompanying text. See also Calabresi & Hirschoff, "Towards a Test for Strict Liability in Torts," *supra* note 800 at 1056-57; Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 188-89.

⁸⁹⁷ Courts may sometimes overestimate the loss and set the due care level above optimal care. Setting due care level higher than optimal care may lead to excessive care. Although excessive care is a social waste, courts' overestimation of possible loss will be very rare if we consider the total loss from negligence.

Underestimation of the magnitude of loss means that courts will also consider the due care level below its optimal level; and some losses, which could have been prevented by optimal care but not by the court-determined due care, would continue to occur. Optimal care is a relative term and depends on *expected loss*,⁸⁹⁸ which is arrived at through multiplying the magnitude of loss by its probability. Smaller expected losses justify smaller spending on precaution, while precaution for potentially larger losses may demand more expenses. In contrast with courts, a liability insurer will know the actual magnitude of the insured's liability more accurately as the insurer has to pay for the losses of all the victims whether they bring their claims jointly or separately, simultaneously or consecutively.⁸⁹⁹ With more accurate information on the magnitude of liability, an insurer would be in a better position to determine the *optimal care* level.

2. Information on the probability of loss

As for the probability of a loss, it is more problematic to determine. A negligent conduct such as high speed in a narrow sea-lane or defective radar on a ship may result in a collision on one occasion and may cause no harm on another. When a loss occurs and a plaintiff brings an action, the court may consider the probability of a loss in terms of its

⁸⁹⁸ For analytical convenience, I limited the expected loss from negligent conduct to the pecuniary and direct loss suffered by victims. For a thorough analysis, expected loss needs to include non-pecuniary loss as well as the administrative costs of the liability system which would not have occurred but for the negligent conduct. See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 269-275, 284-85.

⁸⁹⁹ A negligent conduct with long term liability implication (e.g., negligent handling of toxic substances) brings uncertainty for insurers in the actual liability payment over the years. Insurers sometimes overcome such uncertainty by using 'claim-made policy' instead of 'occurrence policy'. In a claim-made policy, insurers are liable only for claims filed during policy year as opposed to claims made after the policy year for negligent conduct occurred in the policy year. However, in a claim-made policy the insurer lacks motivation to try to determine the total expected liability from the negligent conduct and to devise optimal precautionary steps against such liability. See Abraham, *Distributing Risk*, *supra* note 17 at 49-51.

foreseeability. If the loss is a reasonably foreseeable consequence of a negligent conduct,⁹⁰⁰ liability will be imposed. Once liability is imposed, courts do not increase or reduce the liability based on the actual probability of a loss. For example, if the loss is \$1,000, liability will be \$1,000 regardless of whether the probability of its occurrence from a negligent conduct is 20 percent or 80 percent.

This will not cause any distortion of incentives if negligent parties have to account for a loss *every time* there is a loss arising from their lack of care. In this way their *expected liability* will equal to *expected loss* and they will take care when the cost of care in preventing the loss is less than their expected liability. However, for a variety of reasons negligent parties will escape liability despite a loss caused by their negligence.⁹⁰¹ As a result, their *expected liability* will be less than the *expected loss* caused by their negligent conducts. For instance, if their negligence gives rise to two accidents with \$1,000 loss on each occasion but the parties are held liable only on one occasion, their actual liability would be \$1,000 despite the actual loss from the negligence being \$2,000.⁹⁰² In order to maintain proper incentives, the liability has to be \$2,000 when they are sued and held liable. Yet courts hardly impose liability more than the actual loss of victims except in the cases of punitive or exemplary damages. Thus the

⁹⁰⁰ When a loss is *not* reasonably foreseeable, its probability may be too low to justify the cost of care which includes, among others, the cost of information about the risk. See Posner, *Economic Analysis of Law*, *supra* note 23 at 186-87. Even if prevention or reduction of such loss is cost-justified, not imposing liability for such loss *may not* have any detrimental effect on incentives because a potentially liable person would likely to overlook the possibility of such unforeseeable loss. Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 238-39.

⁹⁰¹ See *supra* note 887.

⁹⁰² Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 244. Although a negligent party's liability beyond the actual loss of the plaintiff in the case at issue will exceed the plaintiff's full compensation, the additional liability may be imposed through fines which would go to the State and not to the plaintiff. *Ibid* at 272-75.

imposition of liability by courts does not reflect the actual probability of the loss from negligence.

Theoretically there is no reason for a liability insurer to charge prospective insureds higher premium than what would be their *expected liability*. If the insureds escape liability 50 percent of the time, their insurance premium should also be 50 percent less than what it would be if they were found liable in every incident of loss caused by negligence. However, in practice premium is set *ex-ante* the actual losses, while liability arises *ex-post* the actual losses. Consequently, a liability insurer will rarely know the exact likelihood of courts' imposition of liability on the insureds at the time of fixing the premium. Also, it would be the insurer's best interest if the insureds are never held liable.

These two factors (insurer's uncertainty about the insureds' actual liability and the insurer's desire of never having to pay for liability) combined would make the insurers want their insureds to take any precautionary step economically efficient.⁹⁰³ In order to decide what is economically efficient, the insurers' standard would be the *expected loss*, not simply the *expected liability* as determined by allowing for the likelihood of escape. This level of care would also exonerate the insured defendants from any liability for

⁹⁰³ In a case of uncertainty about the due care level or liability, a party *may* take more care than what is efficient in the light of expected liability. However, an insured party may not do so due to the moral hazard problem. Yet, the insurer may induce the insured to take such care. See generally Shavell, *Foundations of Economic Analysis*, *ibid* at 224-27.

negligence and their liability insurers would have nothing to indemnify unless there is error made by courts or the liability is strict.⁹⁰⁴

This simple analysis shows that the liability insurance would produce better incentives in the minds of potentially liable people than liability law alone. To summarize, in assessing liability courts sometimes fail to take into account the actual probability of losses from a negligent conduct and thus make the *expected liability* lower than the *expected loss*. This will in turn affect the determination of optimal care as the optimal care is a relative term and depends on expected loss. Courts' determination of due care would be less than the optimal care and there would continue to occur some losses which optimal care would have prevented.⁹⁰⁵ On the other hand, an insurer would encourage its insureds to take optimal care because insurer's determination of care would normally be based on the expected loss.

3. Information on the cost of care

As for the cost of care, again insurers are in a better position than courts to assess such cost. This is simply because insurers have the expertise and the technical knowledge on the subject matter they insure. They would usually have superior knowledge than courts on how much it would cost, for instance, to employ an additional crew member or to fit

⁹⁰⁴ These two facts explain why a potentially liable person would buy liability insurance even when the party takes every possible care or when no care is economically cost-efficient. See Posner, *Economic Analysis of Law*, *supra* note 23 at 171.

⁹⁰⁵ See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 228-29.

a ship with the latest fire-fighting equipments and technology.⁹⁰⁶ With the better knowledge on the *cost of care*, on the *magnitude* and the *probability* of a loss, insurers can analyse whether a precautionary measure is cost-efficient or not. A measure is efficient if and only if the cost of care is less than the expected loss.⁹⁰⁷ Not taking care in such a case amounts to negligence.⁹⁰⁸ Once an insurer determines what precautions are optimal, it can then use various insurance mechanisms such as rate variance, policy exception, policy limit, deductible etc. to make sure that the *actual care* taken by an insured corresponds to *optimal care*.

B. Various legal mechanisms help insurers strengthen their informational advantage

In addition to their natural informational advantage, insurers can also obtain any peculiar information about an insured or the subject matter of insurance using some insurance law principles. The more information an insurer has about the idiosyncratic features of an insured ship and the personality of the individual insured, the better the insurer can determine the probability and the magnitude of losses and consequently the

⁹⁰⁶ As most insurance disputes in fact arise between insurers (e.g., a liability insurer defending a liability claim against its insured shipowner) and/or insurance-like entities such as Ship-Source Oil Pollution Fund (SOPF) or International Oil Pollution Compensation (IOPC) Fund trying to recoup the compensation they paid to the victims of oil pollution, courts incidentally benefit from the expertise and experience of these insurers and insurance-like entities. It is true that the presence and assistance of these experts will reduce the courts' information disadvantage as compared to that of insurers, thus helping the courts to determine the expected loss and optimal care level more accurately. In addition, judges dealing with marine insurance matters are likely to be experienced in maritime matters. Still the insurer of a particular ship is likely to know better about the specific care aspects of the insured ship than the experts (who may also be insurers but not the insurers of the same ship under the proceedings) and the judges (who may be very knowledgeable about marine insurance matters but unlikely to be more aware about the ship's special features).

⁹⁰⁷ To be exact, this would be the case when proper precaution will completely eliminates the loss. If it only reduces the magnitude or probability of the loss, then cost would be optimal if it is less than the difference between the expected loss before and after care.

⁹⁰⁸ See the 'Hand Formula,' *supra* note 23 with the accompanying text.

cost of optimal care. Two insurance law principles can be very effective in this regard:

1) the duty of disclosure and 2) insurance warranty.

1. Duty to disclose material facts

An insured is required to disclose before the formation of insurance contract any material circumstance which would influence the insurer's decision either in taking the risk or fixing the premium.⁹⁰⁹ The consequence of the failure to do so is the avoidance of insurance contract regardless of any connection between the breach and a subsequent loss.⁹¹⁰ This duty is based on the notion that marine insurance is a contract of utmost good faith (*uberrimae fidei*). As a result, a prospective insurer is required not only to avoid misinforming any fact requested by the insurer, as is the case under general law of contract (i.e., law of misrepresentation), but also to disclose *voluntarily* any relevant material circumstances the insured knows or ought to know.⁹¹¹ The rationale behind this

⁹⁰⁹ See s 21(1) of the Canadian *Marine Insurance Act*, S.C.1993, c22 [hereinafter *CMIA*]; s. 18(1) of the British *Marine Insurance Act*, 6 Edward VII, ch. 41 [hereinafter *MIA*]. See also the House of Lords' decision on the meaning of 'material fact' and 'inducement' in *Pan Atlantic Insurance Co. Ltd. v. Pine Top Insurance Co.*, [1994] 3 All E.R. 581 (H.L.), where the court applied objective test to determine 'materiality' but subjective test to decide 'inducement'. The decision partially overruled the British Court of Appeal's decision in *Container Transport International Inc. v. Oceanus Mutual Underwriting Association*, [1984] 1 Ll. L.R. 476 (CA), where objective test was applied to both 'materiality' and 'inducement'. In Canada, the Ontario case *Nuvo Electronics Inc. v. London Assurance* (2000), 49 O.R. (3d) 374, 19 C.C.L.I. (3d) 195 (S.C.J.) discussed the above HL's decision but did not follow HL's definition of 'materiality'.

⁹¹⁰ *Henwood v. Prudential Insurance Company of America*, [1967] S.C.R. 720 (SCC) (where insured died in an automobile accident and the policy was avoided because of the insured's failure to disclose the fact that he was suffering from clinical depression).

⁹¹¹ S. 20 of *CMIA* and s. 17 of *MIA*. See *Carter v. Boehm*, (1766) 3 Burr 1905 at 1909, where Lord Mansfield stated, "Good faith forbids either party, by concealing what he privately knows, to draw the other party into the bargain owing to his ignorance of that fact, and believing the contrary." As for connection between the duty of disclosure (s. 21(1) of *CMIA*, s. 18(1) of *MIA*) and the doctrine of utmost good faith (s.20 of *CMIA*, s.17 of *MIA*), see Bennett, *The Law of Marine Insurance*, *supra* note 53 at 102-103, 158; see also *Coronation Insurance Co. v. Taku Air Transport Ltd.*, [1991] 3 S.C.R. 622, [1992] 1 W.W.R. 217 at 228 (SCC). The doctrine of utmost good faith is, of course, much broader and may apply to all stages of an insurance contract than the duty of disclosure which is relevant mainly at contract pre-formation stage. However, as the sole statutory remedy of the breach of good faith in the form of contract

requirement lies in the fact that a prospective insured will usually have better information on any special or unusual facts about the insured subject matter.⁹¹²

This legal requirement and the severe consequence of its breach help an insurer obtain information on the strengths and weaknesses of a particular insured ship. This information in turn facilitates the determination of the *expected loss* of a particular insured. The key to the inducement of optimal care is the ability of an insurer to set the premium reflecting as closely as *the expected loss* of each individual insured.⁹¹³ If premium is set at a rate less than the expected loss, an insured may over-invest in insurance and under-invest in loss prevention.⁹¹⁴ If premium is higher than the expected loss, the opposite may occur i.e., prospective insureds will over-invest in risk prevention and under-invest in insurance.⁹¹⁵ Neither is efficient. The first situation is inefficient because it will perpetuate the problem of moral hazard as it would be cheaper to insure than to take preventive measures. The second situation is undesirable because it causes

avoidance may cause severe hardship for the insured, especially when the breach is discovered *only after* the occurrence of an insured peril, courts tend to limit the application of the doctrine only to contract pre-formation stage. *Ibid* at 175-180.

⁹¹² Per Lord Mansfield in *Carter v. Boehm*, *ibid* at 1909, "Insurance is a contract upon speculation. The special facts, upon which the contingent chance is to be computed, lie most commonly in the knowledge of the insured only: the underwriter trusts to his representation, and proceeds upon confidence that he does not keep back any circumstance in his knowledge, to mislead the underwriter into a belief that the circumstance does not exist, and to induce him to estimate the *risqué*, as if it did not exist." See also Bennett, *The Law of Marine Insurance*, *ibid* at 100-108.

⁹¹³ For example, suppose the expected loss before any care is \$2,000 and \$1,000 of it cannot be eliminated by optimal care either because it is purely accidental or because taking care is not cost-efficient. If the other \$1,000 can be eliminated by taking care at \$500, setting premium at \$2,000 for an insured who does not spend \$500 on care to reflect his or her expected loss and reducing premium to \$1,000 for another insured who spends \$500 on care to reflect the latter's expected loss would lead the former to take care at a cost of \$500.

⁹¹⁴ Abraham, *Distributing Risk*, *supra* note 17 at 15. For instance, if insurance premium in the above note is set at \$1,200 regardless of care, the first insured would not invest \$500 in care and the second insured would pay \$1,200 on premium instead of \$1,000 and would spend nothing on care.

⁹¹⁵ I.e., premium in the above example is set at more than \$2,000.

a risk-averse individual to take excessive precaution i.e., more money is spent on precaution than the benefit obtained from the precaution.⁹¹⁶

The lack of information or its cost is the main obstacle to set the premium rate to mirror the expected loss/liability of each individual insured.⁹¹⁷ Duty to disclose material facts not only facilitates the better flow of information but also reduces the costs of information by requiring insureds to disclose those facts which they alone are aware of or which they could obtain at a cheaper cost than their insurers. This duty thus makes economic sense as well. On the other hand, when the insurers could obtain some information more easily or with less cost, there is no justification to require the insureds to obtain such information and the law rightly and roughly limits the duty of disclosure at that point.⁹¹⁸

Material facts within the insureds' knowledge include the loss history of a vessel,⁹¹⁹ its age,⁹²⁰ flag,⁹²¹ value⁹²² and certification.⁹²³ An unusual structural feature of a vessel and any criminal allegations against its owners or crew may also amount to material facts.

⁹¹⁶ The very purpose of insurance is to reduce the problem of risk aversion so that risk-averse people do not take excessive caution (i.e., over-invest in risk-prevention). If insurance itself is the source risk aversion, it fails in its purpose.

⁹¹⁷ See generally Abraham, *Distributing Risk*, *supra* note 17 at 67-69.

⁹¹⁸ See s. 21(5) (b) and (6) (c) of the *CMA*; *Canadian Indemnity Co. v. Canadian Johns-Mansville Co.*, [1990] 2 S.C.R. 549, 72 D.L.R. (4th) 478; *Coronation Insurance Co. v. Taku Air Transport Ltd.*, [1991] 3 S.C.R. 622, [1992] 1 W.W.R. 217.

⁹¹⁹ *Neepawa Yacht Ltd. v. Laurentian P & C Insurance Co.* (1994), D.R.S. 95-04330 (B.C.S.C.); *Laurentian Pacific Insurance Co. v. Halama* (1991), 7 C.C.L.I. (2d) 84, 60 B.C.L.R. (2d) 190 (B.C.S.C.).

⁹²⁰ *Nova Scotia Marine Insurance Co. v. Stevenson* (1894), 23 S.C.R. 137, rev'g. (1889), 25 N.S.R. 210 (C.A.).

⁹²¹ cf. *Seaman v. West* (1885), Cout. S.C. 723, Cass. S.C. 388 (S.C.C.) aff'g (1884), 17 N.S.R. 207 (C.A.).

⁹²² *Fudge v. Charter Marine Insurance Co* (1992), 8 C.C.L.I. (2d) 252, 97 Nfld. & P.E.I.R. 91 (Nfld. S.C.T.D.).

⁹²³ *Atlantic Freightage Co. v. Provincial Insurance Co. Ltd.* (1956), 5 D.L.R. (2d) 164 (N.S.S.C.).

The information on all these facts enables insurers to assess their insureds' care level or their tendency towards moral hazard as well as the seaworthiness of an insured vessel. Equipped with all the relevant facts, insurers can recommend the precautionary measures and the structural changes necessary for particular ships. In order to ensure that the insureds carry out the recommendation the insurers can provide financial incentives through various insurance mechanisms.

2. Insurance Warranties

In order to correctly assess risks or expected losses an insurer may sometimes require more information than those falling under the legal test of 'material circumstance', the disclosure of which is already required by law. Some information, though not material under the legal test of material fact, may help insurers know better about the expected loss or liability of a particular shipowner. For example, the information on the number of crew members or the fire-fighting system on board a ship may be useful in determining the likelihood of loss due to these factors. Insurers can seek this information and, to ensure that all the information sought are disclosed truthfully, they may also include in the contract an insurance warranty to the effect that every information is *warranted*⁹²⁴ to be true to the best of the insureds' knowledge whether *material or not*.⁹²⁵

⁹²⁴ The use of the word 'warranty' or its absence is not the decisive factor whether a requirement is warranty or not. It all depends on the intention of the parties as evidenced from the words used in the policy. See Gilmore & Black, *supra* note 3 at 67-68. See also s. 33 (1) of the *CMIA*.

⁹²⁵ See the 'basis clause' in rule 6(2) of the Britannia P&I rules; cited in Bennett, *The Law of Marine Insurance*, *supra* note 53 at 181.

An insurance warranty can be used to ensure not only the truthfulness of an existing fact or condition but also the implementation of a future undertaking such as taking a specific precautionary measure.⁹²⁶ The position of a warranty in insurance law is similar to that of a condition precedent in general contract law;⁹²⁷ the breach of a warranty discharges an insurer from any prospective liability to the insured. Insurers can refuse insurance coverage following a breach of warranty regardless of any causal connection between the breach and a subsequent loss.⁹²⁸ Due to such drastic consequence of the breach of a warranty, an insured's behaviour with regard to a warranty would be as if the insured had no liability insurance.

C. Various insurance mechanisms create stronger financial incentives

⁹²⁶ S. 32 (1)(a) and (b) of the *CMIA*. For example, in *Shearwater Marine Ltd. v. Guardian Insurance Co of Canada* (1998), 60 B.C.L.R. (3d) 37 (C.A.), aff'g. (1997), 29 B.C.L.R. (3d) 13 (S.C.), the insurance contract contained a warranty in the following wording, "Warranted ... Vessel inspected daily basis and pumped as necessary." See also *DeGroot v. J.T. O'Bryan & Co* (1979), 15 B.C.L.R. 271 at 281 (C.A.) as to the need of (promissory) warranty for certainty of future facts/obligations. See also Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 43, 72-73.

⁹²⁷ See *Elkhorn Development Ltd. v. Sovereign General Insurance Co.* (2001), 87 B.C.L.R. (3d) 290, 26 C.C.L.I. (3d) 23 (C.A.), rev'g (2000), 18 C.C.L.I. (3d) 203, (B.C.S.C.).

⁹²⁸ S. 39 (1) and (2) of the *CMIA*. See also *Beacon Life & Fire Assurance Co. v. Gibb* (1862), 1 Moo. P.C.N.S. 73 (P.C.). Because of this harsh consequence, the courts in Canada are very reluctant to find the breach of warranty unless both its wording and breach are clear and unambiguous. See Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 132, 143-44. Courts have made distinction between 'warranty' and 'suspensive condition' or 'warranty delimiting the risk', the breach of the latter only suspends the coverage; loss not causally connected to its breach is recoverable from the insurer. See *Century Insurance Co. of Canada v. Case Existological Laboratories Ltd.*, [1983] 2 S.C.R. 47, 150 D.L.R. (3d), 2 C.C.L.I. 172, aff'g. (1982), 35 B.C.L.R. 364, 133 D.L.R. (3d) 727 (C.A.), rev'g. (1980), 116 D.L.R. (3d) 199 (B.C.S.C.); *Tulloch v. Canada (Department of Fisheries and Oceans)* (1988), 21 F.T.R. 72, 32 C.C.L.I. 36, aff'd. (1989), 96 N.R. 51, 37 C.C.L.I. 229 (F.C.A.); *Landmark Corp. v. Northumberland General Insurance Co.* (1984), 8 C.C.L.I. 118 (Ont. H.C.J.); *Federal Business Development Bank v. Commonwealth Insurance Co.* (1983), 2 C.C.L.I. 200 (B.C.S.C.). However, in order to avoid the uncertainty of courts' interpretation some insurers not only describe a term as warranty but also mention forfeiture of the policy as the consequence of its breach. See clause 1 of British Columbia Builders' Risks Clauses (1/1/89); cited in Strathy & Moore, *Marine Insurance in Canada*, *ibid* at 137 note 4.

For the purpose of maintaining incentives in the minds of insureds, it is not enough for insurers just to have better information on expected liability and on optimal care. Insurers have to put the information in use so as to produce better care. Ultimately insureds are the ones who will have to take the actual care. Thus there need to be some ways for insurers to motivate the potentially liable insureds to take optimal care. Both courts through liability law and insurers through various insurance mechanisms try to create incentives towards care. It will be shown in this section that insurers can create stronger financial incentives with various insurance mechanisms than courts can with the liability law alone.

The insurance mechanisms mainly revolve around premium rates and coverage restrictions. With the threat of premium increase and coverage reduction and/or exclusion, these mechanisms deter an insured from negligence. Although some of the mechanisms individually may appear less effective than liability law in creating incentives, the joint use of insurance mechanisms will create stronger incentives than the existence of mere liability law.

1. Premium rate-variance

As the imposition of liability can no longer directly deter potentially liable parties from negligence when they have insurance, insurers have to devise various insurance mechanisms to create incentives in the minds of their insureds to exercise care.⁹²⁹

⁹²⁹ Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 257, 265-66.

Premium rate variance on the basis of an insured's actual care and loss experience⁹³⁰ is the most effective and the most frequently-used insurance mechanism to induce optimal care.⁹³¹ First of all, it fills the vacuum in terms of incentives left by the availability of liability insurance.⁹³² By rewarding precautionary measures through premium reduction and by penalizing negligent practices through premium increase,⁹³³ insurers play the role of courts in creating incentives towards care.

Secondly and more importantly for our purpose, rate variance may create stronger financial motivation for an insured to take precautions for the following reasons. First, the imposition of liability has financial implications only in the case at issue, while the premium increase following a liability may have financial consequences for a long period of time.⁹³⁴ Second, as premium rate depends on actual precautionary steps *before* the incidence of a loss/liability, the financial reward for such steps may be more immediate and certain in premium rate variance than in the possibility of not being found liable. A dollar in pocket has more value than a dollar in future expectation.

⁹³⁰ While incentives through rate variance based on actual care (feature rating) depend on the insurer's ability to observe the various aspects of care taken by the insured, such ability is not necessary to induce care in the case of rate variance on the basis loss history (experience rating). Experience rating, however, takes place after the occurrence of losses and may sometimes take years to reflect on actual premium especially in maritime insurance. In other words, the shortcomings of one factor may be compensated for by the advantages of the other. See generally Abraham, *Distributing Risk*, *supra* note 17 at 71-73. See also Shavell, *Foundations of Economic Analysis*, *ibid* at 262-63 and note 7, 277-78.

⁹³¹ See generally OECD, "Removal of Insurance," *supra* note 713.

⁹³² As Prof. Atiyah puts it, "Although the tortfeasor will not personally have to pay any damages awarded against him, his insurer will have to do so; and the insurer may visit his displeasure on the insured by *increasing his insurance premiums*." P. S. Atiyah, "Accident Prevention and Variable Premium Rates for Work-Connected Accidents - I", (1975) 4 Indus. L.J. 1 at 1 (emphasis added).

⁹³³ See the example *supra* note 913.

⁹³⁴ See Gold, "Marine Pollution Liability After 'Exxon Valdez': The U.S. 'All-Or-Nothing Lottery!'" *supra* note 664 at 429: "Although it is sometimes suggested that this fairly extensive [marine] insurance coverage might contribute to a careless operational attitude, this is an erroneous view. Insurance rates are not calculated only on actuarial projections, but are also related to the loss record of a particular owner and/or vessel. Accordingly, even if the accident is fully covered by liability insurance today, the shipowner will be paying increased premiums tomorrow."

In the maritime context, premium rate widely varies from ship to ship based on their physical structure (seaworthiness) and loss history. For example, in 1969 the premium for individual tanker owners varied from 3 cents to 150 cents per gross ton in the Norwegian Protection and Indemnity (P&I) club, SKULD.⁹³⁵ The P&I clubs are the usual providers of marine liability insurance.⁹³⁶ Marine hull insurers too assess the seaworthiness of the insured ships for the purpose of premium. The assessment is done through various surveys conducted by the insurers themselves as well as by classification societies.⁹³⁷ Certification by a classification society and maintenance of membership in a classification society are conditions precedent to the continued insurance coverage under both hull and liability insurance policies.⁹³⁸ Even in open or floating cargo insurance, there usually contains a 'classification clause',⁹³⁹ requiring the insured cargo owner to ship its goods on the vessels of specified class and age.⁹⁴⁰ As for the loss history, the P&I clubs and hull insurers generally require the disclosure of claim records at least for previous five years.⁹⁴¹ Unusual loss history even beyond the

⁹³⁵ LEG/CONF.2/C.1/WP. 3 (30 Nov. 1971) in *Official Records of the 1971 Fund Conference*, *supra* note 226 at 242.

⁹³⁶ Over 90 percent of the world ocean-going tonnage is insured by the International Group of P&I clubs. Bennett, *The Law of Marine Insurance*, *supra* note 53 at 486; Tilley, "Origin of P&I Associations", *supra* note 72. See also the Group's website at <http://www.igpandi.org/> (last visited: March 11, 2009).

⁹³⁷ Historically, vessels were classed with different gradations based on an assessment of various factors mainly bearing on the vessels' seaworthiness. Classification societies do not use such gradation today; a vessel is now either 'in class' or not. Yet, the initial and the periodic survey reports provide valuable information to the vessels' insurers. See B. D. Daniel, "Potential Liability of Marine Classification Societies to Non-Contracting Parties", (2007) 19 USF Mar. L. J. 183 at 189.

⁹³⁸ S. Martin, "Marine Protection and Indemnity Insurance: Conduct, Intent, and Punitive Damages" (2003) 28 Tul. Mar. L.J. 45 at 48-49.

⁹³⁹ Institute Classification Clause 13/4/92; see Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 23, 150. This clause indirectly leads a shipowner to better maintenance of its ship to attract business. See also "Removal of Insurance" *supra* note 706 at 65-66.

⁹⁴⁰ These clauses in insurance policies show the faith and reliance marine insurers have on the risk assessment by classification societies.

⁹⁴¹ See *Laurentian Pacific Insurance Co. v. Halama* (1991), 7 C.C.L.I. (2d) 84, 60 B.C.L.R. (2d) 190 (S.C.); see also Hazelwood, *P. & I. Clubs*, *supra* note 114 at 115-16.

insurers' given time period may be a material fact and the disclosure of such fact is the duty of an insured under insurance law.⁹⁴²

As evidenced from the above discussion, the mechanism of rate variance *alone* suffices to put insurers in a better position than courts to induce potentially liable shipowners to exercise due diligence. Yet, insurers would also use other mechanisms besides rate variance to further ensure proper care. As mentioned before, some of these mechanisms may not on their separate application induce better care than liability law. However, their joint use with rate variance would provide incremental incentives for an insured to use care. Following are some of the other mechanisms.

b. Deductibles

The ideal situation of optimal care is where insured acts as a 'prudent uninsured', a term used in most of the P&I club rules.⁹⁴³ A prudent uninsured would take reasonable care in its every dimension because it has to pay from its own pockets for the liability of *any loss* arising from its activities regardless of the care level.⁹⁴⁴ This situation can only exist if the liability is strict and if there is no liability insurance. However, imposition of strict liability and absence of liability insurance have their own problems

⁹⁴² See *New Hampshire Insurance Co v Oil Refineries Ltd*, [2002] 2 Lloyd's Rep 462; [2003] Lloyd's Rep IR 386 (C.A.).

⁹⁴³ See for example Rule 23B(i) of the Steamship Mutual; cited in Martin, "Marine Protection and Indemnity Insurance: Conduct, Intent, and Punitive Damages", *supra* note 938 at 50.

⁹⁴⁴ See Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 98-99 and 189.

correspondingly in reducing incentives for victims to take care⁹⁴⁵ and in discouraging people from investing in socially desirable activities,⁹⁴⁶ as discussed in earlier chapters.

With the availability of liability insurance in the context of negligence-based liability, the best an insurer can do to make an insured to act as ‘prudent uninsured’ is to reduce the coverage by various insurance mechanisms or to exclude it altogether in some cases. Deductible is one of these mechanisms. Others include policy ceiling, franchise clause, uninsured warranty and policy exceptions for certain risks where moral hazard is exceptionally serious. If an insurance policy contains a deductible clause, the insured remains uninsured for the amount of deductible. In the maritime context, both the P&I insurance and hull insurance usually include deductible clauses and the amount of deductibles may vary from one loss or liability to another even within the same policy.⁹⁴⁷

As insureds have to personally bear any liability up to the deductible amount, they would have financial incentives to take care to prevent a liability-causing incident. However, the incentive effect of deductible would be diluted when liability is likely to exceed the amount of deductible by a large margin. A large loss/liability justifies more

⁹⁴⁵ This would only occur in bilateral care situations i.e., where both the injurer and victim can take care at the same time. See Shavell, *Foundations of Economic Analysis*, *ibid* at 184-88.

⁹⁴⁶ See Shavell, *Foundations of Economic Analysis*, *ibid* at 259-61.

⁹⁴⁷ See International Hull Clauses (01/11/03), clause 15; Institute Time Clauses Hulls (1/10/83 and 1/11/95), cl 12; Hazelwood, P. & I. Clubs, *supra* note 114 at 259-260. Statistics on 119 major cargo claims paid by Gard, a Norwegian P&I club, show that there was about US\$3.4 million in deductibles out of total US\$60 million payout. The study period was five years from 1996 to 2000. See *Claims Statistics* (Gard AS, 2005) at 4[hereinafter *Gard's Claims Statistics*]; available online at http://www.gard.no/iknowbase/Content/11991/Claims%20Statistics_low.pdf (last accessed: March 11, 2009).

care to prevent or reduce the loss/liability. Yet, the cost of such care will likely exceed an insured's *expected deductible*. Other things being equal, insureds as rational individuals would not spend more than their expected deductible. Here the effect of deductible on incentives to take care is similar to that of limitation of liability principle i.e., both reduce the expected liability amount and consequently the defendants' care level.⁹⁴⁸ For example, with a 10 percent probability of \$1,000 liability, the expected liability is \$100. If the deductible or the limit of liability is \$500, the expected deductible or liability is only \$50. A rational insured would not spend on care more than \$50, while spending any amount up to \$100 on care would be economically efficient. However, if the cost of optimal care is below the expected deductible i.e., \$50 in our example, deductible would lead to optimal care.⁹⁴⁹

As insureds bear the financial burden of deductible only when they incur liability and only for a *fraction* of liability, the financial burden of and the incentive from deductible logically cannot be more than those of liability. Even though deductible *alone* may not induce more care than liability law does, combined with rate variance and other insurance mechanisms deductible would create more incentives than that of liability law. In other words, the shortcoming of deductibles in terms of incentives may be compensated for by other insurance mechanisms. Liability ceiling is certainly one of those mechanisms.

⁹⁴⁸ For the effect of limitation of liability on incentives effect of liability, see chapter 2.

⁹⁴⁹ However, if the cost of optimal care is below the expected deductible i.e., \$50 in our example, deductible would lead to optimal care. In other words, if \$50 is what it takes to completely eliminate the risk or reduce it to an economically efficient level, then deductible will induce optimal care. See generally Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 194-96.

3. Liability ceiling or upward limit

While deductible is a very useful tool in inducing care when the magnitude of liability is low, liability ceiling is a more effective means to achieve optimal care when the amount of liability is likely to be very high. As insureds will personally bear the financial burden of liability above the ceiling, the higher the liability the better care they will exercise in order to prevent or reduce the liability. In addition to the creation of incentives, liability ceiling may be necessary for insurers to limit their maximum exposure and to buy reinsurance against such exposure.

In the maritime context, liability ceiling accompanied the very first type of liability insurance i.e., collision liability insurance. Coverage for collision liability was and is still largely provided by hull insurers under a separate clause in the insurance policy, known as ‘Running-Down Clause’. Before the introduction of this clause, the provision of insurance was confined to property insurance in the form of coverage for accidental losses in ships and cargoes.⁹⁵⁰ As this was the first time that insurance was offered for liability, the insurers were understandably concerned with the effect of such insurance on an insured’s incentives to care. In fact, this concern led the Lloyd’s underwriters to petition, though unsuccessfully, to the British Board of Trade in 1854 to ban collision liability insurance.⁹⁵¹ Eventually, however, their concern translated into the imposition

⁹⁵⁰ *Per* Justice Cory in *Coronation Insurance Co. v. Taku Air Transport Ltd*, [1991] 3 S.C.R. 622, [1992] 1 W.W.R. 217 at 229, “When Lord Mansfield set the principle governing insurance contracts the world was a little different. It was a simpler if not, in some respects, a gentler place. The business of insurance was very different. *The policies of insurance were issued most frequently to cover a vessel or its cargo.* The contract was issued for the benefit of the insured.” [Emphasis added]

⁹⁵¹ Reynardson, “History of P&I Insurance”, *supra* note 79 at 467.

of a maximum limit on the coverage to three-fourths of the total liability.⁹⁵² This clause survives even today among modern hull clauses.⁹⁵³ An interesting contrast here, however, is the liability insurance coverage provided by the International Group of P&I clubs. The Group's coverage is virtually unlimited. Under an 'overspill' pooling agreement among the clubs and through the four layers of reinsurance, the Group currently provides coverage up to US\$5.4 billion per liability incident.⁹⁵⁴

Although a policy limit would induce care where liability is likely to exceed the ceiling, insureds may sometimes decide not to take care because the cost of care is more than their expected exposure.⁹⁵⁵ The incentive effect of insurance ceiling suffers from the same shortcoming as that of deductible and limitation of liability principle. If there is 10 percent chance of \$100,000 liability, the expected liability would be \$10,000. If the insurance ceiling is \$70,000, the insured will have to personally pay \$30,000 out of \$100,000 liability. Due to 10 percent probability, the expected personal exposure is only \$3,000. In order to prevent the loss, the insured may be willing to spend only up to \$3,000, while optimal care may cost any amount up to \$10,000.

⁹⁵² This is actually three fourth of the proportionate liability of the insured value of the vessel. So, if the actual collision liability is more than the insured value of the vessel, the three-fourths of the actual liability would also exceed the coverage. However, insured can buy supplementary cover for this excess under Institute Time Clauses-Hulls Excess Liabilities (1/11/95). See Bennett, *The Law of Marine Insurance*, *supra* note 53 at 400-401 note 48.

⁹⁵³ See clause 6.1 of the International Hull Clauses (01/11/03).

⁹⁵⁴ See *supra* notes 217 and 388.

⁹⁵⁵ Insureds may spend more on care than what would be its expected personal liability due to deductible and/or liability ceiling. This would not amount to excessive care as long as the cost of care does not exceed the total expected loss/liability.

For similar reasons as those in the case of deductible, liability ceiling *alone* cannot logically create stronger incentives than does the liability law. However, if the cost of optimal care is less than the insured's *expected personal exposure* from liability ceiling alone or from the total amount of liability ceiling and deductible, the insured would take such care. Another interesting point here is that insureds are certainly risk-averse individuals;⁹⁵⁶ otherwise, they would not have bought insurance in the first place. Risk-averse people are willing to spend more than their *expected* personal exposure in order to reduce their exposure. In addition, the presence of liability ceiling does not mean that insurers are going to forgo their most effective tool i.e., the rate variance.

4. Franchise clause

Some marine insurance policies may contain a franchise clause instead of a deductible clause. Like the case with deductibles, an insured remains its own insurer for any liability below the limit in a franchise clause. Insureds thus will have adequate incentives to prevent a liability falling below the amount in a franchise clause. As the effect of franchise clause in this regard is similar to that of deductible, earlier comments on comparison between deductible and liability law equally apply here. However, a franchise clause differs from a deductible clause in that when liability exceeds the amount in a franchise clause, insurers pay the total amount of loss/liability.⁹⁵⁷ Consequently, if potential liability is likely to exceed the franchise limit, the insureds would have no incentives to prevent or reduce such liability because the insurer would

⁹⁵⁶ For the definition and effect of 'risk-aversion' see *infra* (D)(1) at p. 273.

⁹⁵⁷ See Gilmore & Black, *supra* note 3 at 82.

pay not only the amount in excess of the franchise limit but also the amount falling below that limit.

The presence of a franchise clause may even encourage an insured to intentionally make a loss worse so that the liability for a loss exceeds the franchise limit and the entire burden shifts to the insurer. Although this is a serious shortcoming of franchise clause in terms of incentives to care, a franchise clause is not designed to maintain incentives. Rather its main function is to save administrative costs by not entertaining smaller claims falling below certain threshold.⁹⁵⁸ Besides, insurers would have other tools including rate variance and policy limit to maintain incentives. In modern marine insurance, franchise clauses generally appear in freight insurance and the amount is usually a percentage of the total freight insured.⁹⁵⁹ Modern franchise clauses are similar to those of 'particular average' warranty (i.e., exclusion of partial loss) in old insurance policies.⁹⁶⁰

5. Uninsured warranty

While the above insurance mechanisms leave an insured uncovered for a certain amount either below a threshold or above a ceiling, they do not prevent insureds from buying

⁹⁵⁸ See Bennett, *The Law of Marine Insurance*, *supra* note 53 at 744-45. Although deductible clause also has similar advantage in reducing the administrative cost for small claims, it cannot be said that saving of administrative cost is its main function because, if this were so, there is no justification to deny paying the amount of deductibles when the loss or liability exceeds the amount of deductible.

⁹⁵⁹ See Institute Time Clauses Freight (1/8/89 and 1/11/95), cl 12; Institute Voyage Clauses Freight (1/8/89 and 1/11/95), cl 10. See also Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 172.

⁹⁶⁰ The word 'warranty' here means 'exclusion'. For examples and discussion on particular average warranty, see Gilmore & Black, *supra* note 3 at 79-82.

coverage elsewhere for the uncovered portion.⁹⁶¹ Insureds have a choice either to obtain market insurance or remain self-insured for that amount. An opportunity to buy coverage for the uncovered portion from other insurers distorts the incentive effect of the above mechanisms.⁹⁶² If the distortion is serious, insurers may include an uninsured warranty in the policy. Under an uninsured warranty, an insured is prohibited from buying coverage for certain risk or above certain limit.⁹⁶³ As mentioned earlier, an insurance warranty has the effect of condition precedent in contract law and breach of warranty makes the policy voidable.⁹⁶⁴ Any loss or liability following the breach of a warranty does not fall on insurers regardless of any causal connection between the breach and the loss or liability.

There are instances in marine insurance where a liability insurer not only left certain portion of the risk uncovered but required the insured to retain that portion of the risk uninsured.⁹⁶⁵ Although uninsured warranty is rare in modern policies,⁹⁶⁶ there are

⁹⁶¹ For example, see clause 6.1 of the International Hull Clauses (01/11/03), providing three-fourths coverage for collision liability without any prohibition on coverage for the remaining one-fourth. In fact, optional clause 38 of the International Hull Clauses or P&I clubs offer coverage for this one-fourth. See Bennett, *The Law of Marine Insurance*, *supra* note 53 at 398-99.

⁹⁶² Buying coverage from a second insurer only for the uncovered portion may not be available at all. Even if it is available, the premium may be very high compared to the coverage because the premium would include the administrative costs and profits of the second insurer.

⁹⁶³ See generally Bennett, *The Law of Marine Insurance*, *supra* note 53 at 545-48.

⁹⁶⁴ See s. 39 (2) of the CMIA.

⁹⁶⁵ See *Muirhead v. Forth & North Sea Steamboat Mutual Insurance Association*, [1894] AC 72; cited *ibid*. A similar purpose could be achieved also through “no other insurance” warranty; see *Butler v. Merchants Marine Insurance Co.* (1885), Cass. Dig. 390 (SCC).

⁹⁶⁶ Even when the hull insurance provides for a three-fourth collision liability, the insurer may cover the remaining one-fourths of such liability for additional premium. Besides, for any shortfall either in the form of remaining one-fourth or excess liability, coverage is invariably provided by the P&I clubs. Bennett, *The Law of Marine Insurance*, *supra* note 53 at 400-401. As for other kinds of liability insurance, coverage is practically unlimited. See *supra* note 69.

restrictions on the maximum amount of coverage an insured can buy from market for certain disbursements, managers' commissions, and particular types of freights etc.⁹⁶⁷

The comparative analysis of uninsured warranty with liability law in terms of incentives is similar to that of deductible, franchise limit, and liability ceiling. If the *expected personal exposure* to financial burden from uninsured warranty is more than the cost of optimal care, an insured would have adequate incentives to take care. If the expected personal exposure is less the cost of care, the insured may fail to take care. In other words, the incentive effect of uninsured warranty is not additional but restorative because an uninsured warranty does not directly reduce an insured's insurance coverage; it only ensures that coverage restrictions through deductible or policy limit are maintained so as to retain their incentive effects.

6. Policy exceptions/exclusions

Policy exceptions also restrict insurance coverage and make policy holders practically 'prudent uninsured' for situations falling under the exceptions. In terms of incentive effect, policy exception is similar to liability law without the presence of liability insurance because in both cases potentially liable parties would bear the full brunt of liability. As insureds will have already paid the premium, the financial consequence of a policy exception may actually be more severe. Policy exception will thus lead to better care in preventing the conducts that trigger the exceptions.

⁹⁶⁷ See Institute Time Clauses Hulls (1/10/83), cl 21.2; (1/11/95), cl 22.2; International Hull Clauses (01/11/03), cl 24.2; Institute Voyage Clauses Hull (1/11/95), cl. 20.2; cited in Rose, *Marine Insurance*, *supra* note 31 at 598 note 139.

The most important exception in terms of incentives is that the insurers would not pay for any loss or liability ‘attributable to the wilful misconduct of the insured’.⁹⁶⁸ Although this exception is well established in common law⁹⁶⁹ and is now enshrined in the marine insurance Acts,⁹⁷⁰ it still appears in the P&I club rules and in cargo insurance policies.⁹⁷¹ The simple rationale behind this exception in property insurance (i.e., hull and cargo) is that insureds should not be allowed to profit from their own wrongdoing.⁹⁷² The most severe form of wilful misconduct in a marine insurance context is scuttling.⁹⁷³ Though it was a common insurance fraud in the past, it may still occur today especially when a low freight market brings down the price of a ship much below its insured value in a valued policy.⁹⁷⁴ A situation of scuttling may also give rise to cargo liability as well and thus may involve the P&I clubs for liability insurance.

In contrast with wilful misconduct, mere negligence will not deprive an insured of the benefit of either hull or liability insurance.⁹⁷⁵ Provision of insurance in cases of

⁹⁶⁸ S. 53(2) of the *CMIA*; s. 55 (2) of the *MIA*.

⁹⁶⁹ *Lewis v. Great Western Railway Co* (1877), 37 LT 774, 3 QB 195; *Graham v. Belfast & Northern Counties Railway Co*, [1901] 2 IR 13; *Forder v. Great Western Railway Co* [1905] 2 KB 532.

⁹⁷⁰ S. 53(2) of the *CMIA*; s. 55 (2) of the *MIA*.

⁹⁷¹ For example, see Institute Cargo Clauses (A), (B), (C), cl 4.1; Institute War Clauses (Cargo), Strikes Clauses (Cargo), cl 3.1.

⁹⁷² Wilful misconduct of the master and crew to the prejudice of the shipowner which amounts to ‘barratry’ may be an insured peril and thus does not deprive the assured of the protection of coverage. See *O’Connor v. Merchants Marine Insurance Co.* (1889), 16 S.C.R. 331; *Spinney v. Ocean Mutual Marine Insurance Co.* (1890), 17 S.C.R. 326.

⁹⁷³ See *P. Samuel & Co. v. Dumas* (1924), 18 Ll. L. Rep. 211, [1924] All E.R. 66 (H.L.).

⁹⁷⁴ For a recent example, see *Boyda v. Saxbee Insurance Agencies (1975) Ltd.* (1984), 4 C.C.L.I. 26 (B.C.C.A.). Hull insurances are almost invariably valued policies. Under a valued policy, the value of subject-matter is conclusive evidence on valuation as between the insured and the insurer unless there is any fraud: s. 30 (4) of the *CMIA*.

⁹⁷⁵ Some insurance policies not only provide coverage for the negligence of employee in the so-called ‘Inchmaree clause’, but also cover for the loss arising from the negligence of anyone including the shipowners and charterers. For negligence of employee, see s. 53 (1) of the *CMIA* and *Century Insurance Co. of Canada v. Case Existological Laboratories Ltd.*, [1983] 2 S.C.R. 47, 2 C.C.L.I. 172 and *C.C.R. Fishing Ltd. v. British Reserve Insurance Co.*, [1990] 1 S.C.R. 814, 43 C.C.L.I. 1; and for negligence of

negligence may seem to condone and encourage negligent behaviours and may make liability insurance look inferior to liability law in terms of incentives. This is, however, not the case in reality. Although it is true that liability insurance provides protection against liability for negligence and may on the face reduce the incentive effect of liability law, the various insurance and legal mechanisms discussed above will actually lead to better incentives in the minds of insureds to use care.

Here the provision of liability insurance against negligence can be compared to the vicarious liability of employers against the negligence of their employees. In a vicarious liability situation, even though the negligent employees do not have to directly pay for their negligence, this may not in fact reduce the incentive effects of liability because the employers can use the threat of firing or impose other less drastic monetary disciplines on the employees.⁹⁷⁶ In the same way, insurers can prevent many negligent conducts of their insureds by using financial disincentives through various insurance mechanisms even though the insurers pay for the liability arising from negligence. Also, when an employer has superior knowledge about the potential risks and the precaution to that of its employees, vicarious liability may in fact lead to better care than if the employees

the insured, see *Russell v. Canadian General Insurance Co.* (1999), 11 C.C.L.I. (3d) 284 (Ont. Gen. Div.) and *Atwood v. Canada* (1985), 10 C.C.L.I. 62 (F.C.T.D.). In *Williams v. Canada* (1984), 7 C.C.L.I. 198 (F.C.T.D.) the court held at 211, "In the absence of express stipulations to the contrary, *negligence on the part of the assured or of a person for whom he is or may be responsible* does not exempt the insurer from liability though the loss is caused thereby, for one of the main objects of insurance is to protect the assured against the consequences of negligence." (Emphasis added.)

⁹⁷⁶ Although an employer may legally sue the negligent employee to recover the money paid to third party, companies rarely pursue this course of action. See James, "Accident Liability Reconsidered: The Impact of Liability Insurance," *supra* note 18 at 557.

directly bear the liability.⁹⁷⁷ Similarly, as we discussed earlier, superior knowledge of insurers brings the actual care closer to optimal care than would be the case in the absence of liability insurance.

Most of the other policy exceptions/exclusions are not really intended to induce care but to separate ordinary losses from fortuitous ones. For example, the losses or liability arising from the ordinary wear and tear, from the ordinary breakage and leakage, and from the inherent vice or nature of the subject matter are not usually covered.⁹⁷⁸ Some other exceptions may have as their reason the highly unpredictable or disproportionate risk such as the exclusion of coverage for war and strikes. For all these exceptions alternative coverage may be available.⁹⁷⁹ As these exceptions have no role to play in creating incentives, their provision by alternative insurance is not socially undesirable and they are not relevant to our discussion. However, when some conducts may lead to suboptimal care in the future such as the change of a vessel's ownership/management, flag, and classification society, in order to prevent such conducts an insurer may designate them as exclusionary conducts for the losses following such conducts.⁹⁸⁰

⁹⁷⁷ See Sykes, "The Economics of Vicarious Liability", *supra* note 585. See also Posner, *Economic Analysis of Law*, *supra* note 23 at 188-89; Shavell, *Foundations of Economic Analysis of Law*, *supra* note 19 at 233-36.

⁹⁷⁸ See Institute Cargo Clauses (A), (B), (C), cl 4.2; War Clauses (Cargo) and Strikes Clauses (Cargo), cl 3.2; see also s. 53 (2)(b) of the *CMA*; s. 55 (2) (c) of *MIA*.

⁹⁷⁹ See War Clauses (Cargo) and Strikes Clauses (Cargo).

⁹⁸⁰ For example, the Canadian Board of Marine Underwriters (CBMU) Great Lakes Hull Clauses (Sept. 1, 1971) provide at lines 229-232, "In the event of any change, voluntary or otherwise, in the ownership or flag of the Vessel, or if the Vessel be placed under new management, or be chartered on a bareboat basis or requisitioned on that basis, or if the Classification Society of the Vessel or her class therein be changed, cancelled or withdrawn, then, unless the Underwriters agree thereto in writing, this Policy shall automatically terminate...". This document could be found at <http://www.brokmarr.com/wp-content/uploads/greatlakes.pdf> (access date: March 09, 2009). Canadian Hulls (Pacific) Clauses (Sept. 1/91) at lines 239-251 and Institute Time Clauses Hulls (1/01/83) in cl 4; (1/11/95) in cl 5; International Hull Clauses (1/11/03) in cl 14 contain similar provisions.

7. Duty to mitigate loss (to sue and labour)

All the above insurance mechanisms mainly concern the maintenance of incentives to take care at the pre-accident stage. Once an insured peril is either imminent or has already occurred, the insured can still take some additional care to avert or minimize the losses arising from the insured peril. In order to ensure that an insured takes such care, marine insurance policies generally contain a 'sue and labour' clause,⁹⁸¹ which imposes a duty on the insured to take reasonable steps to mitigate a loss or liability. Failure to comply with this obligation will deprive the insured of indemnity for any loss or liability attributable to such failure.⁹⁸² Marine insurance statutes also impose this obligation.⁹⁸³ As this is both an insurance and a legal mechanism against moral hazard, there is no comparison between this mechanism and liability law; duty to mitigate is the part of liability law. An insured is entitled to the reimbursement of the expenses incurred in taking such steps.⁹⁸⁴ The entitlement is not affected by the failure of the steps taken to achieve the intended result as long as they are reasonable under the circumstances.

⁹⁸¹ The words "sue and labour" were first used in Lloyd's S.G. policy, which contained a clause requiring the insured "to sue, labour, and travel for, in and about the defence, safeguards, and recovery of the said goods and merchandises, and ship, &c, or any part thereof, without prejudice to this insurance...." (Emphasis added). Although the use of Lloyd's S.G. policy is now very rare, a clause to the same effect continues to exist in all modern hull and cargo policies as well as in liability insurance policies. See the Great Lakes Hull Clauses (Sept. 1, 1971), the Canadian Hulls (Pacific) Clauses (Sept 1/91), Institute Time Clauses Hulls (1/10/83), cl 13.1; (1/11/95), cl 11.1; International Hull Clauses (01/11/03), cl 9.1; Institute Cargo Clauses (A), (B), and (C) (1/1/82), cl 16. See also Strathy & Moore, *Marine Insurance in Canada*, *supra* note 34 at 183-84.

⁹⁸² *Fudge v. Charter Marine Insurance Co.*, (1992), 97 Nfld. & P.E.I.R. 91, 8 C.C.L.I. (2d) 252 (Nfld. S.C.); *Strive Shipping Corp v. Hellenic Mutual War Risks Association (Bermuda) Ltd (The Grecia Express)*, [2002] EWHC 203 (Comm), [2002] 2 All ER (Comm) 213 (Q.B.). See also Strathy & Moore, *Marine Insurance in Canada*, *ibid* at 181; Bennett, *The Law of Marine Insurance*, *supra* note 53 at 750-53.

⁹⁸³ Ss. 79 and 80 of the *CMIA*; s. 78 of the *MIA*.

⁹⁸⁴ The 'sue and labour' clauses in Lloyd's S.G. policy and modern hull and cargo policies all contain express undertakings by the insurer to pay for such expenses. See *supra* note 969. The provisions of s. 79(1) of the *CMIA* and s. 7(1) of the *MIA* reflect this marine insurance practice.

D. Negligence in the presence of insurance may be more costly

While the financial burden of liability arises only after a loss, the financial burden in the case of insurance may arise both before and after the loss. Insureds will have already paid their premium based on their expected liability. Yet if they incur liability due to a coverage-excluding conduct, they pay the premium and bear the liability at the same time. In other words, in such situation they bear the financial burden twice. Even when insurance contracts contain no coverage exclusion or reduction, the insureds' expected financial burden (i.e. premium) in an insurance situation is likely to be more than their expected liability *in the absence of proper care*. This point will be clear at the end of the discussion in this section.

1. Insurance premium theoretically equals the expected liability

Theoretically the insureds' premium should equal their *expected liability*, presuming there is no policy exclusions and under-insurance (i.e., through deductible and/or liability ceiling). Yet in practice insurance premium will always be more than the expected liability, *given* the liability of insureds remains unchanged after they subscribe to insurance. This is because insurance premium includes not only the expected liability but also the administrative cost and profit elements of an insurer.⁹⁸⁵ At this point, it may not be out of place to ask why potentially liable parties would buy insurance when it may eventually cost them more. The answer lies in the concept of *risk aversion*.

⁹⁸⁵ See Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 198.

As discussed in previous chapters, risk aversion is the tendency of a person to fear the loss of a higher amount with lower probability more than the loss of a lower amount either with higher probability or with certainty even though the expected loss is the same in both cases. For example, the loss of \$100,000 with 1 percent probability and another loss of \$10,000 with 10 percent probability or a certain loss of \$1,000 have the same expected loss i.e., \$1,000.⁹⁸⁶ Yet in the first instance risk-averse people may be willing to pay their insurers more than \$1,000 (i.e., the expected liability) in insurance premium in order to transfer the risk to the insurers⁹⁸⁷ even though the payment of premium is certain and the insured's chance of being liable is only one percent.

2. Insurance premium may be more or less than the pre-insurance expected liability

The liability of insureds, however, may increase or decrease after they purchase insurance. It may increase if the problem of moral hazard is serious. It may also decrease if insurers can induce their insureds to take better care than what the insureds would take in the absence of insurance. As we have been maintaining in this chapter that insurers generally can and do induce better care in a potentially liable insured person than what courts alone could do, this brings the possibility that insurance premium can be less than the *pre-insurance expected liability*. This will occur if the difference between the *pre-insurance* expected liability and the *post-insurance* expected liability due to better care is more than the insurer's administrative cost and profit

⁹⁸⁶ See Pauly, "The Economics of Moral Hazard: Comment," *supra* note 17 at 532; Shavell, *Economic Analysis of Accident Law*, *ibid* at 186-87; Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 258.

⁹⁸⁷ The amount an insured pays the insurer above the expected loss/liability is known as 'risk premium'. S. Stephens, "The Consequences of Expansionary Workers' Compensation Policy," (1995) 46 Labor Law Journal 17 at 26.

combined. We have seen that the possibility of better incentives and further reduction of loss exists in the presence of insurance because of the insurers' better information on optimal care and also because of their ability to offer stronger financial incentives through insurance mechanisms. An example may be in order here.

If statistics compiled by an insurer from the loss history of many insureds prove that most of the collisions occur due to the absence of proper lookout, the insurer may deduce from the statistics that constantly keeping a crew member on the bridge of the insured ships will substantially cut down the number of collisions.⁹⁸⁸ Even though employing an additional crew member for the proper lookout would be efficient from the perspective of long term loss/liability reduction, the insureds may not see its net benefit due to their lack of information about the probability and magnitude of loss arising from this factor alone. On the other hand, the insurer's research may show that the employment of an additional crew member would reduce the current probability of average collision liability of \$100,000, for instance, from 10 percent to 5 percent (i.e., from expected liability of \$10,000 to \$5,000). If the wage of the additional crew member is, say, \$3,000, i.e., less than the difference of liability before and after employing the crew,⁹⁸⁹ the employment would bring a net saving of \$2,000.

In other words, in the absence of insurance, due to lack of information the insureds took less care and their expected liability was \$10,000. In the presence of insurance, the

⁹⁸⁸ This example is a modified version of the finding of the Norwegian P&I Club Gard AS; see *Gard's Claims Statistics*, *supra* note 947 at 18-19.

⁹⁸⁹ The difference is \$5,000. Before the appointment of the additional crew member, the expected liability was \$10,000 (10% multiplied by \$100,000) and it would be \$5,000 (5% x \$10,000) after the appointment.

expected liability is now \$5,000. If the insurer's administrative cost and profit equal \$1,000, the insurance premium would be now \$6,000, much less than the pre-insurance expected liability of \$10,000. An insured's net saving would be \$1,000 (i.e., \$10,000 pre-insurance expected liability minus the insurance premium of \$6,000 and the \$3,000 wage of the additional crew member). This example shows that despite the additional administrative costs of liability insurance, the existence of liability insurance may not only lead to better care and precaution but may also bring net savings for the insured.

The above example can also be used to show that being *negligent in the presence of insurance is more costly* than in its absence. The insureds' expected liability before insurance was \$10,000, but their insurance premium would be \$11,000 (\$10,000 in expected liability plus \$1,000 for insurer's cost and profit) if they do not employ the additional crew member.⁹⁹⁰ As the wage of additional crew member (i.e., cost of care) is less than the reduction in the liability, not employing the additional crew member would amount to negligence.⁹⁹¹ Such negligence would be more costly in the presence of insurance (\$11,000 insurance premium) than in its absence (i.e., only \$10,000 liability). As the hiring of an additional crew member at a cost of \$3,000 would reduce the premium from \$11,000 to \$6,000, an insured, being rational individual, would employ the crew member. Whether an insured in fact employed the required number of crew or not, the insurer can easily verify.

⁹⁹⁰ See generally Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 264-65.

⁹⁹¹ See the 'Hand Formula', *supra* note 23 with the accompanying text.

Among the discussed insurance mechanisms, rate variance (from \$11,000 insurance premium to \$6,000) would be the most effective mechanism here to motivate the insured to adequately man the ship. For additional guarantee, insurers may make it an express *warranty* that certain number of crew member must always be present on the ship or on its bridge.⁹⁹² With regard to the remaining 5 percent of collision probability in the above example, certain precaution may reduce the probability further.⁹⁹³ If insurers cannot observe those aspects of precaution, they may incorporate in the insurance policy certain deductible and policy limit. As we have seen earlier, deductible and policy limit may induce an insured to spend more on care than merely the expected value of the deductible and liability ceiling. Because, the very purchase of insurance shows that insureds are risk-averse individuals; they would rather spend more on care than to bear the burden of deductible and liability exceeding the policy limit even though the expected value of the burden is less than the cost of care.⁹⁹⁴

E. Additional reasons why insurance may lead to better care

1. Insurance facilitates research and innovation in loss-reduction techniques

The above example also shows that insurers can classify the causes of losses and then guide their insureds to adopt the appropriate precautionary steps to control the future losses. There may be as-yet undiscovered but more cost-efficient techniques to reduce

⁹⁹² See for example, *De Hahn v. Hartley* (1786), 99 E.R. 1130 (K.B.), where the insurer required the presence of fifty crew members, but the ship had only forty six at the beginning of the voyage. Though the ship had fifty two crews at the time of the insured peril, the insurance was held voidable.

⁹⁹³ The probability of collision incidents may never be zero either because no optimal care can eliminate all the accidents or because there is always some unavoidable accidents due to the elements of the sea. See generally Calabresi, *The Costs of Accidents*, *supra* note 47 at 17-18.

⁹⁹⁴ Spending more than the expected deductible or the amount above the policy limit will not be undesirable as long as the cost of care is less than the total expected loss or liability.

losses. The discovery of those techniques requires investment in research and development. Insurers are in a better position than individual insureds to undertake this task not only because of the insurers' ability to spread the cost of research over all the insureds in a pool but also because of the insurers' superior knowledge on the causes of loss.⁹⁹⁵ There is no comparison here between insurers and courts. Courts' suggestions in their decisions on the various aspects of care would be limited to only the known techniques. In fact, the courts' knowledge on some known techniques may be even inferior to that of the liable parties when the techniques are of complicated nature. Although courts may seek expert testimony, the knowledge of an expert is also confined to the existing techniques.⁹⁹⁶

A possible disincentive to an insurer's investment in research and innovation is the fact that the competitors of the insurer may benefit from its research and innovation without incurring the corresponding cost.⁹⁹⁷ This may be overcome by the coordination and the joint undertaking of research initiatives by many insurers. An ideal example in this regard is the International Group of P&I clubs. The Group consists of thirteen large P&I clubs and covers over 90 percent of the world's ocean-going tonnage.⁹⁹⁸ The members of the Group's clubs benefit from the shared experience and exchange of information on the various common issues of concern.

⁹⁹⁵ See Abraham, *Distributing Risk*, *supra* note 17 at 15-16; J. Kehne, "Encouraging Safety Through Insurance-Based Incentives: Financial Responsibility for Hazardous Wastes," (1986) 96 Yale L. J. 403 at 407.

⁹⁹⁶ See *supra* note 906.

⁹⁹⁷ See Abraham, *Distributing Risk*, *supra* note 17 at 78-79; Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 36-37.

⁹⁹⁸ Tilley, "Origin of P&I Associations", *supra* note 97.

2. Insurance also helps insureds to know better about optimal care

This is an obvious point. There is no use of insurers obtaining information on optimal care and on better techniques to prevent or minimize loss if their insureds are not aware of those techniques. An insurer needs to convey the acquired information to the insureds so that they can employ the information and techniques in the insured activities. As we have seen throughout the chapter, better information combined with stronger financial incentives through various insurance mechanisms leads to the improved care and safety in the presence of liability insurance. This can only occur in practice if insureds know what amounts to optimal care and what financial benefits they would receive from their insurers by exercising optimal care.⁹⁹⁹

3. Insurer's failure to create incentives may affect the very survival of its business

While the failure of a court to accurately determine optimal care in a liability situation has no effect on the continued existence of the court, such failure by an insurer, if regular, may threaten the very survival of the insurer's business in a competitive market.¹⁰⁰⁰ As we have seen, the calculation of correct premium rate depends on the proper determination of the expected loss/liability of an insured. Insurers constantly need to assess each insured's expected liability and then set and adjust the premium accordingly to reflect the expected liability. If the increase in the premium rate following a loss caused by negligence is more than the cost of care, the insured would take care and prevent similar losses from occurring in the future.

⁹⁹⁹ See Abraham, *Distributing Risk*, *supra* note 17 at 73-74.

¹⁰⁰⁰ Kehne, "Encouraging Safety Through Insurance-Based Incentives: Financial Responsibility for Hazardous Wastes," *supra* note 995 at 412. See also Calabresi, *The Costs of Accidents*, *supra* note 47 at 61-62.

On the other hand, if an insurer does not adjust the premium and roughly charge the same premium to all the insureds, the insurer will attract high-risk insureds to the insurance pool and will cause low-risk insureds to leave the pool. Left with only high risk insureds, the insurer would either have to charge very high premium or incur substantial loss. Both options will lead to the loss of business and the possible bankruptcy of the insurer. The reason for this consequence in the case of the second option is obvious. The reason in the first option is that each relatively low-risk insured will have to pay more than its expected liability to cover for the relatively high-risk members in the pool; the low risk insureds would be better off either to self-insure or to seek coverage elsewhere, which they will do in a competitive market. They will switch to other insurers who can better assess their expected losses/liability and charge lower premium accordingly.

This phenomenon is known as ‘adverse selection’ in insurance literature¹⁰⁰¹ and was the cause of the demise of the 19th century hull insurance clubs.¹⁰⁰² To avoid this phenomenon and to induce each individual insured to take care, insurers have to separate the insureds according to their possible liability/loss and charge premium accordingly. Insurers today separate their insureds and the risks they bring into groups

¹⁰⁰¹ See Abraham, *Distributing Risk*, *supra* note 17 at 67-68.

¹⁰⁰² With the removal of monopoly on marine insurance in 1824 in the UK, the marine insurance market became more competitive; the well-built ships could get insurance at a cheaper premium from the market insurers than from the mutual hull insurance clubs. As a result, hull insurance clubs were left with ‘rust buckets’ and were eventually dissolved. Bennett, *The Law of Marine Insurance*, *supra* note 53 at 11 note 42.

and classes;¹⁰⁰³ insurers also differentiate the premium rates for individual insureds under the same group/class.

4. Insurance increases the likelihood of actual liability and consequently deterrence

In the absence of insurance, a liable party may not have sufficient assets to pay for liability and consequently the deterrent effect of liability is either absent or limited in the minds of such a party.¹⁰⁰⁴ Liability insurance, especially when it is *compulsory* as is the case in automobile insurance and many aspects of maritime liability,¹⁰⁰⁵ can ensure that liable parties pay for their negligence and thus increase the likelihood of liability. With the increased likelihood of liability, the insurance premium will be higher; higher premium will increase the deterrent effect of liability.¹⁰⁰⁶ The inability of a liable party to pay for the liability (the problem of the judgement-proof) arises not only from the actual lack of assets but also from the artificial reduction of assets through ‘corporate veil’ by forming corporate subsidiaries. This happens quite often in the context of maritime liability law as shipping corporations form a separate company for each ship in their fleets.¹⁰⁰⁷

¹⁰⁰³ While in marine insurance determination of the class of a ship or its assignment to a particular risk group mainly depends on its physical strength, in automobile insurance risk classification may be based on the age and gender of an insured, among other factors.

¹⁰⁰⁴ See Shavell, *Economic Analysis of Accident Law*, *supra* note 28 at 167-169; Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 230-236.

¹⁰⁰⁵ Such as liability laws for oil pollution from tankers and bunkers, HNS pollution and passengers’ claims are all have compulsory insurance provisions. See chapter five for discussion on compulsory insurance.

¹⁰⁰⁶ See Fleming, “The Role of Negligence in Modern Tort Law”, *supra* note 102 at 825. See also Brown, “Deterrence and Accident Compensation Schemes”, *supra* note 12 at 118.

¹⁰⁰⁷ Tan, *Vessel-Source Marine Pollution*, *supra* note 149 at 34.

III. Empirical Evidence

A. Marine insurance

Since the maritime liability insurance is as old as the maritime liability law itself, it is hard to find statistics to show the difference in the loss rate with or without the presence of liability insurance in order to prove the positive impact of insurance on incentives. However, there are statistics in many areas of liability, where the claims for losses are on the decline due to the proper identification by insurers of the causes of loss or injury. For example, the statistics for 1993-2003 on the liability for physical injury to crew members in the vessels insured by the Norwegian P&I club Gard show that the average claim decreased from about US\$25,000 to \$15,000.¹⁰⁰⁸ Not only the average claim amount but also the total number of claims was on the decline despite the increasing tonnage of the club's insured fleets.¹⁰⁰⁹ This was partly due to Gard's ability to identify from the claim history the main causes of the crew injuries, which are mostly preventable.¹⁰¹⁰ Similarly, the incidents of and the total liability for collisions are also in decline.¹⁰¹¹ Again, this may be partially due to the insurers' research and innovation on loss prevention strategies.

On the other hand, statistics of the same P&I club on 119 major cargo claims between 1996 to 2000 show an upward trend in the value of the *average* claim. These statistics, however, have to be considered in the light of the facts that 1) these claims concerned

¹⁰⁰⁸ See *Gard's Claims Statistics*, *supra* note 947 at 24. However, total crew claims in Gard represent the largest claim category in terms of liability payment. Most of the crew claims concern illness and disease.

¹⁰⁰⁹ *Ibid.*

¹⁰¹⁰ See *ibid* at 25.

¹⁰¹¹ Ten-year statistics (1992 to 2002) on collision liability in Gard show that collision liability accounts for 3.1 percent in terms of number of all P&I claims but 12 percent in terms of value. However, the average cost of collision liability is on the rise. *Ibid* at 18.

liability exceeding US\$150,000 each, 2) the increasing value of the cargoes has been a factor, 3) no allowance has been made for inflation, and 4) there was no mention about the *total* claims per year.¹⁰¹² Even when liability claims are increasing, it does not necessarily prove that there was no incentive effect of liability insurance on precautionary steps. An increase in liability claims may be due to economic as well as legal inflation i.e., the application of new legal doctrines increasing the amount of liability paid by defendants or their liability insurers.¹⁰¹³ Another possible reason for the increase of claims is the reduced incentives due to the limitation of liability principle in maritime law.¹⁰¹⁴ In other words, if all these factors are accounted for, there is a strong possibility that the liability arising from negligence is actually on the decline because of the existence of liability insurance.

B. Non-marine insurance

There are also proofs in other areas of liability where the insurers' research and the increased incentives by insurance mechanisms led to the reduction in the incidents of loss and the consequent liability. In the 1930s and the 1940s insurers' inspection and research improved elevators' and boilers' safety and reduced the accident rates.¹⁰¹⁵ There is also evidence that industrial accident rate particularly death rate declined sharply in part due to the incentives created by insurers,¹⁰¹⁶ although the claims for non-

¹⁰¹² *Ibid* at 3-4.

¹⁰¹³ See Abraham, *Distributing Risk*, *supra* note 17 at 46.

¹⁰¹⁴ See chapter two.

¹⁰¹⁵ James, "Accident Liability Reconsidered: The Impact of Liability Insurance," *supra* note 18, at 561.

¹⁰¹⁶ *Ibid*.

fatal injuries increased.¹⁰¹⁷ As for the automobile insurance, the incentive effect of liability insurance on accidents may be indirectly proved by the increase of fatalities in no-fault liability system i.e., where third party liability is either completely or partially eliminated.¹⁰¹⁸ This may, however, simply be due to the absence of liability rather than liability insurance. Yet high liability insurance premium for more accident-prone drivers especially for young male drivers contributes to the reduction in the number of accidents at least by delaying their driving activity.¹⁰¹⁹

Conclusion

Liability laws may fail to produce optimal care for various reasons including courts' lack of information on optimal care. While liability insurance may cause moral hazard and may reduce the incentives effect of liability law, insurers' superior information on optimal care combined with their ability to produce stronger financial incentives through rate variance and coverage restrictions will actually bring the insureds' care level closer to optimal care. The fact that liability insurance can produce better solicitude than does the liability law alone may have significance in the very future of liability law in certain areas. With the widespread first party insurance the role of liability law as a source of compensation is decreasing in significance. The justification of liability law mainly hinges on its effect in creating incentives in the minds of potentially liable parties to exercise care. Even if this benefit of liability law may not

¹⁰¹⁷ See Stephens, "The Consequences of Expansionary Workers' Compensation Policy," *supra* note 987 at 24.

¹⁰¹⁸ See A. Cohen and R. Dehejia, "The Effect of Automobile Insurance and Accident Liability Laws on Traffic Fatalities", (2004) 47 J. Law & Econ. 357; Landes, "Insurance Liability and Accidents: A Theoretical and Empirical Investigation of the Effect of No-Fault Accidents," *supra* note 494.

¹⁰¹⁹ See Posner, *Economic Analysis of Law*, *supra* note 23 at 201-202.

sometimes clearly outweigh the administrative costs associated with the maintaining of the liability system,¹⁰²⁰ the creation of additional incentives through liability insurance may tip the balance in favour of liability law. Without liability law, there would be no liability insurance; and without liability insurance, the possible additional incentives from it would be lost. This seems to be the case in the no-fault liability system.¹⁰²¹

¹⁰²⁰ This is the main argument against the automobile accident liability law and in favour of no-fault liability system. Landes, "Insurance Liability and Accidents: A Theoretical and Empirical Investigation of the Effect of No-Fault Accidents," *supra* note 494 at 270; Posner, *Economic Analysis of Law*, *supra* note 23 at 201-202; Shavell, *Foundations of Economic Analysis*, *supra* note 19 at 281-82.

¹⁰²¹ The absence of liability in such no-fault accident regime has been partially attributed to the increase of automobile accidents. See Cohen and Dehejia, "The Effect of Automobile Insurance and Accident Liability Laws on Traffic Fatalities", *supra* note 1018; Landes, "Insurance Liability and Accidents: A Theoretical and Empirical Investigation of the Effect of No-Fault Accidents," *ibid*; also see Posner, *Economic Analysis of Law*, *ibid* at 203-204.

CONCLUSION

There has always been and continues to be a very strong connection between marine insurance and maritime liability laws. While the absence of marine insurance in the past led to some special maritime liability rules, today the presence of wide-spread marine insurance brings with it some new policy implications for maritime liability laws. One such policy implication seems to be the gradual adoption of compulsory insurance in various marine environmental liability laws. As discussed in various parts of the thesis, the availability of insurance and especially the requirement of compulsory insurance have contributed to better safety and precaution. With the use of various insurance mechanisms insurers are able to keep their insureds motivated towards optimal care and consequently to reduce social losses caused by the negligence of the insureds. This is best evidenced by the dramatic reduction of oil pollution incidents.

The presence of widespread insurance market not only facilitates the adoption of compulsory insurance but also justifies the abolition of those maritime principles which were adopted as proxies for insurance in the pre-marine insurance era. Two such principles examined at length in the thesis were the limitation of liability and general average. Ideally, these principles should be abolished as recommended in the thesis. However, given the conservative nature of international law-making, it is unlikely that these principles would be abolished from maritime laws in the near future. In fact, the new cargo liability law regime currently under negotiation in the UNCITRAL so far has not made any changes in these two principles.

As for the limitation of liability, the alternative to its abolition would be to increase the liability limit to a very high level so that most liability claims fall within the limit. To a large extent, this has been done in the cases of oil pollution, HNS pollution and passengers' claims liability regimes. Although the liability limit was also increased in the LLMC 1976 in 1996, the increase was very minimal when adjusted for the monetary inflation since 1976, the year when the original LLMC was adopted. If the principle of limitation of liability cannot be abolished at the present moment, at least the liability limit both in the LLMC 1976 and the Draft Convention for cargo liability should be increased by many folds. As mentioned earlier, marine liability insurance market has the capacity to provide coverage in the case of such increase as the International Group of P&I clubs can jointly offer US\$5.4 billion coverage per maritime liability incident.

With regard to the general average, again the conservatism among maritime States may make it difficult to abolish this principle right away. However, the 2004 YAR made great progress in reducing the number of general average claims by abolishing salvage and some of the port-of-refuge expenses from general average. In addition, the increasing use of 'absorption clauses' in hull insurance policies is also reducing the total number of claims by making it unnecessary for shipowners to claim general average contribution from cargo owners in those cases where the total losses or expenditures fall within the limits of absorption clauses. Again, the thesis recommends the abolition of general average principle. If this cannot be done in the immediate future, at least the 2004 YAR should be incorporated into the contracts of affreightment to a greater extent. So far shipowners and their insurers have been reluctant to do so. An international

convention to abolish or to limit the scope of general average may lead to better compliance with the law than does the YAR, the compliance of which is only voluntary.

Finally, the practice of insurance has direct or indirect influence in the design of maritime liability laws. If everyone involved in and affected by shipping activities can easily insure their respective liabilities and losses, compensation should not be a goal of maritime liability laws. In such case, the sole goal of liability laws should be deterrence. Deterrence suggests the imposition of liability only when there is any fault on the part of liable parties in causing the losses. Cargo liability laws are fault-based liability laws; this is in agreement with the insurance practice in the cargo liability setting as both the shipowners and cargo owners are invariably insured against their respective liabilities and losses. On the other hand, people suffering losses due oil pollution from ships are not usually insured against such losses. As a result, compensation is still an important factor in the design of oil pollution liability regime. While the fault-based liability law can also secure compensation for the oil pollution victims, strict liability provides better guarantee in compensating the victims. This explains at least partially the justification for strict liability in the oil pollution liability regime. Despite the difference in the need for compensation, deterrence remains as the primary goal of liability law both in the cargo and the oil pollution liability regimes. In fact, deterrence should be the primary goal of any liability law especially when people can easily protect themselves against their potential losses and liabilities by insurance.

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