Economic Analysis of the Allocation of Liability for Cargo Damage: The Case for the Carrier, or Is It?

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I. INTRODUCTION

The Hague Rules,[1] together with several amendments,[2] govern the allocation of risk for damage to cargo which common carriers transport in international ocean commerce pursuant to bills of lading.[3] Throughout history, governing maritime law has generally disfavored common carriers based on the belief that, absent legislation, these carriers would use their superior bargaining power and tight unity to reduce or escape liability. At early maritime law,[4] carriers were strictly liable for losses with a few narrow exceptions.[5] Although strict liability no longer applies to the carriers, they are still quite limited in the type and amount of liability which the carriers may disclaim.[6]

It can be argued that this abridgement of freedom of contract serves to prevent carriers from overreaching.[7] Section 3(8) of COGSA provides:

> Any clause, covenant, or agreement in a contract of carriage relieving the carrier or ship from liability for loss or damage to or in connection with the goods, arising from negligence, fault, or failure in the duties and obligations provided in this section, or lessening such liability otherwise than as provided in this Act, shall be null and void and of no effect.[8]

Section 4(5) provides that, absent contrary agreement, a carrier's liability shall not exceed $500 per package, but in no case should the maximum liability per package be less than $500.[9]

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1. The Hague Rules are codified in the United States as the Carriage of Goods by Sea Act ("COGSA") at 46 U.S.C. §§ 1300-15 (1994).

2. Some jurisdictions, but not the U.S., have enacted the Visby Amendments to COGSA. Others have opted for the Hamburg Rules instead of COGSA.

3. *See* Michael F. Sturley, *The History of COGSA and the Hague Rules*, 22 J. MAR. L. & COM. 1, 4 (1991).

4. Prior to the late nineteenth century.

5. *See* Sturley, *supra* note 3, at 4.

6. *See* 46 U.S.C. § 1303(8) (1994); *infra* text accompanying note 8.

7. *See infra* note 130.

8. 46 U.S.C. § 1303(8).

9. 46 U.S.C. § 1304(5) (1994). Section 4(5) states:

> Neither the carrier nor the ship shall in any event become liable for any loss or damage to or in connection with the transportation of goods in any amount exceeding $500 per package lawful money of the United States, or in the case of goods not shipped in packages, per customary freight unit, or the equivalent unit of that sum in other currency, unless the nature and value of such goods have been declared by the shipper before shipment and inserted in the bill of lading. This declaration, if embodied in the bill of lading, shall be prima facie evidence, but shall not be conclusive on the carrier.
>
> By agreement between the carrier, master, or agent of the carrier and the shipper another maximum amount than that mentioned in this paragraph may be fixed; provided, that such maximum shall not be less than the figure above named. In no event shall the carrier be liable for more than the amount of damage actually sustained.
>
> Neither the carrier nor the ship shall be responsible in any event for loss or dam-

This article examines whether mandatory allocation of liability efficiently regulates cargo damage in international ocean commerce, and explores where liability should be allocated to achieve efficient results.[10] Part II discusses whether carriers enjoyed and/or continue to enjoy superior bargaining power as compared to shippers. Part III argues that limiting the freedom to contract and allocate liability does not efficiently regulate maritime commerce, as such a limitation impedes the natural progress of market efficiency. Finally, part IV analyzes how initial allocation of liability can affect the costs of the system and studies some principles for analyzing how liability should be allocated to achieve increased efficiency.

II. Superior bargaining Power of Carriers

During international conferences and legislative debates concerning the allocation of liability, the belief pervaded that carriers possessed superior bargaining power and could dictate the terms of the bill of lading to shippers.[11] Consequently, the legislation and proposals from interna-

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age to or in connection with the transportation of the goods if the nature or value thereof has been knowingly and fraudulently misstated by the shipper in the bill of lading.

Id.

10. Lord Diplock's argument supporting non-disclaimable liability for the carrier is typical:

> If, under the terms of the standard contract of carriage, the carrier 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. The terms of the standard contract of carriage should therefore impose upon the carrier a liability for loss or damage to the goods sufficient to provide him with a commercial inducement to undertake precautions, the cost of which would be economically justified by the reduction of the risk of loss or damage to the goods.

Lord Diplock, *Conventions and Morals – Limitation Clauses in International Maritime Conventions*, 1 J. Mar. L. & Com. 525, 527 (1970).

11. *See* Int'l. L. Ass'n. , 30th Conf. 29 (Hague Conf. 1921) [hereinafter Hague Conf.] (statement of Sir Henry E. Duke, Chairman), *reprinted in* The Legislative History Of The Carriage Of Goods By Sea Act And The *Travaux Preparatories* Of The Hague Rules 135 (M. Sturley ed., 1990) [hereinafter Legislative History].

> But when you have to deal with the conference Liners, they, of course, quite in a business way, all combine to have certain bills of lading worded in a certain way, so that they may work in conference, and they cannot get out of it, and, with such clauses in the bills of lading as there are now, no cargo owner can make any bargain with the shipowner.

Id.

> The trend of events . . . has been for the shipping organizations to group themselves together in large powerful organizations controlled by syndicates . . . the result being that the shipper, if he desires to ship, is bound to accept the terms of the contract which is offered to him . . . I think the . . . contract has been very aptly described as being a contract of irresponsibility.

Id. at 32 (statement of Mr. J.P. Rudolf).

tional committees often favored shippers.[12] Without mandatory liability, theoretically, carriers would have little incentive to take the necessary precautions to prevent loss and damage to cargo.[13]

The history of COGSA and its predecessors provide evidence that carriers did once use bills of lading that severely limited or disclaimed their liability for loss.[14] However, this fact fails to prove that carriers did

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> [P]ractically whenever a case has been decided against the shipowners on foot of a bill of lading for carriage of goods by sea – they always have the best lawyers in attendance at the Courts watching those cases – they have introduced an exception into the bill of lading to get rid of that case.

Id. at 52-53 (statement of Mr. W.W. Paine); GRANT GILMORE & CHARLES L. BLACK, THE LAW OF ADMIRALTY 145 (2d ed. 1975) (stating that "Cogsa allows freedom of contracting out of its terms, but only in the direction of *increasing* the shipowner's liabilities, and never in the direction of diminishing them. This apparent one-sidedness is a commonsense recognition of the inequality in bargaining power which both Harter and Cogsa were designed to redress . . . ."); SAUL SORKIN, GOODS IN TRANSIT § 13.16[1][c] (1989) (stating that "§3(8) was intended to prevent carriers from using their superior bargaining power to compel shippers to agree to provisions reducing their liability to insignificant amounts."); John D. Kimball, *Shipowner's Liability and the Proposed Revision of the Hague Rules*, 7 J. MAR. L. & COM. 217, 219 (1975). This belief was also recognized by the judiciary. *See also* United States v. Farr Sugar Corp., 191 F.2d 370, 374 (2nd Cir. 1951) (stating that "[t]his lack of equality in bargaining power has long been recognized in our law; and stipulations for unreasonable exemption of the carrier has not been allowed to stand.").

12. *See, e.g.*, 46 U.S.C. app § 1303(8) (1994); 46 U.S.C. app §§ 190-91 (1994).

13. *See* Hague Conf., *supra* note 11, at xliii (report of the Maritime Law Committee on Bills of Lading (1921)), *reprinted in* LEGISLATIVE HISTORY, *supra* note 11, at 98 (stating that the members of the committee believed that the objects of the committee of "increased diligence and vigilance" could be secured by "a standard compulsory maximum of liability per package, with liberty to cargo owners to stipulate for larger security if they so desired . . . ."); Diplock, *supra* note 10, at 527:

> The terms of the standard contract of carriage should therefore impose upon the carrier a liability for loss or damage to the goods sufficient to provide him with a commercial inducement to undertake precautions, the cost of which would be economically justified by the reduction of the risk of loss or damage to the goods.

Id.; *see infra* note 130. It was believed that carriers needed this incentive to protect against cargo loss, but that it was not necessary to impose liability for failure to exercise care to use a seaworthy vessel because the safety of the crew and vessel provided adequate incentive. *See also* GILMORE & BLACK, *supra* note 11, at 143.

14. *See* Liverpool & G.W. Steam Co. v. Phenix Ins. Co., 129 U.S. 397, 402 (1889) (reprinting a bill of lading in which the carrier was excluded from liability for negligence); Encyclopedia Britannica, Inc. v. SS Hong Kong Producer, 422 F.2d 7, 12 (2d Cir. 1969) (stating that COGSA section 3(8) was an effort to stop the "persistent efforts by carriers, who are the drafters of ocean bills of lading, to limit or eliminate their own duties and responsibilities . . . ."; ALAN E. BRANCH, ELEMENTS OF SHIPPING 253 (6th ed. 1989) (stating that "it had been the practice of shipowners to include as many exception clauses as they wished in a bill of lading . . . ."); GILMORE & BLACK, *supra* note 11, at 121 (stating that "[b]ills came to include stipulations that the carrier was not liable even for the result of his own negligence or that of his ship's people."); HENRY N. LONGLE, COMMON CARRIAGE OF CARGO § 1.04, at 3 (1967) (stating that "[w]henever a carrier was held liable for some particular type of damage, modification of bills of lading promptly appeared setting out an exemption of liability for the type of damage for which the carrier had just been held liable."); Samuel Robert Mandelbaum, *Creating Uniform Worldwide Liability Standards For Sea Carriage of Goods Under the Hague, Cogsa, Visby and Hamburg Conventions*, 23

enjoy and/or currently enjoy superior bargaining power. First, contrary evidence exists as to the strength of the carrier's bargaining power.[15] Second, the mere existence of limitations on liability does not necessarily prove that the carriers possessed superior bargaining power.[16] Finally, assuming carriers did at one time enjoy superior bargaining power, they have not likely continued to hold such power, and may no longer have it at all.[17]

A. Contrary Evidence

Because bills of lading have, historically, contained many exemptions from liability in favor of carriers, the belief has formed that carriers have a superior bargaining power over shippers.[18] However, contrary evidence reveals that carriers have not, in fact, possessed such bargaining position. Bargaining power is determined, in part, by the supply level of available carrying capacity relative to the demand.[19] Consequently, if tonnage is over-supplied, fierce competition will result among the carriers, and shippers will enjoy greater bargaining power. If scarce tonnage exists, however, cargo owners will face greater competition, allowing carriers to increase freight rates or reduce their liability exposure.

Gradually, large fluctuations have existed between over-supply and under-supply of capacity. However, several factors have contributed to a continuing tendency to create a surplus of carrying capacity, thereby increasing competition among carriers and thus decreasing carriers' relative bargaining advantage. First, surplus carrying capacity tends to arise simply as a result of the economics of the common carriage industry. Specifically, it takes years for a new ship to complete construction.[20] When an under-supply of capacity exists, carriers and new ventures build new ships. However, because construction takes time, the under-supply will continue for years, which spurs others to undertake construction. Eventually, new ships will flood the market and increase the supply. However, if the carriers do not act in unison, there is a tendency to build an overabundance of ships. Moreover, technological improvements lead to over-

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Transp. L. J. 471, 474 (1996) (stating that "carriers began to use exculpatory clauses in the bill of lading by the late 19th century."); Bryan F. Williams, Jr., *Cargo Damage at Sea: The Ship's Liability*, 27 Tex L. Rev. 525, 525 (1949) (stating that "it became common practice to place in bills of lading clauses excusing the carrier from liability for losses of a certain kind or nature, or ones which were the results of stated causes.").

15. *See infra* Part II(A).

16. *See infra* notes 18-36 and accompanying text.

17. *See infra* notes 18-36 and accompanying text.

18. *See supra* notes 49-68. The causal relation between such exemptions and superior bargaining power is challenged *infra* Part II(B).

19. *See infra* note 61.

20. *See infra* note 53 and accompanying text.

supply. Technology has increased greatly the speed with which a voyage may be completed. In addition, new technology induces shipbuilding. Thus, a carrier will enjoy a strong advantage if it can construct a ship that will operate substantially more efficiently than current ships.[21]

However, older ships do not immediately become obsolete. Carriers make large investments in ships which are recovered over a long period.[22] These constitute "sunk costs." "Variable costs" make up a small portion of the costs of ocean transportation.[23] Carriers will continue to operate the vessel as long as marginal revenue exceeds marginal cost.[24] Because the marginal costs are small, ships with less technology will continue to operate even though they are less efficient than newer ships.[25]

Alan E. Branch described some of the modern progress in technology as of 1989:

> During the past decade the trend has been towards faster vessels of increased size with improved machinery and cargo-handling equipment . . . However, as we progress through the 1990s more attention in ship design will be given to producing a versatile vessel with optimum capacity and speed – the latter having regard to increased fuel cost . . . .Cargo liners have increased in speed from about 15 to 22 knots, mainly because of market forces and the desire to reduce the number of vessels in a fleet by introducing faster ships . . . Extensive use is now made of computers to facilitate the optimum specification in a given set of circumstances . . . [I]mproved techniques of cargo handling have been introduced, with the object of reducing

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21. *See* BRANCH, *supra* note 14, at 39 (stating that "[n]ew tonnage presents the opportunity to modernize terminal arrangements particularly cargo transhipment, cargo collection and distribution arrangements and reduce ship port turn-around time to a minimum. This all aids in making the fleet more productive.").

22. *See infra* note 49.

23. *See* ESRA BENNATHAN & A.A. WALTERS, THE ECONOMICS OF OCEAN FREIGHT RATES 43 (1969).

24. *See* CAMPBELL R. MCCONNEL, ECONOMICS 519 (6th ed. 1975) (stating that "the firm should compare the marginal revenue and the marginal cost of each successive unit of output. Any unit whose marginal revenue exceeds its marginal cost should obviously be produced.").

25. This argument is often cited in defense of shipping conferences. *See* BENNATHAN & WALTERS, *supra* note 23, at 43, stating that:

> [s]ome observers have argued that the low variable costs give rise to indeterminacy in the market for freight because under conditions of free entry and competition, each operator would be induced to cut rates down to variable costs. No firm would then be able to cover its total costs, because variable cost is much below average cost. This expectation of "ruinous competition" lies behind many of the arguments for condoning cartels and market-sharing agreements.

See also Elkan Turk, Jr. & Russel T. Weil, *Economic Regulation of Ocean Carriers, The Shipping Act of 1984, in* 1C BENEDICT ON ADMIRALTY § 5(7th ed. 1995) [hereinafter BENEDICT ON ADMIRALTY]. "The inherent tendency of ocean commerce carriage to produce this kind of destructive rate competition in the absence of agreements among competing lines was noted by the Alexander Committee in its report and was the principal reason for its recommendation that such agreements be legalized subject to government supervision." (footnote omitted). *Id.*

turn-around time in port to a minimum.[26]

Second, the demand for common carriage derives from the underlying demand for the cargo, which can vary greatly over time.[27] For example, the effective merchant marine tonnage more than tripled in world markets between 1890 and 1910.[28] Moreover, during World War I, shipping rates escalated for allies and neutral merchant marines, squeezing U.S. shippers.[29]

> A surge of merchant shipping construction followed after the War. The Americans continued two more years of heavy building. The British rebuilt tonnage lost during the war. The Germans soon began Rebuilding new tonnage to replace their reparation losses. And the Japanese continued to expand their merchant marine. By the early 1920's, a sizable surplus in world tonnage was evident – with distress for many ship operators . . . . In the Great Depression . . . the merchant shipping surplus was aggravated. World trade flows declined. Many shipowners were distressed . . . [and] a lot of ships were laid up and/or carried less cargo.[30]

The situation was described by Charles Haight to the Committee on Merchant Marine and Fisheries:

> The International Chamber [of Commerce] had seen for years the pendulum swing from one extreme to another. During the war, a man who wanted to ship goods would pay $100 per ton and would take a bill of lading in any form that ingenuity could devise. After the war the situation was precisely reversed; the steamship owner could not get any cargo to carry at all at any price, speaking broadly. Under those conditions, the shipper could dictate any form bill of lading. A steamship company would have signed a bill of lading drawn in the form of a paragraph from the Declaration of Independence, or Alice in Wonderland, if only the shipper would give him a profitable freight rate.[31]

Sir Norman Hill described the then current situation in the Hague Conference in 1921:

> [T]he position at the moment . . . [is] the all-powerful shipowners are at their wits end to secure freights to cover their working expenses. Voyage after voyage is being made at a dead loss. Vessels by the hundreds are lying idle in port. At the moment any cargo owner could secure any conditions of

26. BRANCH, *supra* note 17, at 26-28; BERNHARD ABRAHAMSSON, INTERNATIONAL OCEAN SHIPPING 27 (1980).

27. *See* AMOS HERMAN, SHIPPING CONFERENCES 30 (1983).

28. *See* William A. Lovett, *Maritime Rivalries and the World Market, in* UNITED STATES SHIPPING POLICIES AND THE WORLD MARKET 10 (William A. Lovett ed., 1996).

29. *See id.* at 12.

30. *See id.* at 12-13.

31. H.R. REP. NO. 2218, at 7 (1936), *reprinted in* LEGISLATIVE HISTORY, *supra* note 10, at 541-42.

> carriage he required provided he would only offer a freight that would square the yards.
> But it will be said that the present position is exceptional. I agree, but I have followed the fortunes of shipping for a good many years, and I say that on the average, for at least seven out of every ten years, the cargo interests command the freight market and dictate their own terms. The shipowner's chance comes, on the average, in about two of every ten years . . . .[32]

Another serious over-supply occurred after the OPEC oil crisis. The crisis provoked construction by many countries, oil companies, and shipowners. A round of over-tonnage soon followed, providing tougher price competition to many shipping markets.[33] Even as late as 1994, evidence shows that a tonnage surplus existed.[34]

Third, surplus tonnage exists because many countries subsidize the carrier industry to further national protection. A fleet of ships is crucially important to national security in times of war or other crises. Many countries subsidize shipowners to ensure the availability of a national fleet in case a national crisis should erupt. As a result, the natural equilibrium of the market shifts in favor of oversupply. Because the ships must operate profitably in peacetime as well, a greater competition among carriers exists than if no subsidies had been granted. During the 1920s, Americans, Japanese, Germans, French and Italians engaged in subsidies.[35] Today, many countries still maintain and subsidize a merchant marine.[36]

B. Theory of Efficiency

Although carriers often disclaimed liability in bills of lading, this does not necessarily mean that carriers enjoyed superior bargaining power. Carriers may have been able to reduce or eliminate their liability because it resulted from market forces, rather than because they may have been all-powerful and could have dictated the terms of the bill of lading. When carriers and shippers negotiate a bill of lading, they negotiate two things. First, they determine what duties will be performed through such terms as the nature and amount of insurance, the identity of

32. Hague Conf., *supra* note 11, at 38 (statement of Sir Norman Hill), *reprinted in* Legislative History, *supra* note 10, at 144.

33. *See* Lovett, *supra* note 28, at 32.

34. Joseph C. Sweeney, *UNICTRAL and the Hamburg Rules – The Risk Allocation Problem in Maritime Transport of Goods*, 22 J. Mar. L. & Com. 511, 511 (1991) (stating that "the ocean industry . . . continues to be in trouble because of too many ships and not enough cargoes."); Rahita Elias, *Reversal of Fortunes for Liner Industry*, Bus. Times, May 5, 1994 at 18.

35. *See* Lovett, *supra* note 28, at 31.

36. *Id.* at 34; Mandelbaum, *supra* note 14, at 499 (stating that "[a] basic goal of the [U.S.] Shipping Act of 1984 is to preserve and encourage the development of an economically sound and efficient United States-flag liner fleet capable of meeting national security needs."); N. Sashikumar, *World Shipping Competition, in* United States Shipping Policies and the World Market, *supra* note 28, at 68-69.

the insurer, the method of transportation and length of voyage, the nature and extent of precautions taken, etc. The parties also negotiate who will perform these duties or bear the expenses of them as between the shipper and the carrier. In determining which duties will be performed, the parties engage in a cost-benefit analysis. If the benefit of a certain precaution outweighs its cost, then the parties will included it in the bill of lading.

The second part of the negotiation involves allocating responsibilities to the party which can handle them most effectively. The lower the cost of performance, the higher the profit that can be split between the carrier and shipper. If the market works efficiently and the parties bear no transaction costs, then the parties will always arrive at the same economic result regardless of where default responsibility lies, as long as the parties are allowed to transfer responsibility freely.[37] The result will be that the most efficient party will perform the duties and the difference will be made up in the price of the freight.

One theory maintains that carriers disclaimed liability for loss because it constituted the most efficient scenario.[38] As discussed below, shippers may possibly procure insurance or address the risk of loss more efficiently than carriers.[39] The cost of obtaining and evaluating information constitutes a major cost of insuring a risk. The more information available concerning the cargo (i.e. its value, its nature and durability, whether the cargo is perishable, etc.), the more accurately the insurer can evaluate the risk of loss and the cheaper rates it can provide. The shipper enjoys a distinct advantage over the carrier here because it already has substantial knowledge of the characteristics of the cargo. If the carrier must insure the cargo, it must then exert time and effort to obtain information already known to the shipper.[40] The fact that carriers did not rush into disclaiming liability when the British courts first allowed them to do so supports this theory.[41] England first approved "negligence clauses" around 1866.[42] Nevertheless, the inclusion of exoneration

37. *See generally*, R.H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960) (discussing the harmful effects on business by others).

38. *See* Hague Conf., *supra* note 11, at 34-46 (statement of Sir Norman Hill), *reprinted in* LEGISLATIVE HISTORY, *supra* note 11, at 140-52.

39. *See infra* notes 116-123 and accompanying text.

40. Commentators have also argued that the shipper can more cheaply deal with the risk of loss because cargo insurance is more efficient that P & I insurance. *See infra* notes 156-58 and accompanying text.

41. *See* Hague Conf., *supra* note 11, at 39 (statement of Sir Norman Hill), *reprinted in* LEGISLATIVE HISTORY, *supra* note 11, at 145 ("But after that decision the shipowner was not content to free himself from liability for negligent navigation.").

42. The decision of the Court of Common Pleas in Grill v. General Iron Screw Collier Co., 1 L.R.-C.P. 60, 611-12 (1866), *aff'd* 3 L.R. – C.P. 476 (Ex. Ch. 1868) surprised the commercial world by upholding an exoneration clause based on negligent navigation of the ship. *See also*

clauses increased gradually with the complexity of the trade.[43]

As the shipping industry expanded and technology advanced, cargoes grew larger and more varied.[44] It became increasingly important for carriers to turn ships around as cheaply and as quickly as possible. If the carrier continued to insure the cargo, it would need to evaluate the risks of insuring the goods and use this information to build charges into the freight rate.[45] On the other hand, if carriers could disclaim financial responsibility for loss, they could then charge all shippers a standard lower rate and avoid the costs associated with insurance.[46]

Shippers eventually discovered that they could obtain better and cheaper security from an insurance underwriter than from a carrier.[47] The savings in rates exceeded the expense of insuring the cargo through a cargo insurer. The decrease in both the number of losses and the insurance rates themselves prove the success of this allocation.[48] While exculpatory clauses may signal uneven bargaining power, they may also represent efficient negotiations between parties possessing equal bargaining power. Such clauses may also symbolize the most efficient allocation of resources for the particular transaction.

C. Fluctuating Bargaining Power

An evaluation of the relative bargaining power of carriers and shippers over time requires a cursory review of the economics surrounding ocean transportation. First, fixed costs and high capital help to shape ocean transportation.[49] The cost of building and maintaining a fleet nec-

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Hague Conf., *supra* note 11, at 39 (statement of Sir Norman Hill) *reprinted in* Legislative History, *supra* note 11, at 145; Sturley, *supra* note 3, at 5 & n.23.

43. *See* Hague Conf., *supra* note 11, at 42 (statement of Sir Norman Hill), *reprinted in* Legislative History, *supra* note 11, at 148.

44. *See* Hague Conf., *supra* note 11, at 39-40 (statement of Sir Norman Hill), *reprinted in* Legislative History, *supra* note 11, at 145-46.

45. *See* Hague Conf., *supra* note 11, at 41 (statement of Sir Norman Hill), *reprinted in* Legislative History, *supra* note 11, at 147.

46. *See id.*

47. *See* Hague Conf., *supra* note 11, at 42 (statement of Sir Norman Hill), *reprinted in* Legislative History, *supra* note 11, at 148 ("After years of trial commerce satisfied itself that it can get cheaper and better transport facilities, and greater security, by paying an underwriter, rather than a shipowner, to run the risks of negligent navigation . . . ."). *Id.*

48. *See* Hague Conf., *supra* note 11, at 43 (statement of Sir Norman Hill), *reprinted in* Legislative History, *supra* note 11, at 149:

> [I]n the . . . period of thirty years [before World War I] amongst British Ships the yearly number of total losses fell from 956 to 171, and the yearly number of serious casualties from 1,309 to 728. And in the meantime . . . the total number of voyages had increased enormously. [I]f you examine the insurance premiums you will find during the same period a marked decrease.

Id.

49. *See* Bennathan & Walters, *supra* note 23, at 43; B.M. Deakin & T. Seward, Shipping Conferences – A Study Of Their Origins and Economic Practices 90-92 (1973);

essary for common carriage constitutes a major portion of the cost of a carrier's operations.[50] Such an expenditure hinders entry into the trade of common carriage.[51]

Second, the length of time necessary to construct a suitable ship presents another partial barrier to entry.[52] A contract for ship construction can take twelve to fifteen months provided no backlog of orders exists. If such a backlog persists, it can take up to three years.[53] This delay increases the risk of entering the market as a common carrier, since no shipyard will construct a ship without a firm commitment from the carrier.[54] The possibility of negative market forces adds to this risk.

In addition, the cyclical nature of international trade and the effects of international politics compound this risk.[55] When international trade flourishes, every carrier can secure adequate cargo to yield a sufficient profit.[56] However, good times breed more competition. Existing carriers will expand their operations by increasing the frequency of their services, and new ventures will offer services from chartered ships. If business continues to flourish the existing carriers and new ventures will eventually contract for the construction of new ships.[57] Because of the delay required to construct ships, the market cannot immediately reach an equilibrium of supply and demand.[58] Normally, supply increases to meet

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HERMAN, *supra* note 27, at 29; Turk & Weil, *supra* note 25, *in* BENEDICT ON ADMIRALTY, *supra* note 25, § 5.

50. *See* Turk & Weil, *supra* note 25, *in* BENEDICT ON ADMIRALTY, *supra* note 25, § 5.

51. *See* MCCONNEL, *supra* note 24, at 543:

> Modern technology is such in many industries that efficient, low cost production can be achieved only if producers are extremely large . . . Where economies of scale are very significant . . .[it will be] unlikely that a new and untried enterprise will be able to secure the money capital needed to obtain capital facilities [in order to be competitive] . . . .

Id.

52. *See id.* at 545.

53. *See* Turk & Weil, *supra* note 25, *in* BENEDICT ON ADMIRALTY, *supra* note 25, § 5; BRANCH, *supra* note 18, at 39:

> A significant disadvantage is the time-scale of the new tonnage project which can extend up to 3 years from the time the proposal was first originated in the shipping company until the vessel is accepted by the shipowner from the shipyard following successful completion of the trials. During this period the character and level of traffic forecast could have dramatically adversely changed.

Id.

54. *See* Turk & Weil, *supra* note 25, *in* BENEDICT ON ADMIRALTY, *supra* note 25, § 5.

55. *See id.*

56. *See id.*

57. *See id.*

58. I am referring to long run equilibrium balance which is met when supply is at such a level that suppliers are at exactly the break even point, i.e., their long run average costs equal total revenues. *See* BENNATHAN & WALTERS, *supra* note 23, at 4 (stating that "[i]n a competitive market, freight rates will be driven down to the level of costs."). Included among these costs is the minimum required cost of capital or the opportunity cost; this is the best return the capital

demand and returns the price to the point of equilibrium. However, due to the delay, the supply cannot increase, resulting in rising prices and prospering carriers. The supply increase does not arrive until the new ships are completed. The eventual flood of new ships into the market will increase the carrying capacity which will begin to exceed cargo.[59] If an economic downturn has ensued, the problem worsens, as the excess supply reduces freight prices and carriers' revenues.[60]

Keeping in mind these economic realities, superior bargaining power results from an imbalance in the forces of supply and demand.[61] This imbalance may occur naturally or may result from a market breakdown. A supplier can defeat the efficient market only where its marginal revenue curve lies below its average revenue (demand) curve; in other words, when the supplier acts as a price maker rather than price taker.[62] (A supplier acts as a price maker if it stands as the sole supplier, thereby producing a monopoly. On the other hand, a supplier may act as one of a few suppliers, thereby producing an oligopoly.)[63] Generally, a supplier acts as a price maker if it produces a significant proportion of total output, produces a non-homogeneous product, or engages in collusion with other suppliers.[64]

The existence of a small number of producers of a product or service often occurs when large barriers hinder entry into a particular field.[65] One such barrier is a large capital investment.[66] In the nineteenth and early twentieth centuries, the cost of building a ship capable of transporting goods was so large relative to the ability to raise capital, that potential

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could earn on other investments of similar risk. Just like everything else in the marketplace, investments compete for capital. If ocean transportation cannot provide competitive returns, in the long run capital will leave the trade to enter more productive ventures. "If . . . low rates . . . were expected to persist for a long time, shipowners would be induced to transfer their ships to more profitable trades." *Id.* at 48.

59. *See* 1C BENEDICT ON ADMIRALTY, *supra* note 25, at § 5.

60. *See id.* It is theoretically possible that a reduction in price could actually increase total revenues. This would happen if the lower price induced more cargo to be shipped, and the freight from the additional cargo offset the decrease in the freight of the existing cargo. However, this scenario assumes a very elastic demand for cargo. In fact, cargo levels are relatively price inelastic; i.e., they don't vary widely with price. ("Since the market for a given product in a particular country is normally limited, the almost inevitable upshot of the round of rate reductions will be that about the same total volume of cargo will move in the trade and produce less carrier revenue." *See id.*).

61. Other potential causes of superior bargaining power such as disparity in size or sophistication are ignored here because, generally, both carriers and shippers (and their respective insurance agents) are large and sophisticated.

62. *See* B. CURTIS EATON & DIANE F. EATON, MICROECONOMICS 288-91 (2d ed. 1991).

63. *Id.* at 286, 327.

64. *Id.* at 258-59, 330.

65. *Id.* at 344.

66. *See supra* note 24.

carriers were possibly reluctant to enter the market. By today's standards, the investment required to build a ship is relatively much less. Technology has increased productivity dramatically and, as a result, has reduced the effort required to construct a ship. Additionally, because of the tremendous expansion of the capital markets, it is now much easier to raise the capital needed to finance such a product. Thus, to the extent that barriers to entry created excess bargaining power because of the large investments needed, the bargaining differential should not play as significant of a role today.

Advancements in the ocean transportation industry have also made it less likely that carriers can defeat market forces by collusion. Essentially, countries experience fewer constraints in acquiring new technology. As a result, carriers based in one country can have operations in other countries. Moreover, the location of incorporation plays less of a constraining role in our present global economy.[67] Shippers enjoy greater latitude to shop around for carriers from many different countries. Furthermore, technology has increased the accuracy of determining the causes of a loss. Ascertaining who bears the burden of proof, while still relevant, is less determinative of the outcome today.[68]

III. Economics of Mandatory Liability

A. Basic Principles of an Economic System of International Cargo Damage

Several important aspects of international cargo damage regulation exist. First, numerous jurisdictions may apply. As a result, the parties involved must discover and understand more information so they can make informed bargains. Because the allocation of liability for cargo damage influences the freight charged, the parties must understand to whom various countries allocate liability in order to calculate a mutually acceptable freight charge. Even if the countries involved possess uniform laws, interpretations of identical language can vary significantly.[69]

In addition to this inefficiency concern, the application of multiple

67. Almost seventy percent of the dead weight tonnage carried by the fleet with a U.S. controlling interest in 1993 was carried under a foreign flag. *See* Lovett, *supra* note 28, at 18. Of this tonnage, the flag country for almost fifty percent was Liberia and for twenty-one percent was the Bahamas. *Id.* at 20.

68. *See* Mandelbaum, *supra* note 14, at 475 ("[The] burden of proof was a very real defensive weapon in the days before effective discovery procedures were developed, and often proved an impossible burden for cargo shippers to bear."). *Id.*

69. *See, e.g.,* J. Hoke Peacock III, *Deviation and the Package Limitation in the Hague Rules and the Carriage of Goods by Sea Act: An Alternative Approach to the Interpretation of International Uniform Acts*, 68 Tex. L. Rev. 977 (1990); Michael F. Sturley, *The Fair Opportunity Requirement Under COGSA Section 4(5): A Case Study in the Misinterpretation of the Carriage of Goods by Sea Act*, 19 L. Mar. L. & Com. 1 (1988).

jurisdictions also leads to increased uncertainty. Because of transaction costs, the parties will ultimately be unable to gather all the information required to make an accurate decision.[70] At times, the parties will make the incorrect decisions,[71] which leads to inefficiency.[72] If the parties possess different beliefs about an uncertainty, a mutually beneficial bargain may be forfeited.[73]

In addition to these two concerns, determinations involving choice of law and forum shopping will consume profitable trade through expensive transaction costs.[74]

A second important aspect of international cargo damage regulation involves the absence of personal injury considerations, which simplifies the economic analysis of cargo damages in three ways. First, difficult issues of calculation can be avoided, such as valuing loss of life. Individuals are generally averse to risk when personal injuries are concerned, so a willingness to accept risk levels cannot be extrapolated to determine the cost of the accident upon occurrence.[75] Even if personal injuries could be converted into money, such a system is not necessarily desirable.[76] Second, when personal injury considerations are removed, the perception of fairness becomes much less relevant.[77] The role fairness plays in systems of accident law remains unclear.[78] However, as discussed below, because

70. Because for some information the cost of obtaining it will exceed its expected yield. *See infra* note 109.

71. By "incorrect decision," I mean a decision that they would not have made had the relevant information been known to them. An incorrect decision leads to harmful consequences that would have been avoided had there been no uncertainty.

72. For example, suppose a shipper wants to ship goods from Country A to either City X or City Y. The carrier quotes lower freight rates for shipment to X then to Y because the liability laws of X are more pro-carrier. Unless the shipper can ascertain the laws of X and Y, it cannot determine the most efficient course of conduct. In other words, the shipper cannot determine which it values more, the favorable laws of country Y or the favorable rates of country X. Since, presumably, the carrier is indifferent, each incorrect choice reduces the utility of the system as a whole.

73. For example, suppose a carrier believes that Country A is pro-shipper and, thus, demands a heavy freight. Meanwhile, the shipper believes A to be pro-carrier and requires a small freight. No bargain will be made even though the possibility for a mutually beneficial bargain exists.

74. Although the adjective "expensive" is appropriate to describe unnecessary transaction costs in the field of ocean commerce, those same costs can be described as salubrious to maritime lawyers.

75. *See* GUIDO CALABRESI, THE COST OF ACCIDENTS 91 (1970). To paraphrase Calabresi's example: An individual may accept $50,000 for one chance in one hundred of dying, but require more than $2,500,000 for a one in two chance of dying.

76. *Id.* at 18

77. *Id.* at 24-26 (stating that the principal goals of an accident system are fairness and reduction of accident costs.)

78. *Compare* WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF TORT LAW 14 (1987) ("This would illustrate a merging of fairness and efficiency . . . .") *with*

cargo liability involves large sophisticated parties (primarily insurance carriers) and because of the absence of personal injuries, morality should not play a role in the system of cargo accident law.[79] Third, a major concern of liability systems which involve personal injury is the minimization of the loss after the accident through proper medical treatment.[80] Cargo damage regimes avoid such complicated questions as how the cost of medical treatment should be paid for and how facilities for medical treatment should be paid for as well as who should operate them. Mitigating cargo damage is much simpler and much less of a concern.[81]

A third important characteristic of cargo liability involves its purely voluntary nature, since no liability attaches upon the objection of either party.[82] The importance of this characteristic becomes clear when considering that voluntary exchanges in the market help to ensure that resources gravitate toward their most valuable uses.[83] Market determination of the value of accident costs will likely be more accurate if reached through a mutual bargain.[84] Coase's theorem suggests that efficiency in resource allocation will be achieved through mutual bargaining between the affected parties.[85] However, since bargaining includes some costs,[86] bargains may be avoided if costs exceed the desired benefits.[87] Where the parties contract voluntarily, these costs decrease dramatically as the agreement merely becomes part of the bill of lading negotiations.[88]

The allocation of liability is also recurring. Entities engaged in shipping carry the vast bulk of goods.[89] These shippers deal with carriers,

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Calabresi, *supra* note 75, at 25-26 ("[J]ustice is a totally different order of goal from accident cost reduction. Indeed, it suggests that it is not a goal but rather a constraint that can impose a veto on systems . . . An economically optimal system of reducing accident costs . . . might be totally or partially unacceptable because it strikes us as unfair . . . .").

79. *See infra* notes 133-142 and accompanying text.

80. *See* CALABRESI, *supra* note 75, at 27.

81. Of course, mitigation of damages still plays a role in minimizing the cost of accidents.

82. When I say that liability is voluntary, I mean that the nature of the system is inherently voluntary in that either side could simply refuse to contract. Liability will be assumed by a party only when it is to both parties' advantage, and they so agree. However, once they agree that liability will be assumed, they are not free to assign this liability without limits. This is the basic flaw in the system.

83. *See* ANTHONY T. KRONMAN & RICHARD A. POSNER, THE ECONOMICS OF CONTRACT LAW 1-2 (1979).

84. *See* CALABRESI, *supra* note 75, at 90-91.

85. *See* R.H. Coase, *The Problem of Social Cost,* 3 J. L. & ECON. 1, 7-8 (1960).

86. *Id.* at 15.

87. *Id.* at 15-16.

88. In contrast, transaction costs are high when the liability is involuntary and there are many parties involved. A classic example is the factory emitting smoke. Transaction costs would be much higher in this situation where it must be determined who should be privy to the agreement an where they must all agree.

89. Even smaller shippers will use freight forwarders that deal regularly with carriers.

often the same carrier, on a daily basis. The shipper and the carrier form a continuing working relationship, as each relies on the other to make a profit. This feature can have significant effects on the behavior of other parties. For example, when considering the costs and benefits of any particular action, the party must include an evaluation of how the decision will affect the relationship with the other party. That relationship represents a future stream of income. This phenomenon is discussed below in the context of carriers' incentives to take appropriate precautions.[90] A carrier may take more precautions than are justified by the liability it is subject to (for example, $500 per package) because the cost of failing to take such precaution may damage future profitability in the form of alienating current shippers.

B. The Basic Model

A system governing the law of ocean transportation performs two functions. First, it influences the costs and benefits available to the system as a whole. Second, it determines, at least initially, who will bear those costs or receive those benefits. For example, the law imposes tariffs, requires customs inspections, regulates trade routes, places embargoes, mandates certain reporting requirements,[91] etc. All of these actions either decrease or increase the profitability of the trade as a whole. Of course, the optimal scheme would impose only those costs on the system that are more offset by benefits elsewhere, and allow receipt of benefits that do not exceed their cost. This article focuses on the second function: the allocation of rights and obligations within the system. In the aggregate, assuming an efficient market, the system will take full advantage of resource allocation, maximizing the overall benefits while minimizing overall costs.[92] The maximized "pie" will be divided among the participants based on mutual negotiation.

In other words, both functions affect the total size of the pie available to the participants of ocean carriage. At first, market forces determine the boundaries of the pie. Factors such as technology, cargo supply and carrier demand, prices of commodities and fuels, competitive pressures from alternative transportation sources (ex. Air freight), and the general state of the economy[93] affect the overall revenues and expenses of the industry. Governments generally do not control these factors.

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90. *See infra* notes 134-142 and accompanying text.

91. *See, e.g.,* the Shipping Act of 1984, 46 U.S.C. §§ 1701-18 (1994).

92. *See* Coase, *supra* note 88; Landes & Posner, *supra* note 78, at 31 ("The [Coase] theorem holds that the efficiency with which resources will be employed is unaffected by the initial assignment of rights, provided transaction costs are zero.").

93. Or more specifically, the perceived state of the economy, and more importantly the perception of the future state of the economy.

Laws which affect the industry in the aggregate also affect the size of the pie by taxing or subsidizing the industry. The customs requirement stands as an example of a tax on the industry that benefits other areas outside the shipping industry.

Finally, the efficiency with which the trade participants perform their duties also affects the size of the pie. In a world of perfect information and no transaction costs, the market would work to allocate the rights and duties to achieve optimal efficiency.[94] However, ill-founded laws can upset this optimal allocation. Consider the following example: A shipper has an opportunity to purchase[95] a load of widgets for $1,000 and to sell those widgets overseas for $2,000. A carrier can transport the goods for $500 absent any concern over cargo damage. External market forces interacting with the laws affecting the aggregate industry determine these prices. Now, assume the general maritime law applies; namely, that strict liability for all loss applies to the carrier.[96] Assume also that the carrier estimates that the cost of cargo liability to it will be $200,[97] so that it must be able to charge at least $700 to enter into a bargain.[98] Now, assume that the shipper is willing to pay $900 under the general maritime law liability regime, or $800 if all the liability is allocated to it. In other words, assumption of the liability will cost the shipper $100. The shipper will require a $100 profit on all shipments if the carrier assumes the liability. Without transaction costs, the parties can easily improve upon the general maritime law regime through mutual agreement. Under the general maritime law rules, the carrier and shipper will agree on a price between $700 and $900. The shipper will pay no more than $900, and the carrier will accept no less than $700. Negotiations determine the eventual price.

Assume now that the final freight charge is $800. The carrier receives an average[99] benefit of $100,[100] and the shipper receives a benefit

94. *See supra* note 85.

95. Or, to produce, for that matter.

96. In reality, the general maritime law exempted the carrier from liability under four circumstances: Act of God or of the public enemy, inherent vice of the goods or fault of the shipper. Gilmore & Black, *supra* note 11, at 119. To simplify, I will assume that the carrier is liable without exception.

97. Or, more realistically, the cost to the carrier of the call on the P & I insurance to cover this shipment is $200.

98. As noted above, in the short run, only a small portion of the carrier's costs are variable, so it may be in the best interests of the carrier to accept a freight of less that $700 and operate at a loss. However, in the long run, all costs are variable because a carrier can cease operations and invest its capital elsewhere. *See* McCONNEL, *supra* note 24, at 519. "In the long run all resource adjustments can be negotiated by an industry and the individual firms which it comprises . . . [a]ll resources and therefore costs are variable in the long run."). Therefore, in the long run, the carrier would not charge less than $700.

99. Note that the relevant figure is the average benefit, or more precisely the anticipated

of $200.[101] The total benefit then is $300. If the parties are allowed the freedom to contract, they will allocate the liability to the shipper. In that case, the shipper would pay no more than $800, while the carrier would accept no less than $500.

Assume the parties agreed on a freight charge of $650. The carrier would receive $150,[102] and the shipper would receive $250.[103] The total benefit to the parties is $400, and both parties are better off. The latter scenario is more efficient.[104] Conversely, a law which forces mandatory liability on the carrier would be inefficient.[105] In a perfect market, a mandatory liability law can never help; it can only hurt the efficient allocation of resources. If mandatory liability is allocated to the party who can accept it at the least cost (the "cheapest cost avoider"), then it merely reaches the result that the market would have reached naturally. However, if mandatory liability is not allocated to the cheapest cost avoider, a less efficient system would result (assuming, of course, that the market works efficiently to allocate resources). If the market is prevented from working efficiently, resources may be allocated in an inefficient manner.[106] Part IV discusses challenges to the effectiveness of market allocation.

C. A More Realistic Model

The market, in the absence of transaction costs (and other market

average benefit. On most shipments, the carrier anticipates a $500 benefit, but realizes that some shipments will yield no benefit. On average, it anticipates a $200 benefit.

100. $800 freight less $500 transportation costs less $200 average cargo damage costs.

101. $2000 sales price less $1000 purchase price less $800 freight.

102. $650 freight charge less $500 cost of transportation

103. $2000 sales price less $1000 purchase price less $650 freight less $100 cargo damage cost.

104. Economists generally agree that a scenario is more "efficient" than another scenario when it meets the Kaldor-Hicks criterion or is Pareto superior (Pareto preferred). As used in this article, "efficient" refers to the Kaldor Hicks criterion, as it does in many other works. *See, e.g.,* Landes & Posner, *supra* note 78, at 16. A scenario meets the Kaldor-Hicks criterion when compared to the previous scenario if the dollar value of the gains to the winners is greater than the dollar cost of the losses to the losers. *Id.* This is also referred to as a wealth maximizing change. A scenario is Pareto superior if at least some parties are better off and no parties are worse off as compared to the previous scenario. *Id.* at 16-17. Note that a scenario that is Kaldor-Hicks efficient would become Pareto superior if the winners compensated the losers for the amount of their losses. In this example, the post-bargain scenario is both Kaldor-Hicks efficient and Pareto superior.

105. Because this is an economic analysis of cargo liability, it is assumed that efficient allocation of resources is the goal of a system of cargo accident law. This is what Posner terms, "The Positive Economic Theory of Tort Law." *See* Landes & Posner, *supra* note 78, at 1. Fairness should not play a role in the system and has already been discussed. Other goals of liability systems have had favor, especially in the past. *See* Landes & Posner, *supra* note 78, at 4-9.

106. Note that if the market failed, for some reason, to efficiently allocate resources, government intervention to override the market and reallocate the resources to their most efficient use could be desirable.

failures), will allocate liability most efficiently if the market operates freely. However, the market operates less effectively and may not efficiently allocate resources when transaction costs are involved.[107] The liability system thus plays an important role in efficient resource allocation, namely, allocating risks efficiently initially so as to minimize the transactions that must be entered into.[108] In other words, when transaction costs are considered, an optimal liability system allocates accident costs "to those acts or activities (or combinations of them) which could avoid the accident costs most cheaply."[109] By minimizing the overall accident costs, the maximum amount of resources remain to be split between the carrier and the shipper.

Generally, three transaction costs affect the legal liability regime: imperfect level of precaution,[110] dispute resolution,[111] and excessive insurance.[112] The goal of an optimal legal system is to allocate liability to those parties who can most efficiently minimize the liability while incurring as little of these costs as possible.

1. Imperfect Level of Precaution

These costs result from taking too many or too few precautions with regard to a shipment of cargo. Shippers and carriers can take certain precautions to help ensure the safety of a shipment. For example, a shipper takes precautions in packing and sealing the cargo, and a carrier takes precautions in handling cargo and navigating the ship. Unfortunately, precautions cost money. If too few precautions are taken, too much damage may result. If too many precautions are taken, their costs may exceed their benefit. A particular precaution should be taken only if the reduction in probable cargo loss[113] exceeds the cost of precaution.[114]

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107. *See* CALABRESI, *supra* note 75, at 135-38.

108. Or more precisely, to minimize the transaction costs to be incurred in arriving at the optimal outcome.

109. *See* CALABRESI, *supra* note 75, at 135.

110. *See* text accompanying notes 113-143.

111. *See* text accompanying note 144.

112. *See* text accompanying notes 147-150.

113. The probable cargo loss is a factor of the probability of loss occurring multiplied by the amount of the loss. This calculation is complicated by the fact that there is a continuum of loss that could occur ranging from slight to total. Because the occurrence of loss is unknown, the parties must deal only in statistical probabilities.

114. This is the basic "Hand Formula" of B=PL, devised in United Sattes v. Carroll Towing Co., 159 F.2d 169 (2d Cir. 1947). *See* LANDES & POSNER, *supra* note 78, at 85 ("[T]he owner would be negligent if the burden of precautions (B) was less than the probability of harm times the gravity of the injury (PL) . . . ."); LANDES & RICHARD A. POSNER, *supra* note 78, at 85. *See also* Michael F. Sturley, *Changing Liability Rules and marine Insurance: Conflicting Empirical Arguments About Hague, Visby, and Hamburg in a Vacuum of Empirical Evidence*, 24 J. MAR. L. & COM. 119, 129 (1993) ("[T]he law should allocate responsibility in the way that best encour-

More specifically, a precaution should be taken only when its cost is less than the probability of cargo loss times the amount of that cargo loss. The amount of optimal precautions thus depends on the value of the cargo and the probability of the loss (the "Hand Formula").

Two general reasons exist as to why an optimal amount of precautions may not be taken. First, a party may not have the information necessary to calculate the proper level of precaution, and gathering such information may not be cost-effective. Second, the parties may be unable to reallocate responsibility to the party best able to affect the precaution.[115]

Regarding the first reason, inadequate information is most relevant in determining cargo value. The problem usually involves the carrier's lack of knowledge concerning the cargo. Utilizing the Hand Formula, the carrier[116] should take more precautions the greater the value of the cargo. The problem lies in the fact that the carrier does not stand in the best position to determine the value of the cargo. Without this knowledge, the carrier simply cannot make an appropriate calculation of the precautions to be taken. The carrier may obtain some sense of the value of the cargo by its description on the bill of lading, but this may be wholly inadequate. Consider a bill of lading for the shipment of "computer components" or even "computer chips." The value of a container of DRAM chips will vary quite drastically from the value of a container of microprocessors. In addition, the value of a particular cargo depends on what a willing buyer would pay for it. The shipper certainly stands in a better position to know the sales price. Also, the value of the goods may fluctuate over the course of a voyage. The carrier could research the value of the cargo, or require the shipper to provide information. However, research by a carrier is inefficient considering that it would merely duplicate information already known to the shipper. Moreover, the shipper may not wish for the value of the cargo to be known in order to prevent theft. Also, the shipper may not want to disclose the value of the cargo because it may put the shipper at a disadvantage in negotiations over the freight rate. The method of dealing with this problem has been to impose liability on the carrier for a certain defined amount, and to require the shipper to declare any value in excess of this amount.[117] However, this method has proven ineffective. To the extent that the car-

ages the parties to take precautions against damage that are economically justified without forcing the parties to take precautions that will cost more than the damage they prevent."). *Id.*

115. I use the term "reallocate" because if responsibility were allocated to the party best able to take the precaution initially, the precaution would be taken (unless the party did have the relevant information to make the Hand Formula calculation.).

116. And the shipper for that matter.

117. 46 U.S.C. app § 1304(5) (1994).

rier takes precautions proper for the imposed amount of liability, in effect substituting the statutory amount of liability for the value of the cargo, the carrier will miscalculate the optimal level of care. When the cargo value is less than the statutory amount, the carrier will take excess precautions, and when it exceeds the statutory amount, the carrier will fail to take adequate precautions.[118]

The second component of the Hand Formula is the probability of cargo loss. This risk stems from the nature of the goods, actions taken by the parties on the goods,[119] and other factors outside of the control of the parties.[120] The nature of the goods affects the probability of loss. Fragility, perishibility, susceptibility to rust and extreme temperature changes, and combustibility of the goods, all will determine their propensity for loss.[121] Again, the nature of the goods is a matter primarily within the knowledge of the shipper, so the shipper is presumably in the best position to take precautions concerning damage to the goods. Indeed, the law has always placed liability for inherent vice of the goods upon the shipper.[122] However, in this respect, the law attempts to draw a fine line that cannot be drawn. Very few cargo accidents occur solely due to the inherent vice of the goods. Rather, the susceptibility of the goods to damage increases the probability of loss. For example, iron is particularly sensitive to rust damage. Since risk of loss due to rust is increased, one would expect a proportionate increase in the precautions taken to prevent rust. However, when rust occurs, one would certainly not conclude that the capacity to rust is an inherent vice of iron, and allocate liability to the shipper. Without knowledge of the susceptibilities of the cargo to certain types of damage, the carrier is in no position to take the adequate level of precautions. Whether the cost is in the form of an improper level of precautions which the carrier takes, or in the form of energy which the carrier uses to obtain sufficient knowledge concerning the value and nature of the goods, cost nonetheless exists.[123] Whether these costs can be avoided cannot be determined without analyzing the other transaction

118. *See* Sturley, *supra* note 114, at 128-29.

119. The controllable actions include the care taken in packing, loading, and stowing the cargo and the care in manning and navigation of the ship.

120. Examples of such factors include the perils of the sea, acts of governments, sabotage and war. *See* GILMORE & BLACK, *supra* note 11, at 139-42.

121. The nature of the goods an the other factors will also affect losses outside of cargo damage. For example, oil cargo is particularly susceptible to environmental liability. *See, e.g.*, Exxon Valdez v. Exxon Corp., 104 F.3d 1196 (9th Cir. 1997).

122. *See* GILMORE & BLACK, *supra* note 11, at 119. *See, e.g.*, 46 U.S.C. app § 1304(2)(i), (m) (1994) (exempting the carrier from liability resulting from an "[a]ct or omission of the shipper or owner of the goods, his agent or representative" and "[w]astage in bulk or weight or any other loss or damage arising from inherent defect, quality, or vice of the goods.").

123. Namely, an information cost.

costs which plague ocean commerce. Regarding these costs, the shipper stands as the cheapest cost avoider.

Other costs besides information costs are transaction costs.[124] The actions taken in an ocean shipment can broadly be divided into: packing the goods; loading, stowing and caring for the goods; maintaining, manning, equipping, and supplying a vessel; and navigating the ship.[125] The issue surrounding such actions is who can most cheaply undertake the precautions in conjunction with the actions that are proper in light of the probability of cargo loss. Recall that the goal of an optimal system of accident law is to minimize extraneous costs. One of those costs consists of taking too few or too many precautions. A mistake often made is to ask the wrong question.[126] Consider the following popular argument:

> [I]t simply doesn't matter what level of liability is imposed on shipowners – whether it be high or low – so long as there is some level of liability which can be enforced so as to chastise the wayward shipowner and so as to encourage the recalcitrant or slothful shipowner to forsake indolence and to prefer the exercise of diligence.[127]

This argument suffers three fundamental flaws. First, the analysis frames the argument as punishing a party by imposing liability upon them. This frames the argument in terms of morality – the carrier will engage in immoral behavior unless punishment follows such behavior. A major problem with the regulatory scheme of COGSA lies in that that its underpinnings are based on morality rather than economics. The drafters, and the proponents of revision, announce the goal of regulation is to remedy "unfairness,"[128] "oppression,"[129] or "unconscionability."[130] The arguments are framed as though powerful, oppressive carriers intention-

124. Note that although I separate the term "information costs" from "transaction costs," I do so out of convenience. In fact, information costs could be viewed as a form of transaction costs. *See* Sturley, *supra* note 114, at 123 n. 3. When the term transaction costs is used elsewhere in the paper, the costs include information costs.

125. *See, e.g.,* 46 U.S.C. app § 1303-04 (1994).

126. *See* Sturley, *supra* note 114, at 127-28.

127. Diamond, *A Legal Analysis of the Hamburg Rules, in* THE HAMBURG RULES (Lloyd's of LondonSeminar, Sept. 28, 1978), at 4. *See also* Diplock, *supra* note 10, at 527; Mitsui & Co. v. American Export Lines, 636 F.2d 807, 815 (2d Cir. 1981); Saul Sorkin, *Changing Concepts of Liability*, XVII Forum 710, 717 (1982); Hague Conf. (statement of J.P Rudolf), *supra* note 11, at 32, *reprinted in* LEGISLATIVE HISTORY, *supra* note 11, at 138.

128. *See, e.g.,* William Tetley, *Limitation, Non-responsibility and Disclaimer Clauses,* 11 MAR. LAW. 203, 206-07 (1986) ("The Hague Rules . . . were adopted to provided a clear and fair balance of rights and responsibilities between carriers and shippers."); Benjamin W. Yancey, *The Carriage of Goods: Hague, Cogsa, Visby, and Hamburg,* 57 TUL. L. REV. 1238, 1245 (1983); Encyclopaedia Britannica, Inc. v. SS Hong Kong Producer, 422 F.2d 7, 11 (2d Cir. 1969) (stating that "[t]he purposes behind Harter, the Hague Rules and COGSA were to achieve a fair balancing of the interests of the carrier . . . and the . . . shipper . . . .").

129. *See, e.g.,* Yancey, *supra* note 128, at 1239.

130. *See* Hague Conf. (statement of J.P. Rudolf), *supra* 11, at 31-32, *reprinted in* LEGISLA-

ally injure helpless shippers for their own benefit. In reality, virtually every conflict over cargo damage is between large sophisticated cargo insurers and large sophisticated P & I clubs.[131] It is more appropriate to view the carrier and shipper as a team engaged in a venture for profit, namely, the purchase, or manufacture, and sale of goods. The shipper has an opportunity for profit because it can sell goods overseas for a greater price than it can purchase them. Otherwise, the shipper would not be shipping the goods overseas. To the extent that this profit exceeds the cost of transportation, the shipper and carrier both stand to gain. The share of this profit that each will receive depends upon the cost of the freight. To the extent that either party can reduce the cost of transportation, there is more overall profit to share, so each will have an incentive to reduce costs.

The punishment theory also suffers from flaws in that it assumes that the carrier will bear the ultimate cost of the liability. If carriers are to remain in business, they must cover their costs through higher freight charges. The sole question in the usual cargo damage case is who should bear the loss as between an innocent P & I insurer and an innocent cargo insurer. Neither party engaged in any "wrongful" conduct which would justify liability under the notion of "fairness."[132] "Instead of questioning whether risks are equitably apportioned . . . the more relevant inquiry is whether an increased standard of care can be effected without an offsetting increase in costs."[133]

The second flaw in this argument is that it assumes due care is a two-sided coin – that due care has or has not been exercised. The argument proposes that just enough liability be allocated to the carrier to ensure the coin lands on due care. In fact, the level of precaution that may be taken is a continuum.[134] The optimal amount of care is based on the Hand Formula, and is determined by the probability of loss. If the carrier perceives the loss to be little, it will take little precaution. If the carrier perceives that its loss will consist of the statutory amount, it will only take those precautions consistent with such an amount. For example, if the carrier believes that the total loss to will not exceed $500 per package or

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TIVE HISTORY, *supra* note 11 at 137-138 ("[T]here is a very strong feeling . . . that the bills of lading as imposed on shippers today are harsh and unconscionable.").

131. *See infra* notes 143-146 and accompanying text for a general discussion of insurers of cargo liability.

132. Lord Diplock sums up the fallacy of the morality argument quite well: "[I]n the court room, as at the diplomatic conference table, we talk and tend to think as if the contest involved a moral conflict about one human being's duty to his neighbor, instead of an allocation of liability between cargo insurers and protection and indemnity (P and I) insurers of a loss which has occurred through the fault of neither." Diplock, *supra* note 10, at 252.

133. *See* Kimball, *supra* note 11, at 219.

134. *See supra* notes 113-115 and accompanying text.

customary freight unit, it will take precautions adequate for the probability for such a loss.[135]

The final fallacy in this argument is that it assumes that the prospect of liability serves as the only motivation to the carrier to take precautions. In fact, the carrier will have incentive to take some precaution regardless of the level of liability. While it may be true that if only a single voyage is contemplated, the carrier will not have an adequate incentive to take precaution, because in the long term, there are costs associated with shipping that do not take the form of liability for loss, such as loss of business. When a carrier fails to take adequate precautions, excessive losses occur which increase the loss of transportation, thereby decreasing the profitability of shipping goods. Fewer shipments will be made as a result, and fewer profits will be realized on the shipments that are made. Because shippers can realize greater profit if more precautions exist, it may behoove the carrier to take those precautions. The shipper will make more money on the decrease in transportation costs than it paid to the carrier (presumably in the form of a higher rate). Thus, the carrier will make more on the payment than the cost of taking the precaution. The carrier will have an economic incentive to take the precaution.

Cargo insurers also exert pressure. Payment for cargo damages constitutes the major controllable expense of a cargo insurer. Thus, the insurer has an incentive to minimize cargo loss. However, the insurer will not want the carrier to be overly cautious. The shipper, who pays premiums to the insurer, will not want to insure losses that are not cost-efficient, just as it will not want to pay the carrier to avoid such losses. Ironically, the shipper wants these losses to occur because they are less than the cost of prevention. Thus, the insurer has an incentive to pressure carriers into taking the appropriate amount of precaution by giving favorable premium rates to shippers who use such carriers.

This phenomenon did not go unnoticed by the members of the Hague Conference. Sir Norman Hill noted that even though freedom to contract may allow the carrier to free himself of liability:

> It is still essential to has success that he should exercise all possible Care in the carriage of the goods. The shipowner who does not exercise such care cannot hope to prosper in business. He will not be employed by the merchants, and the rates at which he can insure his vessels will be advanced by the underwriters. So far as the liners are concerned . . . the goodwill of their business, which is amongst their most valuable assets, is based entirely upon the care with which their cargoes are carried and the satisfaction they give to the merchants.[136]

135. *See* Sturley, *supra* note 114, at 130.

136. Hague Conf. (statement of Sir Norman Hill), *supra* note 11, at 41, *reprinted in* LEGISLATIVE HISTORY, *supra* note 11 at 147.

However, this argument was practically ignored as notions of fairness and justice pervaded the discussions.[137]

Some empirical evidence supports the view that carriers do not rely solely on the statutory liability limits in deciding what precautions to take. Since COGSA's enactment, liability limits have been set at five hundred dollars per package or customary freight unit. Although the limit has remained the same, in relative terms the limit has decreased with inflation. One would expect the corresponding level of care which carriers take to have decreased proportionately throughout this time, but there is no evidence of dramatic increases in cargo damage.[138]

Carriers have an incentive to take precautions even absent liability. The issue is whether carriers would have the right amount of incentive. In a world without transaction costs, the carrier would have the right incentive.[139] In reality, this may not be the case. The economic incentive a shipper places upon the carrier to take precautions is reduced by numerous transaction costs. The shipper must determine the level of precautions a carrier takes, and in doing so incurs costs. Thus, the shipper must compare the desired level of precautions to the level which the carrier has taken, but the shipper is, again, not in a position to determine what precautions are appropriate for the carrier to take. It must then convince the carrier of the potential for mutual gain. It will be more likely that a shipper will be able to convince a carrier to take certain precautions when the carrier can be assured that it will recover the cost of future shipments, and the carrier will be even more likely to listen to a shipper when a stream of future income is on the line. Similarly, the cargo insurer will use resources in compiling a safety record of carriers which it can use to evaluate the level of precautions taken. There will exist some deficiency in its ability to convince the carrier to use precautions, yet the fact that a carrier fails to take adequate precautions does not mean that the carrier benefits at the expense of the shipper. The consequence of inadequate care will be to reduce the profitability of the trade as a whole, which can have detrimental effects on both the shipper and the carrier.

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137. *See supra* notes 131-132and accompanying text.

138. In fact, evidence suggests that damage has decreased. Admittedly, this evidence is imperfect at best. Technology has reduced the cost of taking precautions, as has the characterization of cargo. *See* Branch, *supra* note 17, at 26-28; ABRAHAMSSON, *supra* note 26, at 27. Also, some jurisdictions have implemented the Visby Amendments or Hamburg Rules which increase the liability limitation. *See* George F, Chandler III, *A Comparison of "COGSA," the Hague/ Visby Rules, and/or the Hamburg Rules*, 15 J. MAR. L. & COM. 233, 289-91 (1984) (detailing the countries that have enacted the Visby Amendments and/or the Hamburg Rules). Finally, courts have found various ways to defeat the limitation. *See, e.g.,* Steven F. Friedell, *The Deviating Ship*, 32 HASTINGS L. J. 1535 (1981); 2A BENEDICT ON ADMIRALTY § 128, at 12-30 (M. Cohen ed. 7th ed. 1988). *See, e.g.,* Peacock, *supra* note 69.

139. *See supra* Part III(A).

In the end, the issue becomes one of transaction costs. In order to minimize transaction costs, liability should be allocated to the party who can most cheaply avoid the loss.[140] However, the party which can most cheaply avoid the loss cannot easily be determined. The carrier stands in the best position to take precautions with regard to loading, stowing and caring for the goods, maintaining a vessel and manning, equipping, and supplying it, and navigating the ship. However, the carrier will not know what level of precaution to take unless it can determine the nature and value of the cargo. To the extent that the carrier must expend effort to determine such facts, it does not avoid the loss cheaply. The shipper has knowledge concerning the nature and value of the cargo, and stands in a position to take precautions in packing, yet it consumes resources to the extend that it must negotiate with the carrier in order for it to take precautions.

The problem worsens when liability is hazy, which results from having a multi-party system.[141] Where many bases of liability exist, confusion over where one stops and others begin will result. Such confusion leads to inaccurate degrees of care. For example, COGSA allocates the liability to the shipper if the damage results from negligent navigation,[142] but allocates liability to the carrier if the damages result from improperly manning, equipping, or supplying the ship. The line between these two is often difficult to draw.[143] Possibly, both the carrier and shipper will presume that the other faces liability, in which case they will take too little care, or presume that each is itself liable and take too much care.

2. *Dispute Resolution*

Dispute resolution transaction costs result from the uncertainty parties face regarding the extent of their respective liabilities when liability is allocated to more than one party. Theoretically, it is possible to draft a statute so that no ambiguity exists regarding which parties are responsible for any given loss. However, this is probably impractical, and the Carriage of Goods by Sea Act certainly does not meet this criterion. Dispute resolution constitutes a major cost of a multiple-party liability system.[144] Anytime a loss occurs and neither party admits liability, the parties must quarrel over who bears ultimate responsibility, which consumes valuable

140. *See* CALABRESI, *supra* note 75, at 135.

141. I use the term "multi-party liability system" to describe a system which allocates liability vertically to more than one party. Vertical allocation of liability is allocation of liability to parties dependent on circumstances surrounding the loss without regard to causation. Horizontal allocation of liability is allocation of liability to parties based on the amount of loss.

142. 46 U.S.C. app. § 1304(2)(a) (1994)

143. *See, e.g.,* Orient Mid-East Lines, Inc. v. A Shipment of Rice, 496 F.2d 1032 (5th Cir. 1974).

144. *See supra* note 141 and accompanying text.

resources. Such quarrels over liability relate to the ambiguity of the law, and the costs associated with such disputes reduce the overall profit available to the parties. Elimination of these costs could come from a strict liability system, which does not necessarily mean that one party would bear all of the liability. The liability could be divided horizontally. For example, the carrier may bear the first one-million dollars of liability and the shipper would bear the rest. An even better result may occur if the carrier supplied a sliding scale of freight rates dependent on the level of liability assumed. The shipper could choose the rate that was most economical combined with the premiums which the cargo insurer may charge.

3. Excessive Insurance Costs

There exist three broad categories of excessive insurance costs which can be referred to as duplicative administrative costs,[145] over-insurance costs,[146] and inefficient insurance costs. The two basic types of insurance covering cargo damage are protection and indemnity insurance (O & I) and cargo insurance. Cargo insurance is a first-party insurance system which independent cargo insurers administer. Generally, all that is required to recover under a claim is proof of damage. P & I insurance is a third-party insurance system administered by P & I clubs of which the carrier is a member. Eighteen members of the International Group of P & I clubs insure approximately 95 percent of the world's fleet.[147] To recover a claim, it must be shown that the insured was liable for the loss.[148]

a. Duplicative Administrative Costs

Duplicative administrative costs occur when more than one insurer incurs costs in maintaining an information system and surveying/settling claims.[149] When a dispute regarding liability arises following a loss, both insurers must investigate the causes of the accident, apply the circumstances to the law to determine probable liability, and take action to settle the claim. This constitutes merely another cost of a multiple-party liability system.

One theory asserts that if the carrier were to bear all or most of the liability, the need for cargo insurance would be eliminated along with the

145. *See infra* notes 149-154 and accompanying text.

146. *See infra* notes 156-158 and accompanying text.

147. *See* Dennis W. Nixon, *Marine Insurance and World Shipping, in* UNITED STATES SHIPPING POLICIES AND THE WORLD MARKET 215, 223 (William A. Lovett 1996).

148. *Id.*

149. *See* Diamond, *The Division of Liability as Between Ship and Cargo (Insofar as it Affects Cargo Insurance) Under the New Rules Proposed by UNCITRAL*, LLOYD'S MAR. & COM. L. Q. 192, 193-94.

associated duplicative administrative costs.[150] However, the desire for cargo insurance will probably not be extinguished even under these extreme circumstances.[151] The shipper will still use cargo insurance because (1) payment is more prompt, (2) the cargo owner can deal with a single insurer on all shipments, (3) cargo insurance provides protection before and after P & I insurance coverage is effective, and (4) cargo insurance protects against insolvency. To be certain, some duplication of administrative expenses would cease if the carrier were subject to strict liability. For example, costs of investigation into the cause of the loss would be reduced. However, some duplicative effort would remain.

Duplicative insurance expenses may well be curtailed if the carrier were absolved of liability, but such a proposal has never received serious support,[152] based on the belief that absent liability, the carrier would have no incentive to take adequate precautions.[153] However, as noted above, this belief may well be unfounded. In addition, as discussed below, it may well be possible to take measures to ensure that the carrier has adequate incentive without allocating liability to it.[154]

b. Over-insurance

Over-insurance occurs when two insurers insure more than one-hundred percent of the risk. This is not necessarily the case when two insurers insure the same loss. For example, suppose P & I insurance and cargo insurance insure the same loss. The P & I Club will be liable for loss seventy-five percent of the time. The cargo insurer estimates that it can recover from the P & I club in seventy-five percent of the losses. No over-insurance will occur because the chance of loss is properly discounted. This estimate of the probability of loss will be built into the amount of premiums paid to the cargo insurer. However, assume that the cargo insurer estimates it will recover only fifty percent of the time. Now the cargo insurer will charge premiums unrepresentative of the risk of loss. Over-insurance will result. Assume more realistically that the cargo insurer estimates it will recover between sixty-five and eighty-five percent of the time. Being risk averse, the cargo owner will again overcharge. This cost again results from having a multiple-party liability system.[155]

c. Inefficient Insurance

Assuming that one system of insurance is more efficient, choosing

150. *See* Sturley, *supra* note 114, at 143 & n.97 (citing examples of such proposals).
151. *See* Kimball, *supra* note 11, at 246-47; Sturley, *supra* note 114, at 143-44.
152. Sturley, *supra* note 114, at 143 n.97.
153. *Id.*
154. *See infra* text accompanying note 172.
155. *See supra* 141.

the wrong system will lead to more costs expended than necessary. A hotly contested issue is whether P & I insurance is less expensive.[156] This question cannot be resolved without empirical evidence that may be impossible to gather.[157] Lord Diplock argues that at the current rates, P & I insurance is *more* expensive than cargo insurance, otherwise the carrier would be in a position of arbitrage.

> If it had been more economical for the carrier to insure against the excess liability than for the cargo-owner to cover it with his cargo insurer, without the insurer's having any prospect of recovery against the carrier, this would have been discovered sometime in the forty six years since 1924, and the carrier would have quoted, for the goods declared to be of a higher value than the limitation figure, freight rates which would have reflected the lower cost of covering the excess liability himself.[158]

In other words, the carrier would have increased its liability limits and charged the shipper more in freight than the additional cost of insurance. This argument would be true in the absence of transaction costs, but such costs may prevent the carrier from passing on the increased cost in the form of higher freight rates. If P & I insurance is in fact cheaper (which cannot be proven), it is not by much, since, if it were cheaper, eventually the potential for gain would outweigh the transaction costs and Diplock's prediction would ring true.

IV. Criticisms of the Market Analysis

This article has assumed that the market effectively allocates resources. For example, liability is placed on the carrier, it is assumed that the freight rates will increase proportionately (except to the extent that transaction costs impede the effectiveness of the market). John D. Kimball stated that:

> [it] is almost universally recognized that any shifting of responsibility to the carrier will ultimately be passed back to the cargo owner and the ultimate

156. *See* Sturley, *supra* note 114, at 145. *See, e.g.,* Erling Selvig, *The Hamburg Rules, the Hague Rules, and Marine Insurance Practice*, 12 J. Mar. L. & Com. 299, 315 (1981) (describing such a debate in UNCTAD study).

157. The lack of even approximate or indicative information on the size and relative weight of the various cost elements [that make up cargo and P & I insurance] had the result that [the UNCTAD study] became mainly an exchange of opinions which appeared to be based on assumptions and beliefs, and no one eventually succeeded in convincing the others of the validity of his own opinion [that one type of insurance was more efficient than the other].

Selvig, *supra* note 156, at 315. *See* Kimball, *supra* note 11, at 250 (stating that "[t]here is still a basic lack of accurate data available as to the relationship of freight and insurance rates to determine what the impact of a change in the existing liability regime would be."). Even if it were proven that one type of insurance is cheaper at the current level of volume that may not be helpful for other levels of volume.

158. *See* Diplock, *supra* note 10, at 529-30.

> consumer in the form of increased freight rates. A change of rules that expands the right of cargo to recover from the carrier should result in lower rates for cargo insurance as the cargo insurer experiences a higher level of recovery from the carrier. Simultaneously, however, the carrier's insurer will be paying out more on cargo claims and the cost of P & I will in turn rise. These increases can be expected to lead to an increase in freight rates that may or may not offset any savings gained by reduced cargo insurance rates.[159]

Although many commentators agree,[160] support is not universal.[161] Empirical evidence may never provide the answer because it is virtually impossible to shift the allocation of liability while holding all other things constant.

One reason the market may not work effectively is the participation of carriers in shipping conferences where rates are mutually set.[162] Conferences were originally formed to halt the tendency of carriers to oversupply the market, thereby drastically reducing profitability.[163] It remains unclear whether the result of these conferences is to merely eliminate the natural tendency for cutthroat competition among carriers, or whether they go further to allow carriers to defeat the market's attempt to efficiently allocate resources.[164] One view of the power of the conferences states as follows:

> There is no doubt that organizations of carriers create power, and through cooperation, shipowners make greater profits . . . However, conferences cannot monopolize the route over which they operate because of lack of a right or a license or a privilege to serve exclusively the trade. New entries into the business are not restricted and alternative sources of transportation and routes are available to shippers who can also use alternative suppliers and goods. Competition from independent liners, competition from tramps, competition among conference members themselves and competition from similar cargoes that are shipped from different origins and also the possibil-

159. *See* Kimball, *supra* note 11, at 249.

160. *See, e.g.,* Secretary General, *Responsibility of Ocean Carriers for Cargo – Bills of Lading, in* 3 UNCITRAL Yearbook 295 (1972); Carl E. McDowell, *Containerization: Comments on Insurance and Liability*, 3 J. MAR. L. & COM. 503, 503-08 (1972); Mandelbaum, *supra* note 14, at 501 (stating that "[d]espite the shift of risk in the Hamburg Rules favoring shippers, it is always the shipper that ultimately pays for the loss."); William Warren, *The Red Hot Issue or Red Herring? Legal Liability and Cost of Cargo Insurance,* 34 AM. SHIPPER 40 (1992); Selvig, *supra* note 156, at 315 (stating that "[t]he increase of these payments must result in a corresponding increase of the P & I premium and – as the liner freight rates reflect the carrier's cost level – also in an increase of the freight rates."); Yancey, *supra* note 128, at 1258; Sturley, *supra* note 114, at 147 n.116 (citing sources supporting the view that carriers must pass on their higher costs).

161. *See* Sturley, *supra* note 114, at 147 n.117 (citing sources that argue carriers may not pass on higher costs and stating that dependable empirical evidence is needed to settle the argument).

162. *See* HERMAN, *supra* note 27, at 15-16.

163. *See supra* note 28 and accompanying text.

164. *See* BENNATHAN & WALTERS, *supra* note 23, at 43.

> ity of the beginning of production of goods in a domestic market which cannot afford the cost of sea transport negate the conference's powers. And when the conferences set their prices they have to take into consideration the bargaining power of shippers' councils. The effect of all these factors substantially limits the conference's market powers.[165]

The economic effects of shipping conferences is beyond the scope of this article.[166] Notably, if shipping conferences do give carriers monopolistic characteristics, the present system of mandatory liability allocation will not resolve this problem. If carriers have monopolistic powers, they can force a combination of more liability and higher rates on the shippers. To the extent that they cannot force liability, they will simply force higher rates. If shipping conferences are destructive, either the whole industry should be regulated, or measures must be taken to reduce the ability of carriers to defeat the market.

V. CONCLUSION

While COGSA certainly stands as an improvement over the general maritime law because of its increased uniformity, it still requires the consumption of a large amount of unnecessary transaction costs. A large portion of these costs derive from the fact that COGSA is a multiple-party liability system, i.e., a system based on fault.[167] This uncertainty leads to inefficiency in three ways. First, when loss occurs the parties often consume resources in disputing who should bear responsibility for the loss.[168] The less clearly the lines of responsibility are drawn, the greater the dispute resolution costs. These costs become greater in the international context where many jurisdictions interpret the same text.

Second, this uncertainty leads to inefficient actions. The parties will take precautions based in part on their perceived liability for loss.[169] To the extent that the parties misconceive their respective liabilities for loss, they will take either two many or too few precautions. Similarly, in situations where P & I clubs base calls and cargo insurers base premiums on the probability each will be likely for a given loss, over-insurance will result.[170]

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165. *See* HERMAN, *supra* note 27, at 79.

166. For a discussion of the effects of shipping conferences, see BENNATHAN & WALTERS, *supra* note 23, at 43; HERMAN, *supra* note 27.

167. *See supra* note 141 and accompanying text.

168. I refer to these expenses as cost of dispute resolution. *See supra* text accompanying note 143.

169. Recall that a carrier will take precautions consistent with the probability of liability for cargo damage and probability of loss of business. It will attempt to take the amount of precautions that minimizes the sum of these costs plus the cost of the precautions. *See supra* note 136 and accompanying text.

170. *See supra* note 157 and accompanying text.

Finally, uncertainty leads to inefficiency where the parties are risk averse. The risk aversion of cargo owners is demonstrated by their willingness to procure cargo insurance. Cargo insurance premiums are based on the perceived probability of loss less the probability of recovery from the carrier's insurance club. To the extent that the probability of recovery is uncertain, the risk to the cargo insurer increases. The cargo insurer will demand a risk premium in order to assume this additional risk because it is also risk averse. This results in a shift of resources from the ocean trade industry to the marine insurance industry which, in turn, increases the costs of ocean trade.

The imposition of a strict liability system could reduce the vast majority of these costs. In fact, such a system has often been proposed.[171] However, as stated earlier, such a regime would lead to other inefficiencies. A carrier would have to assess the probable value of the loss in order to take appropriate precautions, yet certain crucial information for making this calculation is not within the knowledge of the carrier.

An improved system would allow the parties to freely allocate liability amongst themselves. The market would then determine liability allocation based on who can most cheaply control the costs. An improved system would also avoid a multiple-party liability system and the attendant costs. One such improved system would allow the parties to freely allocate liability without regard to fault. For example, the law could allow the parties to allocate X percent of the loss up to Y amount to the carrier, with the shipper retaining the remaining liability. The carrier would provide a sliding rate schedule dependent upon the percentage of liability which it agreed to accept. In turn, the rates would depend on the cost to the carrier of procuring insurance. The shipper would compare the list of rates with the cost to it of cargo insurance (which would be based on the amount of liability accepted by the carrier) and choose the cheapest combination of freight and insurance.

To be sure that the carrier has adequate incentive to take precautions, new legislation could help ensure the market worked effectively. For example, carriers could be required to disclose all shipping accidents involving a certain level of cargo damage. As a result, shippers and cargo insurers could easily evaluate the precautions carriers take, and put pressure on them to take an optimal amount of precautions.[172]

171. *See* Kimball, *supra* note 11, at 244 & n.166 (citing the consideration of a strict liability system is a convention on intermodal transport); Sturley, *supra* note 114, at 143 & 26, 27 (citing proposals and arguments in favor of imposing a strict liability regime on the carrier).

172. Disclosure is required by some jurisdictions of certain information. The Shipping Act of 1916 and the UNCTAD and CENSA Codes require carriers to publish tariffs. *See* HERMAN, *supra* note 27, at 43. In addition, the Shipping Act of 1984 requires disclosure of certain agreements between carriers and shippers.

Arguably, this system suffers from some inefficiency since the level of liability each party assumed would vary greatly among bills of lading. This lack of uniformity would require inspection of each bill of lading to determine the rights of the parties. Two responses serve to reduce this concern. First, any increase in resources used to examine non-uniform bills of lading would possibly be offset by a decrease in resources used to counter the uncertainty of ultimate liability. This non-uniformity will be much easier to address than the non-uniformity found in general maritime law where bills of lading contained various exceptions to carrier liability.[173] Back then, it was necessary to scan each bill of lading to determine each exception and then project the consequences of each exception under the laws of various jurisdictions which could apply. Here, however, the laws of the various jurisdictions would be identical with the only variant being the percentage of loss insured by each party.

Second, after some trial and error, an industry custom would likely develop. The parties may find that it is most efficient for the carrier to assume a certain percentage of liability, and the standard practice would be to allocate that percentage to the carrier in most bills. It fact, it is possible that the percentage will vary depending on the nature of the cargo. For example, for cargo which is inherently susceptible to damage, it may become custom for the carrier to accept a lesser amount of liability than for cargo not so susceptible to damage. This reflects the fact that the shipper is more able to control the loss in the former situation. The end result may be that the market will settle on an equilized allocation of liability, which will become standard practice in the industry.

Additionally, P & I insurance and cargo insurance may converge. P & I insurance currently requires proof of fault in order to recover, but under this system, fault is no longer a basis for liability. P & I insurance will become much more like cargo insurance during the time the carrier is in control of the goods. If the insurance systems converge, liability allocation will ultimately be irrelevant because the parties will bargain over who pays the insurance premium. However, the premium will cost the same to either party and the cost will factor into the freight cost. This is exactly the result one would expect in an efficient system.

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173. *See* Mandelbaum, *supra* note 14, at 475 (quoting Michael F. Sturley, *Basic Cargo Damage Law: Historic Background, in* 2A Benedict On Admiralty 2-3 to 2-4 (1995))

> The bills of lading became so lengthy, and the parties; respective rights and liabilities so difficult to ascertain, that even bankers [were] in doubt as to their security when discounting drafts drawn against bills of lading cargo underwriters [did not know] the risks which they covered when insuring goods . . . and carriers and shippers [were] in constant litigation.

Id.