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Comparative Institutional Analysis of Product Safety Systems in the United States and Japan: Alternative Approaches to Create Incentives for Product Safety

Hiroshi Sarumida*

Introduction
Promoting product safety is a primary policy goal in every modern society. In the United States, product safety has been one of the most important public policies, especially over the past thirty years. The European Community considered product safety a basic requirement for the creation of a single market system. In an effort to establish a more consumer-oriented product liability system, Japan recently enacted the "Product Liability Law," which would further increase product safety.

An important consideration in achieving optimal product safety is how a product safety system can more effectively encourage manufacturers to reduce product risks. Today, consumers use numerous products whose adverse effects they may have never anticipated: asbestos, silicon

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I would like to express my deep appreciation to Professor Peter C. Carstensen, the University of Wisconsin Law School, who read and commented on various drafts of this article. I am also grateful to Professors Neil K. Komesar and Zigurds L. Zile, also of the Law School, and Professor Richard A. Moll, the University of Wisconsin College of Engineering and the Department of Engineering Professional Development, who greatly helped me conduct this research project. I am appreciative of the support provided by the University of Wisconsin's East Asian Legal Studies Center and its Director, Professor Charles R. Irish and Associate Director, Susan S. Katcher, Esq. I also thank Ms. Michio Nakazawa for her helpful assistance.

3. After years of considerable discussion, the Japanese parliament enacted the Product Liability Law which enables Japanese courts to apply strict liability-based tort law to product liability cases. PL Hō ga seiritsu [The Product Liability Law Has Been Enacted], MAINICHI SHINBUN, June 23, 1994, at 1. This law has been in effect since July 1995.
4. Asbestos was commonly used as a fire retardant in building construction. Since discovering that the fiber was a carcinogen, however, the United States has experienced an increase in suits brought by asbestos victims. Experts predict that by the end of the century as many as 200,000 American deaths will be caused by asbestos-related dis...
implants, lead paint, all-terrain vehicles (ATVs), and even disposable cigarette lighters. It is sometimes difficult for consumers to understand the real causes of injuries and to find effective ways to avoid them, especially when complex technology is involved. In contrast, manufacturers are often in a better position to foresee potential risks and prevent possible accidental injuries. In order to create a more effective product safety system, therefore, each country should focus on the type and degree of impact its product safety system has on manufacturer incentives to reduce product risks.

The United States and Japan have taken different approaches to encourage manufacturers to promote product safety. In the United States, the judicial system has played an important role in encouraging manufacturers to reduce product risks. Although American courts have never held manufacturers liable as insurers for all injuries that result from the use of their products, courts have significantly shifted the burden of accidental injury prevention from individual consumers to manufacturers. This policy is designed to create strong incentives for American manufacturers to promote product safety. The American judicial system has thus attempted to function as an incentive-creating mechanism for product safety.

5. Silicon breast implants have been found to cause a variety of immune system disorders, including connective tissue diseases and autoimmune diseases such as systemic lupus and rheumatoid arthritis. Of the nearly two million women who have had silicon breast implants, thousands have sued implant makers. Gina Kolata, Fund Proposed for Settling Suits Over Breast Implants, N.Y. Times, Sept. 10, 1993, at A16.

6. Lead-based paint, typically used as a house paint before it was known to be poisonous, still remains on buildings, and young children often ingest peeling strips of paint. Ingesting the paint (or, sometimes, even absorbing the dust) can cause a range of health difficulties, from reading disabilities to serious brain damage. According to a senior Environmental Protection Agency (EPA) scientist, one in nine children under the age of six has enough lead in his or her blood to place him or her at risk. Steven Waldman, Lead and Your Kids, Newsweek, July 15, 1991, at 42, 43. Another study shows children with high lead levels are six times more likely to have reading disabilities. Id.


8. From 1987 to 1989, an estimated annual average of 8,000 residential fires, 180 deaths and 1,040 injuries resulted from children under the age of five playing with lighters. Most of these fires were caused by disposable cigarette lighters. Memorandum on the Cigarette Lighter Project from Linda E. Smith, EPHA, through Dr. Robert D. Verhalen, Associate Executive Director, Directorate for Epidemiology and Robert E. Frye, Director, EPHA, to Barbara J. Jacobson, Manager, at 3 (Feb. 6, 1992) (unpublished memorandum, on file with author).


10. See Escola v. Coca Cola Bottling Co. of Fresno, 150 P.2d 436 (Cal. 1944) (Traynor, J., concurring). In his concurring opinion, Justice Traynor introduced the concept of strict liability in torts. He reasoned that imposing “absolute liability” on defective product manufacturers could most effectively reduce defective product-caused hazards because manufacturers are more likely to anticipate and prevent product hazards than consumers. Id. at 440.
At the same time, the heavy burden of costly litigation on American industries has caused the American product liability system to be the subject of reform efforts. In 1990, more than 19,400 product liability cases were filed in U.S. federal courts.\(^1\) An even larger number of cases are brought in U.S. state courts.\(^2\) Advocates for American manufacturing companies insist that the current product liability system is so onerous that it has a significant adverse impact on American business and undermines international competitiveness.\(^3\) Many states have reformed their tort law in order to limit consumers' incentives to bring a product liability suit,\(^4\) and Congress has considered enacting a federal product liability law which would benefit American manufacturers.\(^5\) Meanwhile, American consumer advocates and trial lawyers regard a less stringent product liability system as harmful to the interests of consumers and strongly oppose any reform of the current system.\(^6\)

In contrast to American courts, the judicial system in Japan has not played as powerful a role in promoting product safety. Japanese courts have never promulgated any policy creating manufacturers' incentives for

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This reasoning assumes that the threat of "strict" liability can effectively stimulate a manufacturer's incentive to eliminate a defective product and that, as a result, the number of product-related accidents will decrease. This has been one of the most important legal theories of American courts in product liability cases.

11. *Product Liability, J. Com.*, Apr. 21, 1992, at 8A. Since 1974, the number of product liability suits filed in federal courts has increased by 1231%. Some opponents of tort form argue that these figures are misleading. See Michael J. Saks, *Do We Really Know Anything about the Behavior of the Tort Litigation System and Why Not?*, 140 U. Pa. L. Rev. 1147, 1155, 1162-66 (1992) (discussing that federal cases constitute only 2% of the nation's litigation, and the number of change in filings relative to the number of disabling injuries presents a completely different picture from the percentage of change in filings from a fixed starting point).


12. According to the Court Statistics Project by the National Center of State Courts, the total number of non-automobile tort cases brought in the courts of seven states in 1990 (Arizona, California, Connecticut, Hawaii, Maryland, Michigan, and Texas) was 99,144. Galanter, *Myths and Facts, supra* note 11, at 8. This figure alone far exceeds the number of product liability cases that have been decided in Japan since World War II. See *infra* note 19 and accompanying text.


product safety through civil litigation. In civil cases, Japanese courts have focused solely on allocating the cost of accidents in the cases presented rather than creating incentives for potential injurers to prevent future accidents.\(^{17}\) Although courts may encourage manufacturers to reduce risks through allocating injury-related costs, Japanese courts have imposed damages that are far lower than those levied by American courts.\(^{18}\) More importantly, the victims of product-related accidents in Japan have rarely used judicial channels in seeking a remedy. Only 150 product liability cases were decided between 1945 and 1990 in all of Japan.\(^{19}\)

As a result, litigation and the associated costs when their products cause injuries have not been as important a concern for Japanese manufacturers as for their American counterparts. According to a survey conducted for American manufacturers regarding their product safety practices (the “PSP survey”), most responded that legal fees were one of the most important concerns when their products caused accidental injuries. However, a Japanese survey showed that not many Japanese companies were seriously concerned about litigation-related costs in the same situation.\(^{20}\) (See Table I)

The minimal role of the Japanese courts in creating a product safety system may lead one to wonder whether the system has failed altogether to create incentives for manufacturers to reduce product risks. The threat of civil liability is not the only way to encourage manufacturers to improve product safety. Safety legislation and regulations can require manufacturers to reduce potential product risks. In response to consumer demands, manufacturers sometimes make efforts to improve product safety without the threat of either liability or penalties.

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17. See infra notes 77-78 and accompanying text.
18. See infra note 74-75 and accompanying text.
20. This survey was conducted by the author for 107 American manufacturers participating in five product safety conferences held in Madison, Wisconsin, between November 1992 and October 1993. I will refer to this survey as “the PSP survey,” distinguishing it from other surveys conducted by the author. See Appendix I.
Table 1\textsuperscript{22}
Major Concerns of Manufacturers in Their Product-related Accidents

Manufacturers selected all applicable answers

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<tbody>
<tr>
<td>1 Compensation</td>
<td>74.3</td>
<td>1 <em>Litigation fees</em></td>
<td>68.2</td>
</tr>
<tr>
<td>2 Negotiation with victims</td>
<td>50.8</td>
<td>2 Criticism against company</td>
<td>64.5</td>
</tr>
<tr>
<td>3 Reduction of Sales</td>
<td>45.5</td>
<td>3 Compensation</td>
<td>59.8</td>
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<tr>
<td>4 Criticism against company</td>
<td>44.4</td>
<td>4 Reduction of Sales</td>
<td>47.7</td>
</tr>
<tr>
<td>5 <em>Litigation fees</em></td>
<td>32</td>
<td>5 Costs for recall</td>
<td>34.6</td>
</tr>
<tr>
<td>6 Costs for recall</td>
<td>27.8</td>
<td>6 Negotiation with victims</td>
<td>25.2</td>
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<tr>
<td>Others</td>
<td>4.3</td>
<td>Others</td>
<td>20.6</td>
</tr>
<tr>
<td>N/A</td>
<td>0.4</td>
<td>N/A</td>
<td>6.5</td>
</tr>
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</table>

[1] Percentage of Japanese manufacturers responding in given category
[2] Percentage of U.S. manufacturers responding in given category

Number of responding manufacturers:

Japan: 930

U.S.: 107

Certain Japanese governmental bodies and industry groups emphasize that the existing approaches, such as safety regulations and voluntary safety measures by manufacturers, have worked adequately in Japan.\textsuperscript{23} These groups had opposed legislation of the Product Liability Law in Japan that might encourage victims of product-related accidents to seek compensation through litigation while giving the courts more opportunities to promote product safety. Until a few years ago, the Ministry of International Trade and Industry (MITI), the most powerful ministry with regard to Japanese industrial and economic policies, was reluctant to support the legislation, arguing that Japanese consumers were "duly protected by existing safety standards."\textsuperscript{24} Japanese manufacturers, also opposing adoption of the Product Liability Law, stressed their voluntary efforts towards improving product safety through quality control, customer service, and additional product safety efforts in product

\textsuperscript{22} Table 1 indicates the priorities of Japanese and U.S. manufacturer concerns. No comparison of actual percentages is made due to differences in the basic methodologies and the number of responding manufacturers in the two surveys.


\textsuperscript{24} Takumi Anzai, *Fires Prompt Call for Product Liability Law; Manufacturers Urged to Improve Safety Record, The Nikkei Weekly*, Aug. 15, 1992, at 9. MITI came to agree to the legislation "if the new law could harmonize consumer protection with economic activities." *Dokomade Toeruka Rīgyō Sekinin [How Much Can We Seek Corporate Liability?]*, Mainichi Shinbun, Nov. 17, 1993.
design and quality control.25

Given that effective alternatives to litigation exist in Japan, including government regulation or voluntary corporate efforts for product safety, this Article examines whether Japan needs to make its judicial system a more powerful incentive-creating mechanism. In addition, it examines what impact such a system may have on manufacturers' incentives to promote product safety. This Article analyzes these questions by comparing the two distinct product safety systems in the United States and Japan. This comparative analysis also considers whether the American judicial system is currently an effective incentive-creating mechanism.

This Article focuses on the characteristics of three institutional mechanisms: judicial systems, political institutions (legislature or government agencies), and market mechanisms, while examining the effects of each mechanism on manufacturers' incentives to promote product safety.26 By analyzing advantages and disadvantages of each mechanism under American and Japanese product safety systems, this Article examines how the three types of incentive-creating mechanisms either successfully or unsuccessfully encourage manufacturers to reduce product risk.

The analysis in this Article encompasses alternative approaches for promoting product safety and the impact of a product safety system on manufacturers' incentives to promote product safety. Goals other than promoting product safety, such as compensation for product-related injuries, can be a primary aim of a product safety system. Maintaining a competitive edge in world trade or promoting "harmonious" international relations may also be goals of a product safety system. In U.S. tort reform discussions, a major concern is that American industries are losing their competitive strength in the world economy. In discussions concerning Japan's product liability system, concerns over foreign criticism that Japanese manufacturers were competing unfairly without a product liability law in their domestic market motivated the Japanese government to establish a new system.27


27. Yoko Inoue, Consumers Press for More Protection, THE JAPAN ECON. J., Oct. 22, 1990, at 3. Because Japanese products in the American market are subject to American liability law, this argument may be disingenuous. However, in recent trade negotiations between Japan and the United States, such as the Structural Impediment Initiative (SII), both governments pointed to each other's domestic market structural problems. Id. In addition, some American manufacturers criticize the different policies of Japanese companies, especially their different pricing policies, in the American market as compared to those in the Japanese market. Japanese companies as well as the government are apprehensive regarding factors which contribute to different policies in the two markets. These conflicts are mostly associated with trade issues. For example, in 1992, the American automobile industry filed dumping charges against Japanese-
This Article, however, assumes that promotion of product safety is the primary policy goal and that allocation of product risks is a means of promoting product safety. Specifically, the central issue in this Article is how much impact a product safety system may have on manufacturers’ incentives for product safety rather than the actual status of product liability litigation and safety regulations in both countries. For example, if manufacturers believe that the “litigation explosion” exists and, as a result, take steps to avoid “potential” liability, this Article considers such a judicial system as a successful incentive-creating mechanism. This is so even though the chance that the manufacturers would be sued and have stringent liability imposed is not really as high as they may believe. Similarly, despite the number of existing safety regulations, this Article does not consider political institutions as effective incentive-creating mechanisms if those regulations do not significantly impact manufacturers’ incentives to promote product safety.

Part I of this Article explains the basic characteristics of judicial systems, political institutions, and market mechanisms as incentive-creating mechanisms for product safety. Part II examines how the American and Japanese judicial systems function or fail to function as incentive-creating mechanisms and the factors which influence their abilities. Part III investigates the limitations of political institutions, highlighting the characteristic mechanisms of the Japanese political institutions. Part IV examines the limitations of market mechanisms as incentive-creating mechanisms, explaining the distinctive features of Japanese market mechanisms. Considering the impact of a possible reform of the Japanese product safety system, Part V examines the effects of judicially oriented incentive-creating mechanisms on other institutional mechanisms and the impact on manufacturers’ motivation to promote product safety.

I. Incentive-creating Mechanisms
To illustrate different kinds of incentive-creating mechanisms, this Article utilizes an analytical medium, an incentive signal. This part defines incentive signals and examines their characteristics in judicial systems, political institutions, and market mechanisms. After categorizing the product risks into four types, this part analyzes the ability of incentive signals created by each institutional mechanism to “target” each type of product risk.

A. Incentive Signals
An incentive signal is an institutional demand for manufacturers to improve product safety. Each institutional mechanism—judicial systems, political institutions, and market mechanisms—can send manufacturers incentive signals, encouraging them to improve the product safety. Professor Neil Komesar examined the relative abilities of three institutions (the made mini-vans because their price in the United States was “indeed” lower. Doron P. Levin, G.M. May Not Join in Move Against Japan, N.Y. Times, Feb. 8, 1993, at D2.
torts system, criminal law and administrative regulations, and the market) to prevent injuries. Komesar described a "signal" to potential injurers created by the torts system as follows:

In the tort system, incentives [to alter behaviors of potential injurers] take the form of potential damage awards and the other costs associated with tort liability (out-of-pocket expenses for lawyers, witnesses, and investigation, as well as time spent and aggravation). These incentives form a signal sent by the torts system to potential injurers.

In addition to signals sent by courts, manufacturers receive incentive signals from laws and regulations supported by the threat of enforcement. In a competitive market, consumer demand for safer products also sends incentive signals.

Each institutional mechanism, however, may also send signals which do not encourage manufacturers to take any safety measures or, sometimes, may encourage them to produce less safe products. For example, when courts fail to impose liability, the government lowers safety standards of regulations, or consumers demand more dangerous products, signals from these institutional mechanisms fail to create manufacturers' incentives to improve product safety. Accordingly, this Article does not include these negative signals within the meaning of incentive signals.

Although institutional mechanisms create and send signals to manufacturers, they do so in different ways. To illustrate, assume a number of people are injured in similar types of product-related accidents such as a fire caused by a child with a cigarette lighter. A judicial system has the opportunity to create signals only when actual victims of the fire bring lawsuits through private legal counsel against lighter manufacturers. Courts send incentive signals to manufacturers when they hold the manufacturers liable for the damages, and the manufacturers estimate expected losses from litigation to exceed the profits gained by not taking safety measures, such as producing a lighter without a child-proof device.

28. Komesar, supra note 26. Professor Komesar's comparative institutional analysis focuses on the different impact per capita of a given injury on four important groups concerned with the prevention of accidents: actual victims, actual injurers, potential victims, and potential injurers. Id. at 32-33.

29. Komesar, supra note 26, at 28 (emphasis added).

30. Professor Komesar describes the role of actual victims in the tort system as follows:

   In the torts system, actual victims control the prosecution of legal actions. They decide on the target of prosecution, investigate and prepare their actions, and present them to the liability determiner. They hire experts, most importantly lawyers, to help .... In the torts system, the behavior of victims and their lawyer-partners takes center stage. The system depends on these actors to bring and prosecute cases, and if they do not act, the system will not function.

Komesar, supra note 26, at 27.

31. Although the most significant litigation-related losses for manufacturers would be liability damages, the expected losses from litigation also include other costs, including those associated with time, reductions in sales due to adverse publicity, and the possibility of extended liability in future cases.
Political institutions can send incentive signals when laws and regulations require higher safety standards and the targeted manufacturers predict that the possible impact of enforcement exceeds the profits gained by not following regulatory schemes.32 Thus, if the legislature enacts a law requiring lighter manufacturers to make lighters child-resistant and lighter manufacturers expect that losses resulting from prosecution and penalties will outweigh profits gained by not following the law, the manufacturers have incentives to produce child-proof lighters. Signals sent by political institutions usually target certain types of manufacturers and their conduct by providing specific product and production standards, in contrast to abstract concepts often found in court rulings.33

In addition to signals created by judicial systems and political institutions, consumer demand creates signals in a marketplace. To the extent that consumers demand safer products, manufacturers receive incentive signals.34 If more and more consumers demand child-resistant lighters and lighter manufacturers estimate higher profits by selling them, manufacturers receive incentive signals and choose to produce child-proof lighters. Failure to immediately respond to signals may cause a reduction of sales or a loss of market share.

B. Types of Product Risks

To promote comprehensive product safety, incentive signals need to target various kinds of product risk. This Article categorizes product risk targeted by incentive signals into four groups based on the severity of the injuries and the probability of the occurrence.35 (See Figure 1)

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32. The impact of enforcement is determined by the frequency of the prosecution and the amount of the penalties. See infra Part III.A.4. Unlike the tort system, actual victims do not usually participate in the prosecution. Komesar, supra note 26, at 29.
33. Because of their complexity, administrative regulations may be difficult to understand. However, the standards are usually more concrete than those found in court rulings.
34. Komesar, supra note 26, at 31.
35. These two factors have been of key concern in the American tort system. Judge Learned Hand defined the legal standard of negligence as follows: "If the probability of injury be called P; the injury, L; and the burden, B; liability depends on whether B is less than L multiplied by P: i.e., whether B < PL." United States v. Carroll Towing Co., 159 F.2d 169, 173 (2d Cir. 1947). Contemporary American courts are still concerned about these factors in applying strict liability, especially in design defect cases. See, e.g., Bowman v. General Motors Corp., 427 F. Supp. 234 (E.D. Pa. 1977). Courts examine whether the benefits of a certain product design outweigh the risks of the design (the risk/utility approach). See, e.g., Baker v. Lull Eng'g Co., Inc., 573 P.2d 443, 454 (Cal. 1976). In reaching a decision, courts consider the gravity of the danger posed by the product design and the likelihood of the danger as well as other factors, such as feasibility of the alternate designs, the financial cost of an improved design and the adverse consequences of the alternate design. Id.
The scope of victims (or potential victims) under this model is limited to users of certain products or groups of people related to the products, such as construction workers using asbestos materials or children of diethylstilbestrol (DES) users. In silicon implant cases, for example, the potential victims are women using silicon implants or women who may consider implants, rather than all consumers.\textsuperscript{37}

\textsuperscript{36} A product safety manager of Graco Inc., used a similar kind of chart to explain what kinds of potential hazards manufacturers should warn against. Bruce McIntosh, Address at the Role of Warnings and Instructions Program in Madison, WI (Mar. 18-19, 1993) (unpublished chart, on file with author).

This article refers to types of product risk as "Type I risk," "Type II risk," "Type III risk," or "Type IV risk," and injury caused by types of product risk as "Type I injury," "Type II injury," "Type III injury," or "Type IV injury."

\textsuperscript{37} This article attempts to differentiate types of product-related injuries by limiting the scope of actual and potential victims to users and product-related persons rather than all consumers. In Professor Komesar's analysis, the scope of potential victims in product related accidents includes all consumers. Komesar, supra note 26, at 32-33. Therefore, the per capita impact of potential victims (consumers) is low relative to that of potential injurers.

His analysis of a given injury's per capita impact on four important groups: actual victims, actual injurers, potential victims, and potential injurers, is as follows:

[Assuming the total impact on society of a given injury is $100 million per year,] low per capita impact for actual victims means that there are a large number of actual victims (e.g., 10 million) each of whom suffers a small loss ($10 each), while high per capita impact per actual injurer means that there are a few injurers (e.g., 10) each of whom equally produces the injury ($10 million each).

\ldots Potential impact can be described by the probability that the injury occurs and the extent of the resulting injury. Imagine, for example, that each member of a population of 10 million potential victims faces a probability of .0001 (1/10,000) of an injury which will impose a loss of $100,000. In this situation, we would expect 1,000 actual injuries with each victim suffering a loss of $100,000. But the expected loss per potential victim is $10 (.0001 x $100,000). Low per capita impact among potential injurers has the same characteristics—large societal injury spread among many injurers. High per capita impact among potential injurers involves a smaller number of potential injurers exposed to a large number of events.

\textit{Id.}

According to this theory, product-related accident cases have a high per capita impact on both actual victims and injurers. \textit{Id.} However, the per capita impact on potential
Type I risks are those that cause severe injuries with a high probability of occurrence among users or identifiable groups of people otherwise related to the products. For example, in defective drug cases, such as the Dalkon Shield cases, a number of users are exposed to a high probability of severe injuries. Type II risks also cause severe injuries, but they do so less frequently than Type I risks. For example, even if the aggregated number of fires caused by children playing with cigarette lighters is significant, rarely will a smoker have a small child, buy a disposable lighter, place the lighter in the child's reach, and the child, in the parent's absence, accidentally start a fire. However, once the fire occurs, it may cause significant damage and severe injuries.

In contrast, Type III risks cause only minor injuries or damages but contain a high probability occurrence. Even though a disposable cigarette lighter may not light easily, the ensuing damage to the user is only the cost of the lighter and, probably, the inconvenience. Type IV risks are those which cause only small damages and have a low probability of occurrence. These four types of product risk could arise from products that deviate from the standards of similar products (manufacturing defects), products that have inherent risk-creating elements (design defects), or products lacking adequate safety warnings (warning defects).

Several finer points arise within this framework. First, one product may contain different types of product risk. For example, automobiles carry Type II and III risks because automobiles can cause minor injuries (Type III risks) as well as death (Type II risks). Sometimes, the risks a product presents to various groups of people may differ. In diethylstilbestrol (DES) cases, the risk of injuries to the third generation of DES users is victims (consumers) is low. Id. In contrast, the per capita impact on the relatively small number of (but large-scale) potential injurers (manufacturers) is high. Id. Because of this, signals created in the tort system strongly encourage manufacturers to expend the resources necessary to understand signal contents and change their behavior to promote product safety as necessary.

38. Dalkon Shield, which is an intrauterine contraceptive device (IUD), has caused serious pelvic infections in thousands of users. Cooper, supra note 14, at 335. See infra note 59 and accompanying text. If likelihood of injuries is high among the users of certain products, such injuries are considered "Type I injuries."

39. Every year, 600 million cigarette lighters are sold in the United States. Regulation of Products Subject to Other Costs under the Consumer Product Safety Act, 57 Fed. Reg. 36,929 (to be codified at 16 C.F.R. § 1145) [hereinafter Lighter Regulation]. Assuming that lighter-related fires started by children were caused by lighters sold in the year when the fires occurred, only 0.008% of all lighters sold every year could be traceable to such fires.

40. The risk of fatal automobile accidents is not a Type I risk but a Type II risk. Although traffic accidents cause a significant number of deaths every year in the United States and Japan, the number of deaths per 1,000 cars is 0.236 in the United States and 0.241 in Japan. UNYU-SHO JIDOSHA KOSU-KYOKU [DIVISION OF AUTOMOBILE AFFAIRS: MINISTRY OF TRAFFIC AFFAIRS], JIDOSHA NO ANZEN KARUHO NO TAMENO KONGO NO GYORSUMIA HOSAKU NI TSUITE—UNYU GIJTSU SHINGIKAI TO SHIN—[PERSPECTIVE OF TECHNOLOGY AND POLICY FOR PROMOTION OF CAR SAFETY] (1992). These figures indicate much lower fatality risk than that of DES. See infra note 42.
a Type II risk because of the lower probability,\textsuperscript{41} while the risk to the second generation is a Type I risk.\textsuperscript{42} In asbestos cases, while the risk of cancer to workers using asbestos materials is a Type I risk, the risk to people living in houses with asbestos is a Type II risk.\textsuperscript{43}

Second, injuries caused by mass disaster accidents are not necessarily Type I injuries, even though certain products may cause severe injuries to a number of people in a single accident. When only a small percentage of a certain type of product causes mass disaster accidents and, therefore, only a small fraction of \textit{total users} suffers severe injury, the product carries Type II risks rather than Type I risks. For example, the risk of an airplane crash is a Type II risk owing to the low probability of its occurrence.\textsuperscript{44}

Third, injuries caused by Type III risks include the user's discomfort and inconvenience as well as minor injuries. Therefore, users of products may neither consider these trivial injuries seriously, nor acknowledge them as "injuries" until manufacturers create new products which make users feel more "comfortable." The distinguishing characteristic of Type III risks, however, is that a high percentage of the products cause a large number of users to have the same kinds of minor injuries, inconvenience, or discomfort.

Each institutional mechanism contributes to promoting comprehensive product safety when it successfully encourages manufacturers to change Type I, II, and III risks into Type IV risks. However, reducing all types of product risk may not be socially desirable if the associated costs are unreasonably high. In particular, reducing Type II risks may increase significantly the prices of products, decrease consumer demand, and lessen the level of production. As a result, fewer types of products would be available to the public.

Nevertheless, the costs of reducing a Type II risk may decrease as technology develops, while the costs of accidents may not. Even though the costs of safety measures currently exceed those of potential accidents, manufacturers could invest resources to reduce the costs of the safety measures if institutional mechanisms would, at least occasionally, demand such

\textsuperscript{41} Recently, the New York Court of Appeals denied a cause of action on behalf of a "third generation" victim of DES. Enright v. Eli Lilly & Co., 77 N.Y.2d 377, 570 N.E.2d 198 (N.Y. 1991).

\textsuperscript{42} DES causes cancer in one in every thousand "DES daughters," and as many as 90% of DES daughters have adenosis, an abnormality of the vagina. Michael Kinsley, \textit{Fate and Lawsuits}, \textit{New Republic}, June 14, 1980, at 20.

\textsuperscript{43} According to Lawrence Fitzpatrick, President of the Center for Claims Resolution, all of the more than 200,000 people who have filed personal injury claims against asbestos manufacturers experienced occupational exposure instead of exposure from being in buildings with asbestos materials. Matthew L. Wald, Experts Say Fear of Asbestos Exceeds the Risk in Schools, \textit{N.Y. Times}, Sept. 4, 1993, at 1.


Type II risks of mass disaster accidents, however, tend to be exaggerated by the media and, as a result, users (or potential users) may believe that the risks are Type I risks. See infra Part III.A.1.
safety measures. As a result, the cost of safety, which is currently unreasonably high, may be "reasonable" in the future. For example, an American lighter manufacturer developed a child-resistant lighter at the cost of ten million dollars and after five years of research. Nowadays, this safety device costs ten to forty cents per disposable lighter. This cost is much lower than the per lighter cost of child-play lighter fires, which is sixty to seventy-five cents.

Based on the premise that sending continuous incentive signals to manufacturers is one of the most effective approaches to achieving long-term comprehensive product safety, this Article analyzes different functions of incentive-creating mechanisms in the United States and Japan. The examination of the number of signals that must be given to manufacturers to bring about the most socially desirable result for each kind of product-related injury case is beyond the scope of this Article. Even though the costs of safety measures are currently more expensive than the costs of potential accidents, this Article does not conclude at once that the institutional demand for those safety measures is unreasonable. If, however, incentive signals target a Type II risk rather than a Type I risk when one product has both types of risks, this Article regards such signals as socially undesirable.

C. Types of Product Risks and Institutional Mechanisms

The ability of incentive signals to target certain types of product risks differs among the three institutional mechanisms. Although the process of creating incentive signals in the judicial system begins with actual victims bringing lawsuits, the transaction costs of litigation significantly influence the kinds of cases brought by victims. As such, relatively high transaction costs result in victims deciding to use the judicial system only when the expected damages are significant. Therefore, the judicial system has more opportunities to target severe injuries, such as Type I and II injuries.

Signals sent by a judicial system become incentive signals only when manufacturers who create product risks estimate that the expected losses related to litigation exceed the profits gained by not taking safety measures. Because the manufacturers' expected losses from Type I risks are very high, such risks compel manufacturers to consider safety measures.


46. Bic Unveils New Disposable Lighter With Child-Resistant Safety Feature, supra note 45.

47. Lighter Regulation, supra note 39, at 36,947.

Even if specific safety measures are not available to manufacturers, significant expected losses strongly encourage manufacturers to invest in developing cost-justifiable safety. A judicial system, however, is less likely to send incentive signals targeting Type II risks to manufacturers. Because the probability of injury is low in the Type II risk context, manufacturers may decide to bear the tort liability and include litigation-associated costs in the price of products.\footnote{This is one of the important rationales behind the theory of strict liability as expressed in American product liability cases. In his concurring opinion in \textit{Escola}, Justice Traynor stated that “the risk of injury can be insured by the manufacturer and distributed among the public as a cost of doing business.” \textit{Escola v. Coca Cola Bottling Co. of Fresno}, 150 P.2d 436, 441 (Cal. 1944).}

The legislature and administrative agencies create signals by enacting laws and regulations, and government prosecutors and agents send these signals by prosecuting violators. In the legislative process, various kinds of groups represent their interests and attempt to manipulate possible legislative and regulatory schemes in their favor. In product safety-related legislation, however, groups of manufacturers tend to be more organized and able to spend more on political activities than consumers.\footnote{Professor Komesar attributes this power differential between potential injurers (manufacturers) and potential victims (consumers) to their different per capita impact. \textit{Komesar, supra} note 26, at 41-42. \textit{See also supra} note 37.} Legislative bodies, administrative agencies, prosecutors and public officials are all subject to the strong political influence of manufacturers.\footnote{\textit{Komesar, supra} note 26, at 42.}

Political institutions, however, do not always compromise the interests of consumers on behalf of manufacturers. The representation of consumer interests can overcome the political influence of manufacturers when consumers are aware of product risks and desire protection enough to spend the resources necessary to support advocacy groups. Because Type I and III injuries have high probabilities of occurring, users of these products tend to know what the potential product risks are. Type III risks, however, are less likely to motivate consumers to seek political action due to the low severity involved. For example, even if a lighter often fails to light, no consumer will be interested in political action against lighter manufacturers because of the inconvenience or discomfort.

Political institutions are good at sending incentive signals to Type I risk-creating manufacturers. The actual victims of Type I injuries and some public-minded professionals, such as groups of doctors or lawyers, often organize politically for consumer protection from such injuries.\footnote{In most Japanese mass-tort product liability cases, a group of lawyers and public organizations devote support to victims. \textit{Japan Federation of Bar Association, Shuji Nakamura, Wagakuni no Kekkan Syôhin Mondai no Genjô} [\textit{The Situation of Defective Product-related Problems in Japan}], 41-10 \textit{Liberty \& Justice} 14 (Sept. 1990).} Moreover, mass media tend to apprise the public of Type I risks and sometimes exaggerate their impact on consumers as a whole. As a result, political institutions are more likely to create incentive signals for targeting Type I risks.
In contrast, incentive signals from political institutions do not target Type II risks effectively. Because these product risks cause severe injuries but have a low probability of occurrence, only a small number of users become the victims of Type II injuries. It is difficult for these victims to organize politically and defeat the political influence of manufacturers. These victims may also find it difficult to seek help from public-minded professionals because the smaller number of claims from victims is less likely to encourage those professionals to work as political activists. As a result, political institutions are less likely to send incentive signals to Type II risk-creating manufacturers.

Consumer demand creates incentive signals through market mechanisms. In order to attract more users and increase sales of their products, manufacturers compete with each other to enhance customer satisfaction by responding to the demands of as many users (or potential users) as possible. If consumers find that one manufacturer's products often cause injuries or inconvenience, the consumers will choose another manufacturer's products. Therefore, manufacturers try to produce products that users believe are more reliable.

Incentive signals created by market mechanisms are good at targeting product risks which have a high probability of occurrence, such as Type I and III risks. Manufacturers place a high priority on reducing Type I risks because these can jeopardize their corporate image and, as a result, significantly reduce product sales. Although Type III risks may not induce manufacturers to take immediate steps for product safety, manufacturers try to reduce Type III risks to attract more customers. Failing to decrease Type III risks may cause a reduction in sales and a loss of market share.

Because the probability of occurrence is low, however, Type II risks are less likely to influence the market demand of a majority of customers unless the probability is exaggerated. If a majority of users are satisfied with products and continue to demand them, it is difficult to encourage manufacturers to take safety measures which reduce a product's Type II risks. Therefore, incentive signals created by market mechanisms are less likely to target Type II risks.

Incentive signals from each institutional mechanism can succeed in targeting Type I risks. Also, in a competitive market, manufacturers will attempt to reduce Type III risks in the pursuit of profits. Thus, the issue is how each institutional mechanism can create incentive signals to target Type II risks. Parts II, III and IV of this Article focus on how judicial systems, political institutions, and market mechanisms in the United States

53. The media may exaggerate Type II risks, but they are more likely to cover dramatic Type I injury-related accidents to get a larger audience. If an agency takes an action against Type II risks, it runs the risk of being criticized for overlooking more important issues. For examples of those criticisms, see Hood, supra note 7, at 14.

54. See infra notes 278-86 and accompanying text for an example of manufacturers' strong incentives to improve product reliability. Market mechanisms do not work as an incentive-creating mechanism if potential victims are not product users but instead are people related to the products. See infra note 270 and accompanying text.
and Japan encourage, or fail to encourage, manufacturers to reduce various product risks, especially Type II risk reduction.

II. American and Japanese Judicial Systems as Incentive-creating Mechanisms

There is a significant difference in the number of product liability cases with which American courts and Japanese courts deal. This section surveys the types of product risk each judicial system tends to target and its impact on manufacturers through damage systems, policies created by the judiciary, and the image of the judicial system created by media or social norm. This section also examines three factors affecting the ability of the American and Japanese judicial systems to be incentive-creating mechanisms: lawyers, legal theories, and decision-makers.

A. Targets of Incentive Signals

1. Targets of the American Judicial System

The American judicial system sends a large number of signals to manufacturers which create product risks as people use judicial channels to seek reimbursement for the costs of product-related accidents. Its primary target has been Type I risks. In the current debate over tort reform in the United States, some commentators emphasize that a substantial portion of product liability litigation in the United States consists of mass-tort cases, such as asbestos and defective drug-related cases. Among product liability cases filed at federal district courts between 1985 and 1990, asbestos cases represented 55.9% on average. The majority of plaintiffs is comprised of those who suffered occupational exposure (Type I risk) rather than those who absorbed asbestos in daily life (Type II risk). Another example of Type I injury victims successfully using the judicial system is seen in the Dalkon Shield (an intrauterine contraceptive device (IUD)) cases. Dalkon Shields have caused serious pelvic infections in thousands of users. According to a 1988 report, the Dalkon Shield manufacturer paid more than $340,000,000 to plaintiffs, and 200,000 cases were still pending.

Generally, American courts have awarded larger damages to the victims of Type I injury cases. The average damage award in a sampling of asbestos cases, most of which belong to Type I injury cases, is

55. See supra notes 11, 12, 19 and accompanying text.
56. Galanter, Beyond the Litigation Panic, supra note 11, at 24.
57. These figures are based on information provided by the Administrative Office of the U.S. Courts Annual Report, excerpted in Galanter, Myths and Facts, supra note 11.
58. Wald, supra note 43.
59. Cooper, supra note 14, at 335.
60. The victims in most asbestos cases in the sampling consist of workers using asbestos materials. 3410 Awards By Product, Prod. Liab. Rep. (CCH), ¶¶ 7755-7903 (June 1993) [hereinafter Damage Awards].
In contrast, the average awards in a sampling of industry machinery/equipment-related cases and household product-related cases, which tend to be Type II injury cases, are $342,422 and $445,671 respectively. Furthermore, according to an empirical study of punitive damages, the most powerful incentive signal in the American judicial system, 27% of punitive damages awarded from 1986 to 1990 were for the victims of asbestos cases, and 15% were for victims of accidents related to medical products, including breast implants, contraceptive devices, and drugs.

As a result, the American judicial system has compelled Type I risk-creating manufacturers not only to reduce the risks but also to discontinue product lines and close down some of these companies. In various forms, the American judicial system, through its incentive signals, has led Type I risk-creating manufacturers to “reduce” product risk. The American judicial system has also sent incentive signals targeting Type II risks. While Type I injury cases make up the bulk of American product liability suits, a significant number of Type II injury cases exist at both the federal and state court levels. Damage awards in these Type II injury cases are often as high as those awarded in Type I injury cases. Moreover, juries in product liability cases have awarded punitive damages not only for the victims of Type I injury cases, but also for victims of accidental injuries caused by recreational products, household products, and machinery, all of which tend to contain Type II rather than Type I risks.

More importantly, the media and political propaganda provided by tort reform supporters in the United States have reinforced the incentive signals sent to Type II risk-creating manufacturers. The media and political propaganda often publicize a large number of lawsuits as well as high

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61. This information is based on Damage Awards, supra note 60. The cases introduced in this Damage Awards section are not an exhaustive listing of all U.S. product liability cases. Id. Nevertheless, the information provides a general idea regarding the varying amounts of damage awards in asbestos cases and other product-related cases. Id.

62. Id.


64. Making a manufacturer take additional safety measures is not the only way to reduce product risk. Requiring a manufacturer to reduce production levels or to stop producing dangerous products is another effective way, especially for Type I accidents. Closing a company that is creating product risks is a more aggressive way to reduce product risks. Johns-Manville Corp., one of the biggest asbestos manufacturers, filed a Chapter 11 petition as a result of large damage awards against it. Cooper, supra note 14, at 335. A.H. Robins Corp., the manufacturer of the Dalkon Shield, also sought protection from product liability suits through bankruptcy laws. Id.

65. The “Damage Awards” section of the CCH Product Liability Reporter listed 730 plaintiff-winning cases involving 260 kinds of products or product hazards litigated between 1963 and 1991. Damage Awards, supra note 60. Most of the accidents in these cases stem from Type II product risks. Id.

66. 108 cases out of 730 plaintiff winning cases listed in the “Damage Awards” section of the CCH Product Liability Reporters constitute the “million dollar verdict” cases. Id. The products subject to million dollar verdicts are not only Type I risk-related products but also Type II risk-related product, such as lawn mowers and helmets. Id.

67. RUSTAD, supra note 63, at 26.
jury award cases, regardless of the type of product risks involved in each case. As a result, they have created an atmosphere of a liability crisis.\(^6\) This atmosphere pressures all manufacturers into paying more attention to product safety issues, regardless of the types of product risks involved. Therefore, even if the courts do not actually deal with as many Type II injury cases as is widely believed, the American judicial system is still successful in sending incentive signals to Type II risk-creating manufacturers.\(^6\)

2. Targets of the Japanese Judicial System

Although the Japanese judicial system has created far fewer signals than the American judicial system, its primary target also has been Type I risks. During the last twenty years, the Japanese courts have heard several Type I injury cases. These Type I injury cases include the PCB-contaminated Kanemi Rice-Bran Oil cases, the Chino-form adverse drug reaction cases, and the Chloroquine drug side-effect cases. In each case, a substantial number of people suffered serious injuries. In each of the fourteen cases related to these accidents litigated between 1977 and 1987, plaintiffs won and the total damage award ranged from 220 million yen ($922,547; \(\$1 = ¥238.47\) in 1985\(^7\)) to 12 billion yen ($57,039,643; \(\$1 = ¥210.38\) in 1978).\(^7\)

In Type I injury cases, the Japanese courts often have been able to impose liability on the government due to a breach of duty to inspect products and ensure their safety, because Japanese law does not recognize the concept of sovereign immunity.\(^7\) As the recipient of such incentive signals, the government is more likely to develop regulatory schemes to reduce Type I risks. Japan's extensive government intervention by means of regulation may stem partly from the effect of these incentive signals.\(^7\)

Incentives for the government to make the cost of safety less expensive,

\(^{68}\) Some commentators assert that the information concerning the liability crisis and litigation explosion is not actually supported by evidence. Saks, supra note 11, at 1156-59.

\(^{69}\) According to a survey conducted for corporate representatives at product safety conferences, a majority of these representatives believe that they would be a target of plaintiff attorneys and the subject of large jury awards if Type II accidents occurred. See infra notes 106, 160 and accompanying text. See Appendix II, survey 2.


\(^{71}\) YASUDA RESEARCH INSTITUTE, supra note 19, at 414-60.

\(^{72}\) According to Article 1 of the Government Compensation Law, when any public servant or public entity exercises the public authority and wrongfully causes damages to another person associated with its duty intentionally or negligently, the government or the public entity is liable for the damages. Yukihiro Asami, Product Liability in Japan, JAPAN BUS. L. LETTER 10 (July 1989).

\(^{73}\) The role of the Japanese government will be examined in Part III.B.1.
however, are not as strong as manufacturers' because governmental resources stem from taxes rather than from sales.

Also, where the government shares liability with risk-creating manufacturers, incentive signals sent by courts do not have the same impact on Type I risk-creating manufacturers as those sent by American courts. By sharing liability with the government in Type I injury cases, Type I risk-creating manufacturers receive fewer incentive signals to the extent the courts apportion some of the liability to the government. Some courts have apportioned government liability from 33% to as high as 60%.\(^\text{74}\) Among the fourteen cases related to major Type I injury cases described earlier, the courts assigned government liability in eleven of them.\(^\text{75}\) When the government is held liable to these degrees, the effectiveness of incentive signals sent from courts to manufacturers is diminished.

Moreover, these court decisions do not substantially encourage future victims to use the judicial system as a means of recovering accident costs. The average damage award for individual plaintiffs is far below a million dollars, even in cases involving serious or fatal injuries. In the Chino-form adverse drug reaction cases, where more than 11,000 people suffered serious side effects to their nervous systems, the average damage award per victim ranged from 16,510,000 yen ($78,477; $1 = ¥210.38 in 1978) to 29,960,000 yen ($136,791; $1 = ¥219.02 in 1979).\(^\text{76}\)

In addition, Japanese courts have never imposed punitive damages on any risk-creating party. In contrast to the American judicial system, Japanese courts have kept civil liability from including any punitive function component. For example, in the Chloroquine cases, a pharmaceutical company sold medicines which caused blindness in a number of users. The plaintiffs argued that the court should impose punitive damages on the company because the company, in the pursuit of its profits, had deceived users about the medicine's effects.\(^\text{77}\) The court, however, refused to impose punitive damages on the manufacturer because "including a 'punitive' mechanism in civil liability is against the fundamental policy of the Japanese damage system, which pursues the fair allocation of damages (the actual costs of accidents), and is not acceptable under the Japanese judicial system, where the functions of civil law are clearly distinguished from those of criminal law."\(^\text{78}\)

In the Chloroquine cases, as in other product liability cases in Japan, the courts did not explicitly consider incentive-creating functions of the civil liability system. Indeed, they have been reluctant to utilize civil liabil-

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\(^{75}\) See generally Yasuda Research Institute, supra note 19.


\(^{77}\) Yoshio Nakai, Chloroquine Yakugai Hankeitu niokeru Songai-ron [The Damage Theory in the Judgment of the Chloroquine Defective Drug Case], 1045 Hōshi 3, 6 (1982).

\(^{78}\) Id.
ity as a deterrent to manufacturers' risk-creating behavior. These court
decisions have discouraged victims from using the judicial system.

The courts' failure to send effective incentive signals is more serious in
Type II injury cases. The courts are less likely to hold Type II risk-creating
manufacturers liable, and damage awards do not have a significant impact
on the manufacturers even if they are held liable. For example, among
eighteen automobile-related Type II injury cases decided between 1971 and
1989 where the malfunction or defective condition of cars was at issue, the
courts imposed liability on the car manufacturer in only one case, on a
component manufacturer in one case, and on car dealers or car inspec-
tion/repair businesses in seven cases. Where the manufacturer was
found liable, it paid 1,103,221 yen ($3,718; $1 = ¥296.78 in 1975) in dam-
ages. Even the highest damage award imposed on a car dealer was less
than fifteen million yen ($67,987; $1 = ¥220.63 in 1981). Thus, low dam-
age awards and few cases where plaintiffs were successful indicate how
difficult it is for the judicial system to send incentive signals to Type II risk-
creating manufacturers.

Furthermore, the commonly accepted notion that Japanese society is
non-litigious may make manufacturers less concerned about potential civil
liability. Although some American scholars doubt the credibility of this
social norm, Japanese manufacturers believe that the chances of being
sued are slim, and this may prevent them from receiving judicially-sent
incentive signals. A 1987 Japanese survey showed that only 12% of Japa-
nese manufacturers had experienced a product liability suit, while 85%
of American manufacturers responded that they had experienced a prod-
uct liability suit (the PSP survey). (See Graph I) Since most Japanese
manufacturers have never experienced product liability litigation, it is diffi-
cult for them to actually anticipate litigation as one of the consequences of
product-related accidents. This is especially true in Type II injury cases;
even though a court may hold a Type II risk-creating manufacturer liable,
the court decision will have less impact on potential risk-creating manufac-
turers because they tend to consider the potential litigation unusual.

79. See infra notes 173-79 and accompanying text.
80. In this case, the seller of the car was also held liable. Masahisa Yamaguchi et al.,
Jidosha jiko no songai baisho to hoken [Compensation for Car Accidents and Insur-
81. Id. at 46-51.
82. See infra notes 173-79 and accompanying text.
(1978). See also Galanter, Beyond Litigation Panic, supra note 11, at 27, 28.
84. Keizai kikaku-cho kokumin seikatsu-kyoku, shomissha gyosei daichika [Con-
sumer Administration Office of the Social Policy Division in the Economic Planning
Agency], seizobutsu sekinin wo meguru saikin no ugoki [The Recent Trend regard-
85. Supra note 20, Appendix I.
86. See Table I and supra notes 20-22.
1996 Product Safety Systems Comparison

Graph I
Companies with Product Liability Litigation Experience

<table>
<thead>
<tr>
<th></th>
<th>Japan</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Not Experienced</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Experienced</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Number of responding manufacturers:
Japan: 930
U.S.: 107

B. Lawyers

1. Lawyers in the United States

In order for judicial systems to create signals, victims of product-related injuries must first bring lawsuits against manufacturers. Because the victims usually need lawyers to bring lawsuits, the accessibility of counsel is a key factor in the creation of signals by the judicial system.

In the United States, the large number of lawyers provides potential victims ready access to counsel. The American Bar Association (ABA) estimates that approximately 850,000 lawyers practice in the United States. The United States has one lawyer for every 356 people, while Japan has one lawyer for every 8,569. In 1982, nearly 45% of American law firms' receipts were from individuals and the absolute volume of legal services purchased by individuals steadily rose from 1967 to 1982. One-third of American lawyers are solo practitioners, who tend to represent plaintiffs in product liability cases. The Association of Trial Lawyers of America (ATLA) has nearly 60,000 members, which is approximately four times

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88. KEIZAI KIKAKU-CHO KOKUMIN SEIKATSU-KYOKU [SOCIAL POLICY DIVISION: ECONOMIC PLANNING AGENCY], OSHO NO SEIZOBUTSU SEKININ SEIDO NI TSUTE [PRODUCT LIABILITY SYSTEM IN EUROPEAN COUNTRIES] 74-75 (1992). National populations per lawyer in European countries are: Germany—819, France—1944, Italy—1152. Id.
90. Id. at 442.
Thus, compared with Japanese people, Americans have a greater access to attorneys when product-related injuries occur.

More importantly, competition to attract potential clients among a large number of attorneys encourages intense marketing activities and specialization. In the United States, lawyer advertising alerts actual and potential victims to the possibility of litigation and reduces their search costs in finding counsel.  

Although greater accessibility to plaintiff counsel in the United States generally increases the chances for the judicial system to create signals for all types of product risks, not all claims brought to attorneys become filed cases. Whether the American judicial system actually has a chance to create signals depends on attorneys' decisions to accept cases. Attorneys "filter" cases based on the "margin between the cost of litigating the case (the value of the attorney's time and the opportunity cost of taking the case) and the expected fee from the case."  

In the United States, most trial lawyers are paid on a contingency basis. Under a contingent fee agreement, a lawyer who wins his or her case gets a portion of the award, typically 30%. If the lawyer loses and damages are not awarded, the lawyer gets nothing. Therefore, contingent fee agreements make trial lawyers very sensitive to case selection. A typical attorney's evaluation of whether to take a case has been stated as follows:

If the projected cost to a lawyer of litigating a case to a judgment is $X$, in order for the attorney to break even, the expected award or settlement, discounted by the probability of success at trial, must be three times $X (3X)$, if the lawyer's fee is one third of the award. The attorney will then add to that $3X$ the profit margin he requires. Injuries below this final amount are, therefore, unlikely to become litigated cases.  

Because the costs of litigation, including the attorney's time, are relatively high, trial lawyers are not willing to accept cases unless they expect high damage awards.

As a result, trial lawyers are most likely to accept Type I injury cases. Greater severity of injury and higher probability of occurrence may increase the expected damage award. Even if a Type I injury case is complicated, requiring more resources to litigate due to the preparation of complex evidence, litigation-related costs decrease as more cases involving the

92. Sanger, supra note 87.
94. According to the Civil Litigation Research Project's 1983 report, half of the complaints brought to a lawyer were actually filed. Saks, supra note 11, at 1190 (citation omitted).
95. Id. at 1191. The strength of the existing evidence in a case is also an important factor to take into consideration in the filtering process. Id.
96. Id.
97. A higher probability of accidents usually makes it easier for counsel to prove a defendant's liability, especially when the causation or defendants' knowledge of the similar types of accidents (or negligence in knowing the potential for accidents) is at issue.
same type of accident are litigated. For example, after the first asbestos cases, evidence preparation became routine, easily replicated, and the cost of such litigation decreased.98

In contrast, plaintiff's attorneys are less willing to accept Type II injury cases. Even though a high severity of injury may be involved, the lower probability of occurrence makes it more difficult for plaintiff's attorneys to argue the cases. However, intense competition among plaintiff's attorneys causes some to try litigating Type II injury cases. The attorney's ability to spread the risk of taking these cases over other "strong" cases enables them to "gamble" on winning large recoveries in Type II injury cases.99

Moreover, even if the evidence is too weak to litigate, plaintiff's attorneys sometimes take Type II injury cases with the expectation of profits they might earn in settlements. If manufacturers predict that obtaining dismissal on the pleadings or responding to discovery requests will be very expensive, they may prefer to settle the case regardless of their chances of winning.100 When manufacturers foresee a number of similar cases, they will not jump into an "easy" settlement to protect their long-term benefits. Because Type II injury cases are less probable, however, manufacturers are more likely to choose quick settlements and avoid spending litigation-related costs,101 encouraging plaintiff's attorneys to take Type II injury cases.

Even if manufacturers are reluctant to settle Type II injury cases, some plaintiff attorneys are willing to try these cases merely to enhance their reputations. Plaintiffs' attorneys gain long-term benefits by demonstrating their enthusiasm for litigation because a reputation as an aggressive negotiator tends to increase their bargaining power in future cases.102 In contrast, manufacturers are less likely to act as tough negotiators in Type II injury cases because they do not expect to deal with low probability Type II cases often. Generally, they are more concerned about their reputation for safety instead of their "toughness" in negotiations. Manufacturers will, therefore, prefer to settle Type II injury cases rather than litigate when they are concerned about the negative publicity of Type II injuries.

98. Saks, supra note 11, at 1192.
100. Even a frivolous action may possess some settlement value when it is more costly for a defendant to litigate than it is for a plaintiff. Id. at 701 (citing Rosenberg & Shavell, A Model in Which Suits Are Brought for Their Nuisance Value, 5 INT'L REV. L. & ECON. 3, 4-5, 9-10 (1985)).
101. Coffee points out that defendants would prefer not to settle if: 1) they believe that the settlement would only expose them to future litigation; 2) they see reputational injuries; 3) they expect that their litigation expenses would be fully indemnified by the company; and 4) their insurance companies resist the settlement (because the insurance company is a "repeat player"). Coffee, supra note 99, at 702.
102. Id. at 712-14. Coffee also mentions that litigation victories may significantly enhance the rank and seniority of plaintiff's lawyers in the plaintiff's bar, allowing them to obtain a more advantageous position when they work with other plaintiff's attorneys. Id.
The PSP survey showed the willingness of plaintiff's attorneys to deal with product-related injury cases.103 In the survey, 85% of manufacturers responded that they had received complaints from users of their product involving either personal injuries or property damages during the previous year.104 Among the companies that received complaints regarding their products, 57% said that lawyers contacted them about the accidents.105 (See Graph II)

Graph II
Persons Who Contacted a Company Regarding a Product-Related Accident

Manufacturers selected all applicable answers.

Number of responding manufacturers: 107

As a result, manufacturers strongly believe that trial attorneys are willing to try cases related to Type II injuries. According to a survey conducted for American manufacturers regarding their impression of the American judicial system, roughly 90% believed that trial lawyers would try to bring a lawsuit against them if their products caused Type II accidents, regardless of the kind of defect (manufacturing defect, design defect or warning defect) the plaintiff's claim was based on.106 (See Graph III) These manufacturers' beliefs regarding trial lawyers would make them more concerned about Type II risk reduction.

103. Supra note 20, Appendix I.
104. Id.
105. Id.
106. This survey was conducted by the author for 39 American manufacturers participating in The Roles of Warnings and Instructions Program, in Madison, WI (Sept. 15-17, 1993). See Appendix II, survey 2.
Q. If your product causes serious injuries in an accident, trial lawyers will try to bring a lawsuit against your company, even though the probability of such an accident is low.

Graph III
Manufacturer's Impressions of Trial Lawyers

Number of responding manufacturers - 39

2. Lawyers in Japan

 Victims of product-related accidents in Japan have restricted access to legal service because of the small number (approximately 14,000) of attorneys in Japan.\textsuperscript{107} Although 38,000 students graduate from Japanese law faculties every year, most law graduates go into business and do not obtain an attorney’s license.\textsuperscript{108} Even though some law graduates may do legal work in companies or the government, they cannot represent clients in a courtroom without a license. Therefore, the number of possible attorneys who can act as plaintiff’s counsel in product liability cases is quite limited.

Furthermore, the way legal services are marketed in Japan discourages victims from contacting attorneys. Although initial consultation fees in the United States are often free because of the intense competition among attorneys, consultation fees in Japan are at least 5,000 yen ($49; \$1 = ¥102.18 in 1994) for the first thirty minutes.\textsuperscript{109} Also, in Japan, attorneys usually do not specialize in areas like personal injury, and lawyer advertising is prohibited. Thus, compared with their American counterparts, Japanese victims spend more resources finding counsel suitable for their product liability cases.

In Type I injury cases, victims, as a group, are able to use more resources than victims of other types of injuries in order to seek legal services. It is likely that someone in the group would know an attorney who could represent them.\textsuperscript{110} Moreover, since Type I injury cases tend to

\textsuperscript{107} Sanger, supra note 87.
\textsuperscript{108} Galanter, Beyond the Litigation Panic, supra note 11, at 28.
\textsuperscript{109} NIHON BENGOSHI RENGOKAI CHO SASHITSU [JAPAN FEDERATION OF BAR ASSOCIATIONS INVESTIGATION OFFICE], BENGOSHI HOSHU KITEI COMMENTARY [ATTORNEY’S FEE RULE COMMENTARY] 73 (1988). For recent changes in the attorney’s fee rules, see Junko Sumida, Bengoshi Hoshu-kitei no kaisel [Change in Attorney’s Fee Rules], NIKKEI SHINBUN, Feb. 26, 1996, at 39.
\textsuperscript{110} For example, in one of the Kanemi mass-tort cases, the lawyer who took the case was an old friend of one of the victims. Michael R. Reich, Public And Private Response To A Chemical Disaster In Japan: The Case Of Kanemi Yusho, 15 LAW IN JAPAN 102, 113 (1982).
attract public attention, the chance that some public-minded attorneys will help victims is high.\textsuperscript{111} In Type II injury cases, however, victims tend to be isolated, and their resources to obtain legal services are usually limited. Furthermore, it is not usual for attorneys to bring lawsuits on behalf of the victims in Type II injury cases because these cases are rarely successful. A recent survey shows that only thirty of 250 defective product-related cases in which Japanese lawyers were consulted were eventually filed,\textsuperscript{112} while American attorneys were reported to have filed half of the cases for which they were consulted.\textsuperscript{113}

The attorney fee system in Japan also discourages victims of product-related accidents from using the judicial system to seek remedies. Attorney fees in Japan consist of a retainer fee and a contingent fee, both of which are determined in proportion to anticipated damage awards. Victims of product-related accidents in Japan, therefore, must spend more on fees as the value of their potential damage awards increase. For example, a plaintiff has to pay $30,000 as a retainer fee if he or she wants to bring a lawsuit for a million dollars in damages.\textsuperscript{114} Filing fees are also determined in proportion to the anticipated damages. In Japan, if a victim files a lawsuit claiming one hundred million yen ($978,665; $1 = ¥102.18 in 1994) in damages, the victim must pay ¥417,600 ($4,087) as a filing fee,\textsuperscript{115} whereas in Wisconsin State courts a victim must pay $98\textsuperscript{116} and in U.S. district courts $120.\textsuperscript{117}

These fee systems discourage victims from seeking the higher damage awards created by Type I and Type II risks. Because victims in Type II injury cases normally lack sufficient resources compared to a group of victims in Type I injury cases, they are unlikely to use the judicial system to seek compensation. Thus, the judicial system loses a chance to create incentive signals targeting Type II risks.

C. Law and Legal Theories

Once victims of product-related accidents bring lawsuits, the courts create signals through their rulings. The legal theories on which the courts base

\begin{itemize}
  \item \textsuperscript{111} In the Kanemi cases, a group of activist lawyers promoted litigation and played an important role in fashioning remedies for the victims. \textit{Id.} at 114.
  \item \textsuperscript{112} According to the survey, 54 cases were settled but no action was taken in 166 cases. HARUO KITAMURA, PL HO wO KO KANGAEYO—PL HO wa SEKAI no JOSHIK1 [How to THINK ABOUT PRODUCT LIABILITY—PRODUCT LIABILITY IS THE WORLD’S COMMON SENSE] 84 (1992).
  \item \textsuperscript{113} Saks, \textit{supra} note 11, at 1190.
  \item \textsuperscript{114} For a description of the Japanese attorney fee system, see generally NIIHON RENGOSHI RENGOKAI CHO SASHITSU, \textit{supra} note 109. \textit{See also} Sumida, \textit{supra} note 109.
  \item \textsuperscript{115} Mikio Akiyama, \textit{Sosho HiyO Seido tO no GOrika} [Rationalization of Litigation Fee System], 1028 Jurist 132, 133 (1993). Until the civil procedure law was amended in 1992, this figure was 17.7% higher. \textit{Id.}
  \item \textsuperscript{116} Interview with Staff Member, Civil-Family Office of Dane County Courts, in Madison, WI (Dec. 6, 1993).
  \item \textsuperscript{117} Interview with Staff Member, Clerk Of Court's Office of U.S. District Court, in Madison, WI (Dec. 6, 1993).
\end{itemize}
these rulings are important in determining what type of product risks will be targeted by incentive signals from judicial systems.

1. **Legal Theories in the United States**

Generally, American courts use tort law in product liability cases. Under tort law, courts use two theories: negligence and strict liability. While negligence theory focuses on the due care exercised by manufacturers, strict liability theory focuses on products' dangerous features. Under strict liability theory, if manufacturers place defective products in the "stream of commerce," they may be liable for damage caused by such products regardless of the degree of care exercised. In applying negligence and strict liability theories to design and warning defect cases, American courts have based determinations of liability by balancing several factors regarding potential accidents and defendant behavior.

Judge Learned Hand described factors for use determining the legal standards of due care as follows:

The degree of care demanded of a person by an occasion is the resultant of three factors: the likelihood that his conduct will injure others, taken with the seriousness of the injury if it happens, and balanced against the interest which he must sacrifice to avoid the risk.

As to determining a manufacturer's liability in a design defect case, a federal district court characterized the formula as follows:

First, you should consider the likelihood that the product as thus designed will result in injury to a user . . . . The second factor you should consider in the unreasonably dangerous formula is the seriousness of potential injury in such circumstances . . . . Third, you should consider the ability of the manufacturer . . . to eliminate any unsafe characteristics . . . without impairing the usefulness . . . or significantly increasing [the product's] cost . . . .

A California court considered the following factors in determining whether a safety warning was necessary:

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118. Warranty law may also be a basis of product liability. In applying warranty law to product liability cases, many jurisdictions remove privity requirements either by developing common law or adopting the Uniform Commercial Code. See U.C.C. § 2-318 (1977). Therefore, if products do not serve their ordinary/particular purpose and cause damages, the victims can seek recovery directly from manufacturers regardless of the type of product risk involved. Id. However, the scope of product risk targeted by warranty law is more limited than that targeted by tort law because some products can satisfy the ordinary/particular purpose test but also have dangerous features. Id.


120. Conway v. O'Brien, 111 F.2d 611, 612 (2d Cir. 1940) (emphasis added).

121. Bowman v. General Motors Corp., 427 F. Supp. 234, 243-44 (E.D. Pa. 1977) (emphasis added). This approach is based on the risk/utility test. Another approach to determining a defect of a product is the consumer expectation test. Under this test, a product may be found defective if "the product failed to perform as safely as an ordinary consumer would expect when used in an intended or reasonably foreseeable manner." Barker v. Lull Engineering Co., Inc., 573 P.2d 443, 454 (Cal. 1976). Proving a defect based on this test is usually more difficult than the risk/utility test, "because [in] many situations . . . [a] consumer would not know what to expect, because he would have no idea how safe the product could be made." Id. (citation omitted).
the normal expectations of the consumers as to how the product will perform, [2] degrees of simplicity or complication in the operation or use of the product, [3] the nature and magnitude of the danger to which the user is exposed, [4] the likelihood of injury, and [5] the feasibility and beneficial effect of including a warning.122

If potential injuries measured by the severity of such injuries and the probability of the occurrence exceed reducing costs under the formula, courts are more likely to hold manufacturers liable for damages.

This approach helps courts impose liability on manufacturers causing Type I injuries. Since the severity of injuries and the probability of their occurrence are significant in Type I injury cases, Type I risk-creating manufacturers who fail to take safety measures tend to be held liable under negligence theory or strict liability theories in design and warning defect cases. This is because a larger amount of potential loss (the loss multiplied by the probability) demands the higher cost of taking safety measures. Even if safety measures are not currently available, manufacturers may believe that they can undertake cost-justifiable safety measures by using, at maximum, resources equivalent to the amount of the potential loss. In evaluating cost-effectiveness, manufacturers will calculate that research expenses incurred to develop appropriate safety measures will yield profits in the long run by reducing the high potential liability.123

Courts, however, find it more difficult to hold Type II risk-creating manufacturers liable. This is because the lower probability reduces potential loss and, as a result, requires lower costs for safety measures. If the potential loss does not exceed the cost of reducing product risk, courts are less likely to impose liability on manufacturers (and will not send incentive signals).

Under strict liability theory, however, courts are more likely to create incentive signals. In manufacturing defect cases, the courts tend to impose more stringent liability on manufacturers. For example, in a defective blood case where the defendant transfused blood containing serum hepatitis virus, the defendant asserted that there was absolutely no means to detect the existence of serum hepatitis virus.124 Nevertheless, the court ruled that the defendant was subject to strict liability because "[t]o allow a defense to strict liability on the ground that there is no way, either practical or theoretical, for a defendant to ascertain the existence of impurities in his product would be to emasculate the doctrine of strict liability and in a very real sense would signal a return to a negligence theory."125

Even in design defect and warning defect cases, the policy considerations behind strict liability theory may encourage the courts to impose liability on manufacturers causing Type II injuries as well as Type I injuries. Basically, in an action based on strict liability theory, a plaintiff must prove

123. See supra notes 46-48 and accompanying text.
124. Cunningham v. MacNeal Memorial Hospital, 266 N.E.2d 897, 902 (Ill. 1970).
125. Id.
that a product has a defect and that the defect creates an unreasonably dangerous condition. Proving these two factors often poses a heavy burden on victims, especially in Type II design defect cases. Considering the policies behind strict liability, some courts have reduced a plaintiff's burden of proof in Type II design defect cases by shifting to manufacturers the burden of proving the non-existence of defects or by easing the requirement of proving an unreasonable danger.

2. Legal Theories in Japan

The Japanese judicial system is based on a civil law system. Unlike their American counterparts, Japanese judges cannot make law. Japanese courts can only interpret existing law until the legislature enacts new law. In deciding product liability cases, Japanese courts have relied primarily on tort law, which is codified in the Civil Code. Article 709 of Minpo (Civil Code) provides the general principle, based on negligence theory, of Japanese tort law. Because the legislature had not amended this provision since 1898, the Japanese courts did not have a chance to use any new legal doctrine, such as strict liability, in product liability cases.

Under negligence theory, Japanese courts impose liability on manufacturers when they find that the manufacturers have breached the duty to avoid foreseeable adverse consequences, and the burden of proof for this breach of duty is on the plaintiff. Therefore, manufacturers are held liable only when the plaintiff proves that the manufacturers could have foreseen potential injuries but did not take reasonable precautions.

Even without strict liability theory, however, Japanese courts sometimes reduce a plaintiff's burden of proof by utilizing "the presumption of negligence," or by requiring a higher degree of due care. In one of the PCB-contaminated Kanemi Rice-Bran Oil cases, which were Type I manufactur-

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128. Japanese courts use warranty law as well, although less often than tort law in product liability cases. Under warranty law, manufacturers are liable if their products do not serve their ordinary or particular purposes. Minpo (Civil Code), Law No. 89 of 1896, art. 415. In order to hold manufacturers liable, Japanese courts strictly require victims to show a contractual relationship (privity) with the defendants. Yasuda Research Institute, supra note 19, at 339. This privity requirement often bars victims from recovering in product liability cases because consumers usually do not have a direct contractual relationship with manufacturers. Id. In only one case, involving contaminated food, a Japanese court loosely interpreted the privity requirement in favor of the victims. Judgment of Dec. 27, 1973, Gifu Chisai, Ogaki Shibu [Gifu District Court, Shibu Division], 725 Hanji 19, reviewed by Yasuda Research Institute, supra note 19, at 339.
129. Minpo (Civil Code), Law No. 89 of 1896, art. 709. For Japanese laws applicable in product liability cases, see generally Asami, supra note 72.
130. On June 22, 1994, the Japanese Parliament enacted the Product Liability Law, which introduced strict liability into Japanese tort law in product liability cases. See PL Ha ga seiretsu, supra note 3.
132. Yasuda Research Institute, supra note 19, at 336.
ing defect cases, the courts held that food manufacturers would be presumed liable if: (1) a defect harmful to human life or health existed in the food; (2) the defect was created before the food was sent into the marketplace; (3) a person who consumed the foods died or was seriously injured; and (4) the food manufacturers could not prove that they had been unable to foresee the occurrence of such a defect in the exercise of a high standard of care required of all food manufacturers.133 In one of the Chino-form adverse drug reaction cases, which were Type I design defect cases, the court held pharmaceutical manufacturers to a higher standard of care, including: the duty to continuously confirm the utility and safety of medicines through foreign and domestic research and clinical experimentation; the duty to stop manufacturing and marketing medicines when they are found to have serious side effects; and the duty to warn users of potential adverse effects when the utility of the products outweighed the potential adverse effects.134

Although these approaches bring negligence-based liability closer to strict liability, Japanese courts tend to take these quasi-strict liability approaches only in Type I injury cases, where food and pharmaceutical manufacturers, for example, cause Type I injuries. The courts have imposed a high standard of care on these Type I risk-creating manufacturers, but they have not imposed the same standard on manufacturers of other kinds of products.

In addition, stringent causation requirements have placed a heavy burden, especially on Type II injury victims, where the low probability of injuries usually makes it more difficult to prove causation. This is partly due to the scope of discovery under Japanese procedural law, which is much more limited than under the American discovery system. Japanese courts allow only limited disclosure of documents and rely heavily on oral argument at trial.135 Therefore, in complicated cases, even victims of Type I injuries bear a heavy burden of proving the causal link between products and their injuries. For example, Showa Denko, a Japanese manufacturer, marketed a sleeping tablet, L-Trypton, in the American market as well as

135. Koji Harada, Civil Discovery Under Japanese Law, 16 LAW IN JAPAN 21, 32-39 (1983). Harada described the difference between civil procedure systems in Japan and the United States as follows:
With respect to the pretrial process, civil procedure in the United States can be characterized as a war with weapons, and Japanese civil procedure as a bare knuckles fight. In Japan, formal oral arguments, comparable to the exchange of letters between shy lovers, are repeated in court to specify the alleged negligence without the parties having any effective means of obtaining information about the particulars of the negligence. On the other hand, the American system, while it works very effectively, costs a great deal, takes time, and is subject to abuse.
the Japanese market. Tablet users started suffering muscular pain and dizziness. In 1990, the United States Food and Drug Administration discovered more than 1,500 victims of the L-Tryptophan syndrome and thirty-one deaths caused by the syndrome. More than 1,000 lawsuits have been filed against Showa Denko, and the company paid 12.3 billion yen ($9,701,846; $1 = ¥126.78 in 1992) in the first half of 1992 to settle the claims. In Japan, however, there is no case associated with the L-Tryptophan syndrome. One Japanese victim said that it was difficult to litigate because of the restrictive discovery system.

To reduce the burden of proof on plaintiffs, Japanese courts have allowed plaintiffs to use epidemiological information in Type I injury cases. Nevertheless, epidemiological studies of product-related accidents are possible only when a large number of people suffer the same kind of injury from the same kind of product, usually a Type I injury. In cases involving isolated injuries, such as Type II injury cases, victims are discouraged from bringing a legal action because they must prove specific causation.

D. The Decision Makers

When a judge or a jury determines liability and awards damages based on applicable legal theories, judicial systems can send signals to risk-creating manufacturers. Juries have played a very important role in product liability cases in the United States, even though, in the current discussion of tort reform, business advocates criticize their performance and abilities in product liability cases. The criticism includes the "uncertainty" created by "unusually large and unpredictable jury awards." Japan, in contrast, has no jury system. It is exclusively the judge's role to find facts, interpret the law, and apply it to the case.

This section analyzes how the American jury system and the Japanese non-jury system affect the abilities of their respective judicial systems to create incentive signals. This section focuses on their different abilities to determine liability and damage awards as well as the impact on Type II risk-creating manufacturers.

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137. Id.
138. Id.
139. Id.
141. Cohen & Martin, supra note 74, at 331. But see Hideyuki Kobayashi, Matsushita Denki Kara Terebi Kasai Jiken [A Case Involving a Fire Caused by a Color TV Made by Matsushita Electric], 165 HOGaku KYOSHITSU 113 (1994), for a recent court ruling that reduced a victim's burden of proof in a non-Type I injury case.
142. Product Liability Reform Act, supra note 13, at 44.
1. The American Jury and Product Liability Cases

a. Liability determination

Decision makers in a judicial system need to hold liable risk-creating manufacturers in order for a judicial system to create incentive signals targeting such manufacturers. In the United States, the role of juries in determining liability has significantly influenced the creation of incentive signals.

In his 1964 article, Professor Harry Kalven, Jr., showed that judges and juries agreed on the issue of liability in 79% of all personal injury cases. The study further showed that judges disagreed with juries in 11% of the cases because the juries were more pro-plaintiff, while juries disagreed with judges in 10% of the cases because the judges were more pro-plaintiff. In this study, the difference in liability determinations between judges and juries was not substantial.

Cases where a judge disagreed with a jury because the jury was more pro-plaintiff, however, can constitute a key factor in affecting the American judicial system's ability to create incentive signals targeting Type II risks, especially if the reason for disagreement is based on jurors' sympathy for the victims. The balancing aspects of negligence theory and strict liability theory in the design and warning defect cases in the United States may pose a bar to the recovery of damages by victims of Type II risks if the possibility of injury occurrence is minimal. Nevertheless, if jurors focus more on the severity of a victim's injury rather than on the probability of accident occurrence, their sympathetic decision making can help produce incentive signals to target Type II risk-creating manufacturers.

In an interview with a camping burner manufacturer, the manufacturer stated that his company always lost their product liability cases (which usually involved severe burns) because the jury, after seeing heart-breaking pictures of burns, seemed to think that somebody should pay damages even though product design could not have prevented the injury. In a Washington case, in which an infant who drank baby oil suffered serious brain damage, the jury held the manufacturer liable for failure to warn against the risk of a child aspirating, although the manufacturer contended that such a risk was “extremely low” and therefore did not require a manufacturer’s warning. The American jury system may also aid victims of Type II manufacturing defect cases, in which causation is usually difficult to prove because of the low probability. In a car accident case, where the driver suffered severe brain damage and later died, the jury entered a verdict in favor of the plaintiff although all of the plaintiff’s evi-

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144. Id.
145. Interview with Participant at The Roles of Warnings and Instructions Program in Madison, WI (Sept. 15-17, 1993).
146. Ayers v. Johnson & Johnson Baby Prod. Co., 818 P.2d 1337, 1342 (Wash. 1991). Although the Washington Court of Appeals and the Washington Supreme Court ruled in favor of the plaintiff, the trial court granted defendant’s motion for judgment notwithstanding the verdict on the grounds that the evidence failed to establish proximate causation or foreseeability of harm. Id. at 1339-40.
dence was circumstantial and the defendant car manufacturer rebutted every possibility that any manufacturer-related defect had caused the accident.\textsuperscript{147}

These types of cases tend to elicit jurors' natural sympathy for a seriously injured person.\textsuperscript{148} This jury attitude is especially true when a defendant is a manufacturing company.\textsuperscript{149} A survey conducted by the RAND Corporation confirmed the pro-plaintiff attitude of juries when defendants were corporations and plaintiffs suffered severe injuries.\textsuperscript{150} In jury trials, corporate defendants lost 53\% of cases where plaintiffs suffered severe injuries on the defendants' property, while losing 48\% of similar cases when plaintiffs did not suffer severe injuries.\textsuperscript{151} In contrast, when defendants were individuals, the greater severity of a plaintiff's injuries did not increase his or her chances of winning.\textsuperscript{152}

Even though it may be atypical in the United States for juries to find corporate defendants liable due solely to a severely injured plaintiff, such pro-plaintiff decisions have a great impact on manufacturers because the outcomes of these cases tend to be reported more frequently and draw more public attention. Media and political propaganda provided by tort reform supporters play an important role in increasing public awareness of these cases. As a result, the fear of a pro-plaintiff jury leads manufacturers to pay more attention to their safety strategies targeting Type II risks.

b. Damage determination

To create incentive signals, decision makers must not only hold risk-creating manufacturers liable but also impose liability stringent enough to convince the manufacturers that liability and litigation-associated costs will be more expensive than the cost of reducing risks. The prospect of high damage awards makes investment in safety measures economically rational for manufacturers. Therefore, the willingness of decision makers to impose larger damage awards is a key factor in the creation of effective incentive signals.

Some studies indicate that juries tend to award higher damages than judges. In his study, Professor Kalven showed that jury awards were, on average, 20\% higher than judges' awards in personal injury cases.\textsuperscript{153} In

\begin{itemize}
\item 147. Siegel v. Mazda Motor Corp., 835 F.2d 1475, 1478 (D.C. Cir. 1987). The defendant criticized the decision, stating that "accident plus injury, without more, equals recovery." \textit{Id.}
\item 149. \textit{Id.} Owen attributed this jury attitude to general hostility toward "big business." \textit{Id.}
\item 150. AUDREY CHIN & MARK A. PETERSON, DEEP POCKETS, EMPTY POCKETS—WHO WINS IN COOK COUNTY JURY TRIALS 42 (1985). The survey information is based on federal and state jury trials held in Cook County between 1960 and 1979.
\item 151. \textit{Id.}
\item 152. \textit{Id.} When defendants were individuals, they lost 43\% of the cases against plaintiffs suffering severe injuries and 47\% of the cases against plaintiffs not severely injured. \textit{Id.}
\item 153. Kalven, \textit{supra} note 143, at 1065.
\end{itemize}
addition, amounts increased when defendants were corporations and plaintiff's injuries were severe. According to a RAND Corporation survey, in jury trials corporate defendants paid 30% more than individual defendants when plaintiffs were not severely injured, and 50% more when plaintiffs suffered severe injuries.\textsuperscript{154}

Even though juries impose large liability damages on manufacturers, the manufacturers may choose to risk potential liability, especially when the current costs of safety measures for \textit{total units} exceed the costs of potential Type II injuries. Manufacturers can allow accidents to happen, pay damages to the victims, and transfer the compensation costs to the product's price. Strict liability theory in the United States premised this risk allocation scenario: "the risk of injury can be insured by the manufacturer and distributed among the public as a cost of doing business."\textsuperscript{155}

Nevertheless, manufacturers' decisions will be different when juries regard such a risk management policy as a "reckless" disregard or indifference to human life and, therefore, impose punitive damages or increase pain and suffering damages.\textsuperscript{156} In several Type II design defect cases where the lack of safety measures created severe injuries and the safety measure's cost per unit was inexpensive, juries awarded large damage awards to victims.\textsuperscript{157} A plaintiff's attorney admitted that trial lawyers tried to emphasize how inexpensive a feasible safety measure \textit{per unit} was in order to appeal to the jury's sympathy.\textsuperscript{158} If these arguments induce larger damage awards regardless of any rational balancing between the current costs for \textit{total units} of safety measures and the costs of potential accidental injuries, manufacturers are more likely to take safety measures against Type II risks and, at the same time, spend more on finding less expensive safety measures.

More importantly, the media tend to report large jury awards and some political groups emphasize particular "unusually large" jury awards,

\textsuperscript{154} Chin & Peterson, supra note 150, at 43.

\textsuperscript{155} Escola v. Coca Cola Bottling Co. of Fresno, 150 P.2d 436 (Cal. 1944) (Traynor, J., concurring).

\textsuperscript{156} For a discussion of the liability test of punitive damages, see generally Owen, supra note 148.

\textsuperscript{157} A well-known example of this type of case is the Grimshaw case. Grimshaw v. Ford Motor Co., 174 Cal. Rptr. 348 (Cal. Ct. App. 4th 1981). In this case, a California Court of Appeals affirmed a jury award of $2.5 million in compensatory damages and $123 million in punitive damages to a three-year old for severe burns caused by an automobile fire. \textit{Id.} at 399. This fire resulted from improper gas tank placement. \textit{Id.} at 361. Knowing of the car's gas tank defect, the car manufacturer failed to take feasible and inexpensive safety measures, most of which cost less than $10. \textit{Id.}

In a recent case, a jury returned an $11.3 million verdict against General Motors Corporation (GMC) for a truck fire that killed a woman. Jury Blames General Motors In a Fatal Truck Fire in 1990, N.Y. Times, Feb. 5, 1993, at A1. The plaintiff's attorney presented into evidence a GMC report estimating that a safety measure costing $2.20 per car could have prevented the accident. \textit{Id.}

\textsuperscript{158} Comments of a trial lawyer, participating in the successful defense of a product liability lawsuit program, in Madison, WI (Apr. 5-6, 1993).
including "unforeseen punitive damages," while publicizing pro-plaintiff liability determinations by juries. As a result, American manufacturers strongly believe that juries tend to give large damage awards even in Type II injury cases. In a survey of American manufacturers regarding their impression of the judicial system, 79.5% of the respondents agreed that a jury would give large damage awards in Type II manufacturing and warning defect cases, and 76.6% agreed on a jury's large damage award in Type II design defect cases. (See Graph IV) Due to potential stringent liability in Type II accident cases, manufacturers are encouraged to take safety measures against Type II risks.

Graph IV
Manufacturers' Impressions of Juries

Q. If your product causes serious injuries in an accident and your company is sued, a jury will award a large amount for damages for the victims, even though the probability of such an accident is low.

Number of responding manufacturers - 39

2. Japanese Judges and Product Liability Cases

a. Liability determination

The Japanese judicial system is less likely to create incentive signals against Type II risk-creating manufacturers than the American judicial system is. Japanese judges seldom decide Type II injury cases in favor of plaintiffs, no matter what types of defects are involved. Judges have attempted to lower the plaintiff's burden of proof in some Type I injury cases, but they have not made the same attempt in Type II injury cases. This may be because the severity of the injury alone is less likely to affect the judge's decision.

In Type II design and warning defect cases, judges tend to attribute the cause of accidents to plaintiffs' contributory negligence and misuse. In

159. Product Liability Reform Act, supra note 13, at 44. The tort reform bill currently proposed focuses on placing a cap on punitive damages juries may award in product liability cases. See Lewis, supra note 15. See also generally Federal Tort Reform, Conference Committee Reaches Compromise on Product Liability Bill, CCH Product Liability Reports No. 854, at 1 (Mar. 18, 1996).
160. See supra note 106 and accompanying text. See also Appendix II, survey 2.
161. See supra note 136 and accompanying text.
162. See generally YASUDA RESEARCH INSTITUTE, supra note 19, at 403-66. But see Kobayashi, supra note 141.
163. See infra notes 164-68 and accompanying text.
Type II manufacturing defect cases, they tend to decide that a plaintiff's evidence is not enough to prove the defendant's negligence or causation. These Type II injury cases include: a "baby guard" (a fence keeping a child inside a room) case, where the baby was choked by one of the diamond shaped spaces in a fence; a gas heater case, where an eight year old girl warming herself by a heater received severe burns over 30% of her body; and a car fire case, where small children in a car were burnt to death by a fire occurring only five minutes after the parent parked and left the car. In the baby guard case and the gas heater case, the courts attributed the cause of the accidents to the parents' and victims' misuse of the products rather than to the condition of the products. In the car fire case, the plaintiff argued that the fire had been caused by a short circuit in the car's electric system, but the judge decided that the car manufacturer was not liable because the possibility of such a short circuit causing a fire was extremely low.

While the American jury system has helped create incentive signals through some pro-plaintiff decisions against Type II risk-creating manufacturers, Japanese judges have not. In Type II injury cases where the plaintiff suffered severe injury but had weak evidence due to low probability of injury occurrence, Japanese judges failed to create incentive signals to Type II risk-creating manufacturers.

b. Damage determination

In determining damage awards, Japanese judges have never imposed significantly higher damages on manufacturers in cases where the absence of inexpensive safety measures caused severe injuries. This is partly because Japan does not have a damage system which dramatically increases damages in order to punish risk-creating manufacturers for their unsafe practices, such as punitive damages in the United States. It is also due in part to the fact that the Japanese legal system offers no way to transform the "anger" towards a manufacturer's unsafe practices into monetary value, as can an American jury. Japanese judges may, however, impose "apology fees" (Isha-ryō) which are equivalent to damages for pain and suffering and other non-economic losses. Regardless, the fundamental theory of this non-pecuniary damage system is one of compensation rather than sanction, and the judges have not considered this non-pecuniary damage sys-

164. Id.
170. But see Kobayashi, supra note 141.
tem as a means for sending incentive signals to Type II risk-creating manufacturers.172
The following two representative cases, decided in courts of the United States and Japan respectively, show the different abilities of American juries and Japanese judges to send incentive signals to Type II risk-creating manufacturers through their determination of damages. The two cases are Ferris v. Honda Motor Co., Ltd., a 1991 California case173 and Kamezaki v. Mitsubishi Jūkō Co., a 1975 Yokohama District Court case.174 Both cases are Type II design defect cases, and the cause of the accidents in both cases was the absence of a technologically feasible and inexpensive safety device. Neither case involved death or permanent disability.

In the Ferris case, the plaintiff was injured while riding as a passenger on an ATV (all-terrain vehicle) made by the defendant.175 The plaintiff alleged that the absence of a device to keep the passenger's foot away from a rear tire caused her injury.176 She presented evidence showing that the defendant had provided such a safety device in the past, which cost $3 to $4 per vehicle, but had later substituted for it a safety warning stating: "Operator Only."177 The plaintiff incurred medical expenses of $8,500 and lost wages of $8,500.178 The jury awarded $2,175,000 in damages, consisting of $25,000 to compensate for economic loss, $150,000 for non-economic damages, and $2,000,000 for punitive damages.179

In the Kamezaki case, the plaintiff suffered a facial injury while riding directly behind the passenger seat in the rear seat of a two-door car.180 The car did not carry any device preventing the back of the passenger seat from falling forward when no one was sitting in the passenger seat.181 When the car suddenly stopped, the plaintiff fell forward and hit his face.182 The judge found that the back of the passenger seat should have been built to withstand frontal and rear-end collisions in order to support the body of a person in the rear seat and prevent his or her body from falling forward when the car stopped suddenly.183 The judge also found that such a stabilizing device was technologically feasible and, in fact, some two-door cars already incorporated such a device at the time the defendant manufactured the car.184 The judge recognized (but did not

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172. See supra note 77 and accompanying text.
176. Id.
177. Id.
178. Id.
179. Id.
181. Id. at 270.
182. Id. at 268-69.
183. Id. at 270.
184. Id.
award) 3,716,107 yen ($12,521; $1 = ¥ 296.78 in 1975) in damages consisting of medical fees, loss of wages and other pecuniary damages, and 1,800,000 yen ($6,065) as an apology fee. The judge reduced the damages by half based on comparative negligence because the plaintiff was leaning on the back of the passenger seat when the accident occurred. He assigned 30% of the liability to the driver, who suddenly stopped the car, and 20% to the car manufacturer for not installing the safety device. In addition, the judge reduced the driver's liability by 10% because the driver gave a ride to the plaintiff out of kindness.

Although both the U.S. and Japanese courts imposed liability on the manufacturers for the lack of safety devices, there is a clear difference in the signals sent by each court and the impact each had on Type II risk-creating manufacturers. In the Kamezaki case, the manufacturer paid 1,103,221 yen ($3,717) in damages, the equivalent of only 30% of the pecuniary damages the victim incurred. In contrast, in the Ferris case, the total liability damage awarded against the manufacturer was eighty-six times greater than the actual pecuniary losses the victim incurred. Although American appellate courts reduce or reverse damages in 52% of cases involving punitive damages, the impact of high damage award cases on potential risk-creating manufacturers remains effective. In contrast, even when Japanese judges hold manufacturers liable, they fail to send strong incentive signals to potential risk-creating manufacturers because of their damages determination. These cases strikingly illustrate why the Japanese judicial system is less likely than the American judicial system to create incentive signals targeting Type II risk-creating manufacturers.

III. American and Japanese Political Institutions as Incentive-creating Mechanisms

This next section analyzes incentive signals created by U.S. and Japanese political institutions. It first examines the ability of political institutions and their enforcement mechanisms to target Type II risks, with particular focus on American political institutions. Secondly, this section analyzes the characteristics of Japanese political institutions and their enforcement mechanisms.

A. Capability of Political Institutions to Create Incentive Signals

1. Political Influences by Manufacturers and Types of Product Risks

In addition to the U.S. judicial system, U.S. political institutions have also played an important role in creating and sending incentive signals against various kinds of product risk. Those signals have historically targeted cer-
tain kinds of products, such as food, drugs, automobiles, aircraft, and highly flammable and explosive substances. Safety laws related to some of these products are older than the development of American product liability law. Most of these products have, or at least used to have, Type I risks or mass disaster-related Type II risks. In other words, incentive signals from political institutions in the United States have been successful in targeting products that may cause Type I injuries or mass disaster-related Type II injuries.

Although manufacturers have abundant resources to represent their interests in the political process, their efforts are less likely to be successful in opposing political controls on Type I risks or mass disaster-related Type II risks. Because Type I injuries or the images of mass disaster-related Type II injuries tend to bring about stronger public support for such political controls, these injuries strongly encourage political bodies to create regulatory schemes targeting these risks.

However, the lower the probability of injuries or the less the product risks are related to mass disaster accidents, the more difficult it is for political institutions to create incentive signals targeting product risk. The lower probability of injuries decreases the potential impact of the injuries on the public. Also, the media is less likely to exaggerate the impact of Type II injuries if the injuries are not related to mass disaster accidents. The lower probability of injuries and the remote relationship to mass disaster-related injuries decrease the public sympathy for victims as well as the interests of consumer groups, while increasing resistance by interested manufacturers who are less likely to harm their corporate images opposing political control over such risks. Unlike Type I risk legislation, legislation for political control over Type II risks requires considerable efforts by devoted professionals or groups when the legislation is not related to mass disaster accidents. The activities of public-minded professionals in the United States have played an important role in influencing political institutions to create incentive signals targeting Type II risks.

2. Consumer Representatives and Type II Risk Legislation

Public-minded professionals and consumer groups (collectively “consumer representatives”) go through three stages when encouraging political institutions to create incentive signals, especially against Type II risks: data gathering, public awareness enhancement, and legislative efforts. At the data gathering stage, consumer representatives need to collect enough

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191. Id.
192. For a discussion of professional legislative strategies for Type II risk, see POLITICAL APPROACHES TO INJURY CONTROL AT THE STATE LEVEL (Abraham B. Bergman ed., 1992).
information to show that the aggregate number of accidents is "significant," even though the probability of individual cases may not be high. If the aggregate number of accidents is not large enough to attract public attention, there is no chance of persuading political institutions to target Type II risks.

At the public awareness enhancement stage, consumer representatives use various channels of communication to inform the public about Type II risks. If they can successfully raise public awareness and the public takes precautions, consumer representatives may be able to reduce Type II risks without further efforts at enacting law. In reality, however, public awareness efforts do not contribute very much to Type II risk reduction. According to research on the effect of public awareness media campaigns regarding Type II risks, these campaigns tend to increase public awareness but not necessarily change behavior.194

If specific Type II injuries are sufficiently numerous and public awareness about the risk increases, consumer representatives need to make efforts to enact Type II risk reduction legislation. This is a crucial stage in creating incentive signals through political institutions. Any safety legislation, however, tends to be characterized as "anti-business" and, therefore, strong resistance from the business sector (usually manufacturers' groups) often prevents enactment.195 Manufacturers' groups fear that, even if the cost of safety measures is slight, they must continuously incur the cost of additional safety measures or, at least, bear the cost of modifying some production lines. When lobbying against proposed legislation, manufacturers' groups are much more active and organized than consumer representatives whose motivation comes from the pursuit of social good rather than fear of losing profits.196

Especially in Type II risk legislation, manufacturers' representatives try to enlist public support by emphasizing the additional costs that consumers ultimately would incur. An example of this comes from the history of Wisconsin scald burn prevention legislation, which requires hot water heater manufacturers to preset a heater's temperature at a safe level and to attach safety warnings on each unit.

When the bill went to the Senate Judiciary and Commerce Affairs Committee, a national group, the Gas Appliance Manufacturers Association (GAMA), sent a representative to oppose the bill at a public hearing. The gist of his argument was that unfriendly actions toward the industry would result in high water heater prices to Wisconsin consumers (as a result of the "special" thermostat setting).197

Nevertheless, consumer representatives may be able to overcome the political influence of manufacturer groups if they can successfully create

194. Id. at 72.
195. See infra notes 197-98 and accompanying text.
196. Professor Komesar attributes this overrepresentation of potential injurers (manufacturers) to the significant differences in per capita impact between potential injurers and potential victims. Komesar, supra note 26, at 41-42.
public support for Type II risk legislation. For example, "created" public support influenced the final stage of the Wisconsin scald burn prevention legislation.

The Governor, believing that the hot water safety bill was anti-business, was planning not to sign it. However, he was influenced by several of his close friends, who were urged by advocates to call and write him. In addition, there was a letter-writing campaign to the Governor, which resulted in more than 100 letters pertaining to this fairly innocuous bill. When he signed it, the Governor stated that letters from many citizens and groups had influenced his natural inclination not to sign the bill.\textsuperscript{198}

3. \textit{Comparative Analysis of Limitations of Political Signal-oriented Approach}

Creation of incentive signals through the political process depends heavily on the strategies and tactics used by consumer representatives and manufacturers' groups. Although both sides make their arguments based on accident data or cost-benefit analyses, they exploit the information to create strong public support in their favor.

Through manipulation of the information in their favor, manufacturers' groups often try to block political control over product risks.\textsuperscript{199} In addition, the activities of consumer representatives can encourage political institutions to create "misdirected" incentive signals. This misdirection by consumer representatives is particularly common when the same types of products possess both Type I and Type II risks. The public may fear the Type I risks but support public representatives' work towards reducing Type II risks. For example, asbestos has Type I risks for workers using asbestos materials but Type II risks for people using offices or classrooms containing asbestos materials. The threat to the public of asbestos risks, however, pressures political bodies to remove asbestos materials from offices or school buildings at significant costs, including the cost of the lives of workers removing asbestos.\textsuperscript{200}

In contrast, the judicial system is less likely to create these kinds of misdirected incentive signals. Although asbestos companies may lose a few lawsuits brought by people using offices which contain asbestos materials, they lose higher numbers of lawsuits brought by workers using asbestos, paying larger damage awards in the latter. Reacting to these incentive signals, the asbestos companies may place a higher priority on protecting these workers from asbestos exposures than on removing asbestos from office buildings.

To avoid being influenced by manipulated information and misdirected incentive signals, it may be possible for experts in government agen-

\textsuperscript{198} Id. at 75.  
\textsuperscript{199} Id. at 74.  
\textsuperscript{200} Peter Passell, \textit{Economic Scene}, N.Y. Times, Sept. 9, 1993, at D2, quoting from \textit{STEPHEN BREYER, BREAKING THE VICIOUS CIRCLE} 13-14 (1993) (noting that panic over asbestos had led to a cleanup effort costing an estimated $250 million per life saved, but that at the same time, it might actually kill dozens of asbestos-removal workers).
cies to analyze product risks independently from manufacturers' groups and consumer representatives. For example, in the United States, the Consumer Product Safety Commission (CPSC) establishes performance and labeling requirements for consumer products, "when such requirements are reasonably necessary to eliminate unreasonable risks of injury associated with that product."201 As an example of its activities, the CPSC identifies "unreasonable risks" based on cost/benefit analyses. The CPSC regarded the risk of fires caused by children playing with cigarette lighters as unreasonable and the requirement of a child resistant device as reasonably necessary due to its conclusion that the requirement would save from $210 million to $290 million a year at a cost of $95 million.202

This approach is similar to the balancing aspect of negligence and strict liability in design and warning defect cases. The fundamental difference between these two balancing analyses arises from different decision makers: government officials or juries. Although the government officials analyze accident surveys or statistics without observing actual victims, in a court room juries must face a victim who has suffered a severe injury. Therefore, jury decisions tend to be "severity oriented." As discussed previously in Type II risk injury cases, the significant difference between the current per-unit cost of a safety measure and the cost of a victim's serious injury sometimes enables the American judicial system to send strong incentive signals through high jury awards without serious consideration of the total cost.203 Thus, the actual and potential Type II risk-creating manufacturers are often encouraged to take safety measures and invest more in finding less expensive alternatives when they predict high "potential costs." For example, they may anticipate extended liability damages in future cases brought against them for not taking feasible safety measures in spite of knowledge of product risks.

Agency analyses are, however, more "total cost" oriented. An agency's analysis will not focus on detailed information of actual injuries and deaths. Rather, it calculates the total losses based on a per capita "flat cost" of human life, health, and safe environment. If an agency concludes that total costs for implementing a safety regulation exceed potential losses, it fails to send incentive signals to the risk-creating manufacturers. As a result, the manufacturers will have little incentive to make the cost of currently available safety measures inexpensive or find cost-justifiable alternatives. For example, the report of a recent train derailment accident, in which approximately fifty people died, revealed that a safety sensor system was available to prevent this kind of accident.204 Fourteen years ago, however, the Federal Railroad Administration did not adopt this system

203. See supra notes 175-79; see also supra notes 157-58.
because "the projected costs far outweigh[ed] the benefits," in light of the $850 million installation cost and the $85 million per year maintenance cost. Since then, there has not been any effort to develop more cost-effective ways to utilize this sensor system.

Moreover, when an agency requires certain safety measures based on their own analyses of current accident data, the legally required safety measures can dissuade manufacturers from inventing more effective ones. Each safety regulation targets specific product risks with relatively concrete standards drafted by experts. Manufacturers targeted by these regulatory schemes have no incentive to exceed the standards if doing so would involve additional costs. In contrast, incentive signals created by judicial systems leave to manufacturers the decisions as to how and what safety measures should be implemented. Therefore, manufacturers must develop their own reasonable safety measures which reflect the safety requirements required by contemporary court decisions.

Manufacturers' product safety label practices illustrate the different consequences of these two kinds of incentive signals. Federal laws and regulations require manufacturers to place warning labels on certain kinds of products. However, industry groups, reacting to a growing amount of product liability decisions based on warning defects, have also developed voluntary standards used by increasing numbers of manufacturers. In fact, safety warnings based on industry standards tend to be more effective than government warnings in communicating potential hazards to users. (See Figure II)

Figure II

Mandatory safety warning based on federal regulations, Federal Hazardous Substances Act. 16 C.F.R. § 1500.121 (1973):

WARNING: Do Not Use for Indoor Heating or Cooking Unless Ventilation is Provided for Exhausting Fumes to Outside. Toxic Fumes May Accumulate and Cause Death.

In comparison, below is an analogous safety warning based on industry (non-mandatory) standards:

205. Id.
206. See, e.g., Federal Hazardous Substances Act, 16 CFR § 1500.121 (1973), in Figure II, infra.
207. This author-created warning is based on the format and rules described in National Electrical Manufacturers Association, American National Standard: Product Safety Signs and Labels (ANSI Z535.4) (1991) and uses a graphic based on FMC Corporation, Product Safety Sign and Label System 8-18 (1990).
A more serious drawback for incentive signals created by a government agency is political control over its budget. Even if an agency's analyses of product risk are not directly subject to outside political pressure, its available budget may determine its ability to create incentive signals. An agency's available resources vary depending on the government policy, not on the number of particular product-related accidents. For instance, some advocates criticize the CPSC for its slow and inefficient procedures. These problems stem mainly from the CPSC's insufficient resources. Its budget has decreased by 16% from 1979 to 1991 because of cut-backs made during the Republican administrations.

Despite insufficient resources, the CPSC cannot limit its activities to targeting Type I risks due to strong pressure from the public. Nevertheless, the fewer resources available, the less attention the CPSC can pay to Type II risks. The risk/benefit analyses for Type II risks usually require substantial resources to establish effective safety standards. Given its limited resources, therefore, the CPSC tends to delay implementation of any Type II risk regulations. Examples of its long-term research studies of Type II risks include fires caused by children playing with disposable cigarette lighters and tip-over accidents of riding lawnmowers.

Judicial systems can still send incentive signals to Type II risk-creating manufacturers even when it is difficult for government agencies to send signals because of the low probability of injury. In the United States, escalator accidents cause one or two deaths and 7,500 injuries per billions of escalator passengers every year. Due to the low probability of occurrence,

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208. Some advocates criticize manufacturers for sometimes manipulating the CPSC standards for their own benefit. See Hood, supra note 7. For example, complicated bicycle standards serve to protect domestic bicycle manufacturers from cheap or foreign-made bicycles rather than to prevent bicycle related accidents. Id. at 16. As another example, according to a study concerning the impact of mattress flammability standards, sales by small producers fell by 11% while those of large manufacturers rose by 44% as a result of the regulation. Id. at 16-17.


210. Id.

211. Id. The CPSC has spent $4 million since 1985 on ride-on lawn mower research. Id. Additionally, the CPSC recently has decided to require manufacturers to produce child-resistant lighters beginning in the summer of 1994. Lighters Required to Be Child-Proof, N.Y. Times, June 10, 1993, at A25.
the CPSC lacks the resources to analyze the risk of escalators; but potential product liability suits may provide the necessary incentives for escalator manufacturers to improve the safety of their products.\(^{212}\)

4. Enforcement

Whether signals from political institutions actually become incentive signals depends on their enforcement power. The frequency of prosecution and the severity of penalties, whether fines or recalls, determine the manufacturers' incentives to reduce the targeted product risks. It is difficult, however, to impose severe penalties through active prosecution unless targeted risks are related to Type I or mass disaster-related Type II injuries. This is because Type I or mass disaster-related Type II injuries tend to result in a more forceful public call for government intervention than other types of injuries. Especially when resources are limited, public officials are less likely to prosecute Type II risk-creating manufacturers.

Theoretically, if profits gained while violating a law or a regulation exceed the impact of prosecution (the severity of penalty multiplied by the frequency of prosecutions), manufacturers may choose not to follow regulatory schemes. Nevertheless, once a law or regulation is created, it is often more difficult for manufacturers to violate its requirements. This is partly because manufacturers may face more severe liability for future injuries by violating the existing law and partly because violation of a law or regulation can produce negative corporate and product image. Thus, the enforcement power of product safety laws and regulations is often reinforced by judicial systems and market mechanisms.\(^{213}\)

B. Mechanisms of Japanese Political Institutions

1. The Role of Government

The characteristics of incentive signals created by Japanese political institutions stem from the role of government in Japanese society. The Japanese government is the most powerful authority sending product safety incentive signals. Several independent ministries or agencies enforce a number of regulatory schemes regarding the safety standards of various products.\(^{214}\) Each ministry or agency implements its regulatory scheme by means of the government grant requirements (mandatory permission, license or reporting requirements of ministries and agencies) and administrative guidance (informal orders of ministries and agencies).\(^{215}\) These standards, however, focus not on a risk/utility analysis of certain product designs but on the standardization and certification of product quality and

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\(^{213}\) See infra Part V (discussing the interrelationship of institutional mechanisms).

\(^{214}\) The Japan Consumer Information Center, Consumer Policy in Japan 7-12 (1989).

\(^{215}\) See infra notes 254-56 and accompanying text.
design. The government strictly enforces these regulations.

The Japanese government emphasizes that signals from this approach have contributed greatly to preventing product related accidents in Japan, even without significant judicial signals for product safety. Foreign countries have criticized these strict regulatory schemes as being non-tariff barriers to the imports of foreign enterprises. In response to American criticism, the Ministry of International Trade and Industry (MITI), the most powerful ministry with regard to industrial and economic policies, stated its skepticism about the judicial signal-oriented approach and its reluctance to change the current political signal-oriented approach:

The United States has been requesting that the Japanese Government allow U.S. manufacturers to self-certify compliance with Japanese standards on safety, etc. This suggests that we should adopt the approach of dealing with accidents, etc., after the fact, i.e., through recall of cars from the market, civil judicial procedures, etc. However, Japan's system on automobile accidents, pollution, etc. has long been predicated on the idea that they should be prevented before the fact...

In spite of MITI's claims, the Japanese political signal-oriented approach is also an after the fact response. The Japanese government has created numerous regulatory schemes only after social problems related to defective products were highlighted by the public (or consumer groups). In fact, the incentive signals created by Japanese political institutions focus on Type I injuries and mass disaster-related Type II injuries, to which the public is more likely to pay serious attention.

In addition to Type I injuries, the government could prevent Type II and Type III injuries by creating design and manufacturing standards and by enforcing certification requirements. Moreover, these standards and requirements would assure a certain product quality and exclude inferior products before they reach the market. One of the serious problems with this approach, however, is that extensive government intervention in product design and manufacturing processes involves significant resources and a transfer of costs to the taxpayer.

Indeed, the government's far-reaching control over products in Japan sometimes has imposed a heavy financial burden on Japanese consumers.

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216. One commentator has attributed the Japanese design standards and certification system requirements to Japanese culture. Cohen & Martin, supra note 74, at 320.

217. See infra notes 253-56 and accompanying text.

218. See supra note 24. See also supra note 207.


220. Id. at 367 (citing MITI, REVIEW OF STANDARDS AND CERTIFICATION SYSTEMS, Mar. 25, 1983, at 7) (emphasis in original).


222. The Japanese government's response to environmental issues is one example. After several mass disaster pollution accidents, the government succeeded in controlling environmental problems through its "vigorous regulation of all significant sources of air and water pollution." Frank Upham, LAW AND SOCIAL CHANGE IN POSTWAR JAPAN 56 (1987).
For example, car owners in Japan must have their cars inspected every two years from three to eleven years after the purchase of a new car and every year after that. The government also requires several additional inspections through administrative guidance.\textsuperscript{223} A car inspection costs approximately 100,000 yen (\$979; $1 = ¥102.18 in 1994) each time.\textsuperscript{224} Assuming all the cars in Japan are inspected once in three years, social costs for this inspection system are over \$20 billion per year.\textsuperscript{225}

Another problem with the Japanese political signal-oriented approach is that extensive government intervention may narrow a manufacturer’s business practice options and, ultimately, a consumer’s choice of products. Most Japanese consumers, however, have not considered this issue to be a serious problem.\textsuperscript{226}

The unique characteristic of Japanese political institutions regarding product safety comes from the paternalistic role of the government. In Japan, the government has served as “the risk-taker of last resort.”\textsuperscript{227} People generally expect the government to provide high levels of security even if a person’s individual autonomy is consequently sacrificed.\textsuperscript{228} Lack of a sovereign immunity doctrine in Japan illustrates this point. By apportioning government liability, all consumers/taxpayers share the costs of product related-injuries as opposed to only users of certain products sharing costs through price mechanisms in the marketplace. Manufacturers receive strong incentive signals from government regulatory schemes because they can share substantial potential liability with the government by being its subordinate. In their article concerning Japanese product safety regulations, Professor David Cohen and Ms. Karen Martin describe this risk allocation mechanism in Japan:

Allocation of risk of personal injury [through price mechanisms] . . . may assume positive attitudes towards consumer sovereignty, an assumption which may be less justifiable in the case of Japan than in some Western societies. The Japanese may very well be willing to forego the welfare gains associated with contract risk allocation in exchange for minimum safety standards for a wide variety of consumer goods. Homogeneity of attitudes towards risk may reinforce the view that a ‘standard form’ multilateral contract with relatively rigorous safety standards is desirable. Social welfare may be maximized by conscious directed decisions regarding product safety rather than by atomistic market decisions. In dealing with risks to health and safety, decisions to use market allocative devices, coupled with compen-

\textsuperscript{223} Kaoru Yoda, Nihon no Kyōinkaseido no subete [Japanese Grant Systems] 26-27 (1993). After 1995, the government will relax some of these requirements. \textit{Id.}
\textsuperscript{224} \textit{Id.}
\textsuperscript{225} As of December 1994, the number of cars owned in Japan was 65,122,026. Telephone Interview with a Ministry Official of the Administration Section of the Ministry of Transportation, in Tokyo, Japan (Apr. 30, 1996).
\textsuperscript{226} Recently, the Japanese people have started demanding fewer government controls over their lives. James Sterngold, \textit{Thinking the Unthinkable, Japan May Curb Its Bureaucrats' Power}, N.Y. Times, Sept. 13, 1993, at A1, A3.
\textsuperscript{228} \textit{Id.}
sation through litigation, assume a positive answer to the question "Do individuals want to make the necessary and appropriate value judgment?" In a society which is highly structured it may be that consumers would prefer that experts replace them in that decision process. The benefits of certainty, the avoidance of risk, and distributional considerations may be associated with the view that "freedom from risk of injury" is a merit good which ought to be allocated paternalistically rather than through the market.\textsuperscript{229}

This public conception of powerful government has allowed the Japanese government to regulate numerous aspects of consumers' daily lives, although government intervention sometimes has imposed significant costs on consumers.\textsuperscript{230}

2. Willingness of the Government to Create Incentive Signals

A key issue concerning political institutions' incentive signals is the willingness of the government to establish safety standards. Especially where government regulations are not related to Type I or mass disaster-related Type II injuries, it is necessary to give the government incentives to impose requirements on manufacturers, who usually have greater resources to influence the political process than consumer groups.

The willingness of Japanese ministries to create grant requirements and issue administrative guidance stems from their incentives to maintain and expand their political authority. The more regulations a ministry can implement, the more power it can exert. Conversely, decreasing the number of regulations a ministry can implement means a shrinking of its political power.\textsuperscript{231} Therefore, each ministry tries to establish new grant requirements and issue administrative guidance to protect its status in Japanese politics. In 1992, the number of government grants was 10,942; it is still increasing.\textsuperscript{232}

Moreover, creating government regulations often benefits certain business groups. Therefore, once a ministry creates regulations, it cannot abolish them easily because of strong pressure from protected business groups. For example, the stringent auto inspection requirements generate enormous profits for car inspection/repair businesses, which, as a result, have acquired significant political power.\textsuperscript{233} Some commentators assert that the government creates some requirements to protect the benefits of certain businesses, not consumers,\textsuperscript{234} although these requirements may also reduce product risk.

\textsuperscript{229} Id. at 363.
\textsuperscript{230} Recently, this strong government control has come under attack. Responding to public demand for deregulation, some political groups are trying to ease several regulations to reduce consumers' costs and improve their lives. See generally Sterngold, supra note 226.
\textsuperscript{231} YODA, supra note 223, at 14.
\textsuperscript{232} Id. Yoda states that 40% of GNP-related activities in Japan were regulated by Japanese grant systems. Id. at 12-13.
\textsuperscript{233} Id. at 27.
\textsuperscript{234} MORIHiro HOSOKAWA, NIHONSHINTO SEKININ ARU HENKAKU [JAPAN NEW PARTY, RESPONSIBLE POLITICAL REFORM] 107-24 (1993).
The government's willingness to establish regulations is also related to the characteristics of the administrative class. The Japanese government attracts and retains the very best university graduates. Unlike the American bureaucracy, which often loses its best young bureaucrats to the private sector before they become effective officers, elite Japanese bureaucrats stay with the same ministry until their retirement. Because the Japanese ministries can train their bureaucrats thoroughly, bureaucrats gain long-term vision in policy-making as well as expertise in a particular area.

Japanese bureaucrats also enjoy tremendous prestige in national policy-making. The power-granting statutes for ministries are usually loosely-worded and do not limit the ministry's actual administrative power. Therefore, bureaucrats can exercise substantial authority over all industries and place all relevant companies under their control. In addition, Japanese bureaucrats enjoy significant protection from the consequences of their actions because the judicial review of administrative law is quite limited. It is said that an essential condition for the survival of the Japanese system is continued protection of the administrative class. Regardless of the individual bureaucrat's personal goals, they either consciously or unconsciously make great efforts to preserve the "Japanese system," which contributes to the preservation of their privileges. Their incentives to ask manufacturers to compromise and establish detailed safety standards, even when the regulations are not directly related to Type I and mass disaster-related Type II injuries, may stem from their fear of the system's potential collapse.

3. The Government Insurance Program

In Japan, the Consumer Product Safety Association (the "Association"), a government agency, implements a product liability insurance program for manufacturers producing certain kinds of consumer products. This program is called the "SG (Safety Goods) Mark" system. The Association sets certain safety standards for various kinds of consumer products usually possessing Type II risks such as can openers and disposable cigarette lighters. It also provides insurance for damages caused by these products. If users of these products are injured by product defects, they can

235. UPHAM, supra note 222, at 167.
236. Id.
237. Id. at 168-69.
239. Id. at 112-13.
241. Id. at 7.
recover their losses from the insurance program after inspection by the Association.\textsuperscript{243} Manufacturers wishing to participate in this insurance program must meet the Association's design and manufacturing standards.\textsuperscript{244} The Association provides SG Marks for products meeting the standards so that consumers may know which products the program insures.\textsuperscript{245} The funding for this insurance program originates from examination fees paid by participating manufacturers.\textsuperscript{246}

Under this insurance program, a committee of consumer group representatives, manufacturer representatives, and others, decides safety standards for each type of product.\textsuperscript{247} The problem with this approach is its slow speed in expanding the range of covered products. In the program's twenty-year history, it has targeted only ninety kinds of consumer products.\textsuperscript{248}

In addition, not many victims actually use this program. The Association investigated only 727 cases between 1987 and 1991. Among the 727 cases, the Association issued insurance payments in only 339 cases, and the average amount of compensation was 460,000 yen ($3,333, $1 = ¥138 average exchange rate between 1987 and 1991).\textsuperscript{249} Since detailed information regarding each accident is not available, it is impossible to determine whether the insurance provided for the victims was sufficient. However, the infrequent use of this program by consumers as well as the limited types of products targeted suggests that fewer potential Type II risk-creating manufacturers are interested in participating in this program. As a result, this program has had little impact on Type II risk reduction.

4. Enforcement

The enforcement mechanisms in Japan are quite distinctive. The strength of incentive signals sent by Japanese political institutions cannot be measured simply by the frequency of prosecutions and the amounts of potential fines. Their strength derives, in large part, from the cooperative relationship between government and business.

Unlike the United States, which has tried to eliminate close, informal, and collaborative relationships between bureaucracy and businesses,\textsuperscript{250}

\textsuperscript{243} SEIHIN ANZEN KYOKAI, supra note 240, at 24. The maximum amount of compensation is 30,000,000 yen ($270,075; $1 = ¥111.08 in 1993). Id. at 7.

\textsuperscript{244} Id. at 13-14.

\textsuperscript{245} Id.

\textsuperscript{246} KEIZAI KIKAKU-CHO KOKUMIN SEIKATSU-KYO-KU SHÔHISHA GYÔSEI DAII-KA [THE FIRST CONSUMER ADMINISTRATION OFFICE, SOCIAL POLICY DIVISION: ECONOMIC PLANNING AGENCY], SEIZÔBUTSU SEKININ TO BAISHÔ RIÎO KAKUHO [THE PRODUCT LIABILITY SYSTEM AND THE ASSURANCE OF COMPENSATION] 56 (1988). The fees are approximately less than 5/1000 of the price of a product. Id.

\textsuperscript{247} SEIHIN ANZEN KYOKAI, supra note 240, at 10-12.

\textsuperscript{248} Seihin Anzen Kyôkai, supra note 242.


\textsuperscript{250} UPHAM, supra note 222, at 201.
the Japanese bureaucracy and business sector have attempted to create a relationship of mutual trust and interdependence. By bureaucrats and business people have created personal relationships through an informal and consultative policy-making process. By emphasizing "the national interest," the government tries to seek consensus among relevant corporations when determining the scope of regulatory schemes. The government enforces the resulting regulatory schemes not only by using legal sanctions but also by threatening collateral actions, such as denying required approvals of plant expansion. Regardless of the type of risks regulated, this approach to enforcement is common in all types of government regulations, including ministries' informal dictates and administrative guidance.

Administrative guidance does not have any legal basis, and ministries are free to use this guidance at their discretion. However, administrative guidance works as "a more potent weapon for regulating businesses than the law." "Bureaucrats retaliate against companies that resist these informal orders." Therefore, companies are implicitly obligated to follow the guidance in order to maintain friendly relationships with the relevant ministries, no matter what kind of product risks the ministries are targeting.

5. Potential Problems of Political Incentive Signals in Japan

A number of regulatory schemes strictly enforced by the Japanese government has contributed to product safety regardless of types of product risk. However, the recent political situation in Japan indicates a possible change of this political signal-oriented approach. In the national elections of 1993, the Liberal Democratic Party (LDP), which had controlled political institutions for nearly forty years, lost a controlling majority, and a coalition of other parties took power. The LDP's loss of ruling power ended the long-lasting political stability in Japan that its forty-year rule had established. One of the possible outcomes of this change in power could be a weakening of the Japanese bureaucracatic system.

This potential weakening of Japan's bureaucratic system may be based largely on the policy of "deregulation" promulgated by the new coalition. Since the coalition came into power, too much governmental control has

251. Id. at 203-04.
252. Id. at 167-68.
253. Id. at 202.
254. Id. at 203.
255. Sterngold, supra note 226, at A3.
256. Id.
259. In June, 1994, the LDP regained power by forming a coalition with the Socialist Party. Andrew Pollack, A Startling Choice, Socialist's Leap to the Top in Japan Endangers Painfully Won Measures, N.Y. TIMES, June 30, 1994, at A10. However, the unstable political situation still continues in Japan. Id.
been the subject of criticism.\textsuperscript{260} Eliminating various governmental regulations is now one of Japan’s primary policies.\textsuperscript{261} Fewer regulations, however, mean fewer signals sent by the government. As the degree of government intervention decreases, product risks previously reduced by strict government control through its standardization and certification programs may now increase.

Moreover, the unstable political climate may undermine the enforcement power of the Japanese government. Japanese bureaucrats were accustomed to using privileged power over industry groups under the previous stable political situation. If they now have to change their positions depending on which party rules the nation, it will be more difficult for them to maintain long-term relationships with industry groups.\textsuperscript{262} As a result, the enforcement power of the government may also decline.

IV. American and Japanese Market Mechanisms as Incentive-creating Mechanisms

This section analyzes incentive signals created by American and Japanese market mechanisms. It first examines the capability and limitations of market mechanisms, focusing on American market mechanisms, and then analyzes the characteristics of Japanese market mechanisms.

A. Capability of the American Market Mechanisms to Create Incentive Signals

1. Characteristics of Market Signals

In the marketplace, consumer demand creates incentive signals. If consumers desire safer products and are willing to pay for better product safety, manufacturers will supply safer products in pursuit of profits. Corporate quality and design improvement policies often reflect consumer demand. The degree of fear of losing profits and market share (or of decreasing stock value), as well as a desire to increase profits, affects manufacturers’ incentives to reduce product risk.

Manufacturers often attempt to perceive certain safety concerns immediately, produce safer products that meet consumer demand, and stress the safety of their products to attract as many customers as possible. For example, responding to increasing concerns of parents about their children’s safety, some American child-goods stores have started focusing on child safety-related products, such as electric outlet covers and an “auto

\begin{itemize}
\item\textsuperscript{260} See Sterngold, supra note 226.
\item\textsuperscript{261} Id. Some experts predict that Japan will move in the direction of deregulation, independently of who takes power. Andrew Pollack, \textit{Japanese Premier’s Fall Forces Shift by the U.S. at Trade Talks}, \textit{N.Y. Times}, June 26, 1994, at A1, A8. See also Andrew Pollack, \textit{Japan Taking Steps on Deregulation}, \textit{N.Y. Times}, June 29, 1994, at D2.
\item\textsuperscript{262} Andrew Pollack, \textit{From Tumult, New Visions Of Japan Inc.}, \textit{N.Y. Times}, June 22, 1993, at D1. This change has not been accomplished yet. See also James Sterngold, \textit{The Men Who Really Run Fortress Japan}, \textit{N.Y. Times}, Apr. 10, 1994, at 1, for the characteristics of Japanese bureaucrats and their relationship with Japanese politicians.
\end{itemize}
safety vest.” These stores have currently expanded their U.S. market share. Also, an increasing number of U.S. automobile manufacturers stress their products’ safety features as a strong selling point.

As discussed in Part II, manufacturers are quick to react to product-related injuries that happen frequently, such as Type I and Type III injuries. Since Type I accidents significantly harm manufacturers’ product and corporate images, their top priority is Type I risk reduction. Manufacturers also try to improve the quality and design of products in order to eliminate Type III risks and attract as many consumers as possible and maintain customer loyalty.

Corporate efforts to eliminate highly probable risks can also contribute to Type II risk reduction. In particular, when manufacturers try to reduce product risk arising from manufacturing defects through strict quality control, they may also reduce Type II risks associated with manufacturing defects. Nevertheless, their cost/benefit analysis limits their ability to reduce manufacturing defects through high quality control. To determine the “optimal” degree of quality control, manufacturers must weigh the costs of the degree of quality control and engage in a cost/benefit analysis between the probability of manufacturing defects and the costs of reducing that probability. For instance, although reducing the probability of manufacturing defects from five percent to one percent is cost-effective, reducing the probability from one percent to one-tenth of a percent may not be. The costs of implementing quality control will be less cost-justifiable as manufacturers reduce the defect rate of their products.

Considering consumer demand in the marketplace, manufacturers sometimes reduce Type II risks through design improvement. Manufacturers’ voluntary efforts to create safe product designs are related to two important factors: the perceivability of potential risks to users and how sensational safety measures are (sensationalism). Perceivable product risks are more likely to create incentive signals in the marketplace than more hidden risks. In the marketplace, manufacturers can receive signals based on whether consumers choose to buy products because they are safe. Therefore, to send incentive signals to manufacturers, consumers must understand, at least, what the potential product risks are and how feasible safety measures are related to products’ safety. For example, most people know how airbags can save lives in auto accidents while they may not know how the location of an automobile fuel tank is related to prevention of fatal auto accidents. Therefore, consumers are more likely to consider whether a car has an airbag as opposed to where the gas tank is located.

---

264. Id.
265. Among 29 advertisements placed by car dealers and manufacturers in Newsweek issues during October, 1993 (Oct. 3, 10, 17, 24, 31 issues), 18 mentioned an “airbag,” and 15 of them referred to “dual” airbags, while only one out of 38 advertisements in the same magazine (Oct. 4, 11, 18, 25, 1988 issues) five years earlier mentioned any type of airbag.
a result, manufacturers are more likely to install an airbag, even without threat of liability or penalties, than to change the location of a gas tank.

Incentive signals from the marketplace often encourage manufacturers to take sensational safety measures. Even if potential accidents to the Type II category, automobile manufacturers are willing to install "sensational" safety measures such as airbags or anti-lock brakes in response to consumer demand. Some automobile manufacturers even use scenes of inflating airbags in their advertisements to indicate their considerable concern for safety. Selling new model cars that lack driver and passenger seat airbags has recently become difficult.266

2. Comparative Analysis of Limitations of Market Signal-oriented Approach

The perceivability of product risk and sensationalism of safety measures suggest the limitations of market mechanisms in creating incentive signals which target Type II risks. If safety measures are not for perceivable risks or are not sensational, market mechanisms are less likely to send incentive signals encouraging manufacturers to take such measures.

Although sensationalism is less likely to be a major factor in the political process, perceivability may sometimes pose limitations in creating incentive signals targeting Type II risks through political institutions. If product risks are not perceivable, it is more difficult for consumer representatives to enhance public awareness and to gain public support for their legislative efforts. In contrast, the judicial system can create incentive signals regardless of perceivability and sensationalism because victims give the judicial system an opportunity to create incentive signals by bringing a lawsuit after incurring injuries.

In addition to the limitations associated with perceivability of product risks and sensationalism of safety measures, three other serious limitations prevent market mechanisms from creating incentive signals. First, consumer demand can send signals discouraging manufacturers from reducing product risks because consumer preference often does not correspond with product safety. For example, American parents tend to choose children's sleepwear based on how comfortable it looks rather than on how flame-resistant it is. In response to such consumer preference, more non-flame-resistant children's sleepwear has entered the market.267

If signals created by political institutions are not supported by effective enforcement mechanisms, political institutions also fail to send incentive signals. Under U.S. federal law, children's sleepwear must meet flame resistance standards, but the CPSC rarely has seized non-complying garments, resulting in more non-flame-resistant garments in the marketplace.268 Also, the judicial system may fail to send incentive signals if manufacturers expect greater profits by making popular but dangerous

268. Id.
products than by making safer products. The American judicial system, however, is more likely to send incentive signals than other institutional mechanisms because such profit oriented corporate decisions may give way to severe liability.269

The second limitation is the failure of market mechanisms to create incentive signals which encourage manufacturers to take safety measures to protect people other than buyers who are related to a product, such as bystanders or, more specifically in the asbestos cases, asbestos installers. Generally, consumers are not willing to “buy safety” in favor of other people. For example, the number of passenger-side airbags is far lower than driver-side bags.270 This limitation does not exist in political institutions and the judicial system.

Finally, in market mechanisms, the income level of consumers determines access to safety. Since additional safety measures usually increase the product price, only consumers who can afford to buy safer products or improve the safety of products can enjoy these safety measures. For example, renovating a house to eliminate the risk of lead paint may cost tens of thousands of dollars.271 As a result, low-income people are limited in their access to safety. Research on the death rate by “per capita income” shows a trade-off between income level and the rate of unintentional deaths at or near the victim’s residence.272 The unintentional death rate for people with a per capita income under $6,000 is more than double the rate for people with per capita income over $14,000.273 (See Graph V)

Graph V274

Death Rate by Per Capita Income

269. See supra notes 157-58 and accompanying text.
271. Waldman, supra note 6, at 48. A lawyer in Los Angeles spent $70,000 to renovate his house after he discovered that his daughter had harmful levels of lead in her blood. Id.
273. Id.
274. Id.
This limitation is less likely to exist in political institutions. If low income groups are under-represented in the political process, political institutions may fail to create incentive signals to protect these groups. Safety issues, however, are usually major public concerns regardless of income levels, and therefore the difference in victim income levels is less likely to have an adverse impact on creating incentive signals through political institutions. Similarly, the judicial system can function better as an incentive creating mechanism than market mechanisms. Although the cost of legal representation discourages low income victims from pursuing legal action, the contingent fee system in the United States lessens their burden and creates considerable incentives for plaintiffs' attorneys to bring an action regardless of the victim's income level.

B. Incentive Signals Created by the Japanese Market Mechanisms

1. Characteristics of Market Incentive Signals in Japan

Similar characteristics and limitations exist in incentive signals created by Japanese market mechanisms as in those created by American mechanisms. The characteristics of the Japanese market mechanisms stem from Japanese manufacturing corporations' product safety policies.

To improve product safety, Japanese manufacturers have focused on product quality control. The PSP survey below shows that Japanese manufacturers are more interested in quality control-related methods (e.g., using checklists) for their product safety practices than U.S. manufacturers. (See Table II)

<table>
<thead>
<tr>
<th>Japanese manufacturers</th>
<th>[1] (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Educating employees</td>
<td>49.4</td>
</tr>
<tr>
<td>2 Making a checklist</td>
<td>47.9</td>
</tr>
<tr>
<td>3 Establishing safety standards</td>
<td>46.8</td>
</tr>
<tr>
<td>4 Making a safety manual</td>
<td>45.1</td>
</tr>
<tr>
<td>5 Reviewing the current user's manual and catalog</td>
<td>36.1</td>
</tr>
<tr>
<td>6 Establishing a product safety division or office</td>
<td>27.4</td>
</tr>
<tr>
<td>7 Publishing a safety guide for users</td>
<td>1.1</td>
</tr>
<tr>
<td>Others</td>
<td>7.9</td>
</tr>
<tr>
<td>N/A</td>
<td>1.3</td>
</tr>
</tbody>
</table>


276. See supra note 96 and accompanying text.

277. For data limitation, see Appendix I.
The strict quality control policies of Japanese manufacturers reflect consumer demand for high quality products. In such a market, the publicity surrounding any type of product-related injury can significantly damage a product's image as well as its manufacturer's reputation. To protect their corporate images, Japanese companies recall products voluntarily, even without the threat of liability and penalties. In the same context, manufacturers can expand their market share if they have strong policies regarding quality control. Therefore, many Japanese companies have made great efforts to maintain product quality and to improve product reliability. The following excerpt from an interview in the film “People and Productivity: Learning from Japan” underlines this corporate policy of high product quality:

The Japanese believe that quality is good and better quality is therefore better than lesser quality. They will go beyond any sort of rational trade-off to achieve this. For example, if you analyze the percentage defects in a process and the costs of making that percentage less, you will very often find that it makes sense to go from five percent defects to one percent defects. If you then ask whether it makes sense to go from one percent defects to 1/10 of a percent defects, the economists will generally say, “No, that does not make sense.” And the American firm will not, therefore, take that step.

The Japanese firm will. If you say to them, “That’s silly. It makes no economic sense,” they will answer, “We don’t care. Better quality is better than poorer quality.” Once they get to 1/10 of one percent, they will go to 1/100 or 1/1000 of one percent. Then they will look at you with a disarming smile and say, “That’s what makes us such fierce competitors. You may be satisfied with one percent defects, but we are not.”

Even where it is impossible to implement one hundred percent inspection, some Japanese manufacturers still reject a random sampling method. Instead, they use alternative methods such as checking the first and last part manufactured in every lot. Moreover, the Japanese practice of situating component suppliers near assembly plants is effective in reducing product risk because assembly plants can trace the cause of defects

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280. Id.
quickly.\textsuperscript{281} In addition, Japanese workers "are known for their dedication to the companies that offer them lifetime employment."\textsuperscript{282} Their efforts contribute to high product quality.\textsuperscript{283} By utilizing worker-participation management programs, such as quality circles, Japanese manufacturers have successfully tied employee incentives to company profits and productivity improvements.\textsuperscript{284} A 1981 report concerning defective automobile parts statistics strongly supported the superiority of Japanese manufacturers' quality control strategies. The percentage of defective parts in automobiles is usually 0.1-0.2\% in Japan as compared with 1.0-2.0\% in North America.\textsuperscript{285}

It may be argued that the company practice is not efficient because of the significant costs involved in strict quality control. In fact, however, this approach of quality control is cost effective. According to a Harvard Business School study of American and Japanese room air-conditioners, a U.S. air-conditioner manufacturer found 63.5 defects for every 100 units assembled and made 10.5 service calls in the first year of warranty coverage. In contrast, a Japanese company found less than one manufacturing defect for every 100 units and made 0.6 service calls.\textsuperscript{286} Thus, the extensive quality control system of Japanese manufacturers not only contributes to reducing manufacturing defects that cause Type I, Type II, and Type III injuries but also keeps the total cost of defective products extremely low.

In addition to quality control, Japanese manufacturers have reduced product risk by improving product design. In particular, they have been successful in reducing Type III risks, such as user inconvenience and discomfort. To reduce inconvenience or discomfort, Japanese companies create new products to accommodate user needs. Examples include a voice-operated VCR designed especially for senior citizens and a noiseless washing machine that not only benefits users living in condominiums, but also their neighbors.\textsuperscript{287}

The information necessary for design improvement stems mainly from corporate post-sale customer service efforts. Because a manufacturer's reputation for poor customer service can greatly affect profits, Japanese manufacturers have spent significant resources on customer service, providing customers with a variety of remedies when products fail.\textsuperscript{288} Almost all Japanese products have a one year warranty on both labor and parts. Even after the warranty period expires, manufacturers often bear the costs of repairing or exchanging product parts to maintain customer loyalty.\textsuperscript{289}

\textsuperscript{282} Id.
\textsuperscript{283} Id.
\textsuperscript{285} Cohen & Martin, \textit{supra} note 74, at 362-63.
\textsuperscript{286} David E. Sanger, \textit{Another No. 1 Rating to Japan}, N.Y. \textit{Times}, Aug. 25, 1983, at D1.
\textsuperscript{288} See \textit{supra} note 278 and accompanying text.
\textsuperscript{289} According to a survey conducted for retail stores selling electrical household products, 35.8\% of the stores incurred all or part of the product repair costs after a product's warranty period had expired. KOKUMIN SEIKATSU CENTER [THE JAPAN CON-
Through their customer service networks, Japanese manufacturers can gather information immediately regarding customer claims. They then use this information to improve product design and reduce product risk they believe negatively affects their reputation. Large manufacturers need to be responsive not only to Type I injury cases, but also to Type II injury cases because publicity surrounding their failure to respond can damage their corporate image.290

Japanese consumers may be willing, at the time of purchase, to confirm the safety of products they intend to buy because available legal remedies are quite limited in case of accidental injuries. Japanese consumers are concerned with who makes products. According to a survey conducted by the Japan Consumer Information Center, only 7.9% to 14.8% of Japanese consumers, at every income level, answered that they did not care about brand names when purchasing “long-term consumer products.”291 Fifty-one percent to 78% answered that they would choose a product based on brand name.292 (See Graph VI) Because Japanese consumers tend to buy high quality products regardless of their income level, low income consumers’ limited access to safety may not be as serious a problem in Japan as it is in the United States.

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**Graph VI**

*Do you care about a brand name?*

- I choose brand-name products.
- I do not care about a brand name.
- It depends.

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291. Kokumin Seikatsu Center [Japan Consumer Information Center], *supra* note 289, at 13.

292. Id.
2. Potential Problems of Market Incentive Signals in Japan

In the near future, Japanese market mechanisms will not be as effective an incentive-creating mechanism as they were previously. First, Japan is under pressure to open its market to foreign companies, and second, the increasing value of the Japanese currency (yen) will enable more foreign-made products to enter the Japanese market. (See Graph VII) Less expensive foreign-made products, not necessarily examined under the same quality standards as Japanese products, could change Japanese consumer demand for high quality products.\textsuperscript{293} Even if foreign-made products are produced by overseas branches of Japanese companies, Japanese companies may be less able to ensure the same degree of overall quality control as in domestic factories.\textsuperscript{294} Thus, it will be more difficult for consumers to presume a product is safe when they base purchasing decisions on brand names.

Graph VII\textsuperscript{295}

![Value of the Japanese yen
(U.S. dollar per 100 yen)](image)

\textsuperscript{293} In response to the recent surge of the Japanese yen against the U.S. dollar, a deputy director of the price policy division at the Ministry of International Trade and Industry (MITI) stated that the surge presented an opportunity for U.S. companies to increase market share in Japan if they reduced prices. Andrew Pollack, \textit{In Yen Windfall, U.S. Companies Prefer Profits}, \textit{N.Y. Times}, May 5, 1993, at D1. American manufacturers claimed that price reductions would not increase market share because Japanese consumers focused on quality, not on price. \textit{Id.} Japanese executives, however, said that this notion of quality over price was outmoded, pointing to the recent success of American computer companies in increasing market share through lower prices. \textit{Id.}


\textsuperscript{295} See supra note 70. Until just recently, the value of the Japanese yen against the U.S. dollar was continuously increasing. In June, 1994, the U.S. dollar fell below 100 yen. Peter Passell, \textit{The Battered Dollar: The Impact, a Primer on the Dollar: The Currency's Well-Publicized Decline Hasn't Meant Much for Most Americans}, \textit{N.Y. TIMES}, June 28, 1994, at A1. On April 19, 1995, the U.S. dollar fell below 80 yen on the Tokyo
Furthermore, Japan's recent severe economic slump is inducing Japanese companies to change an important aspect of Japanese corporate culture, "life-time employment," which has contributed greatly to the high quality of Japanese products. Although most Japanese companies have not yet adopted this change, their management system is gradually changing. In the long run, this change could undermine employee dedication to the company and consequently have an adverse impact on risk management practices.

V. The Effects of Judicial Signals on Other Alternative Signals

In spite of the costly processes required, U.S. judicial signals have been more successful than other types of signals in targeting Type II risks. In comparison, even though Japanese judicial signals are not as stringent as those in the United States, signals from Japanese political institutions and market mechanisms have functioned as effectively in reducing product risk. If Japan activates its current judicial system as an incentive-creating mechanism, such a move might significantly improve the ability of the Japanese product safety system to target Type II risks.

By predicting the possible impact of a more active Japanese judicial system, this section analyzes that impact the incentive signals from judicial systems have on political institutions and market mechanisms in reducing Type II risks. Furthermore, this section examines how these signals may influence manufacturers' product safety policies to target Type II risks.

A. The Effects on Political Institutions

If Japan activates its judicial system as an incentive-creating mechanism, incentive signals from the judicial system could reinforce the effect of political institution's incentive signals. Political institutions can create incentive signals targeting Type II risks only to the extent that they react to public opinion or public awareness of the risks. If the Japanese judicial system were more likely to encourage victims of certain Type II injuries to use judicial channels for remedies, the government would also have more opportunities to create incentive signals targeting these risks. Type II risks would receive public attention through litigation causing more isolated victims to possibly seek a judicial remedy. Public awareness of isolated product risk would be further enhanced by such lawsuits, which could help consumer representative activities positively influence Type II risk legislation.

Because complying with government regulations does not exempt manufacturers from liability, incentive signals from a judicial system moti-
vate manufacturers to exceed regulated standards. Due to the non-existence of the sovereign immunity doctrine in Japan, the Japanese government has borne significant portions of liability in some Type I injury cases. Therefore, manufacturers might not be motivated to exceed the standards of government regulations targeting Type I risks. Courts are less willing, however, to impose liability on the government in Type II injury cases. Thus, if Japanese courts send more incentive signals targeting Type II injuries, manufacturers will make greater efforts to reduce Type II risks, given the small chance that the government would share liability.

B. The Effects of Judicial Signals on Market Mechanisms

Japanese market mechanisms have sent effective incentive signals through strong consumer demand for high product quality and responsive post-sales services. However, if the judicial system is given greater opportunities to create incentive signals, the ability of Japanese market mechanisms to reduce Type II risks will be even greater.

Incentive signals created by market mechanisms are successful at targeting highly probable product risks, such as Type I and III risks. Although increasing reliability and improving product design for Type I and III risk reduction can also contribute to the reduction of Type II risks, incentive signals created by the judicial system may encourage manufacturers to focus more on reducing Type II risks. Because the reduction of Type II risks sometimes can create Type III risks, such as user inconvenience, manufacturers are less likely to reduce Type II risks if the judicial system does not send them strong incentive signals. For example, in the Kamezaki case discussed in Part III, the primary reason for not installing the inexpensive safety device stabilizing the back of a passenger seat was not to reduce costs but rather to increase customer convenience by making access to the rear seat easier.

Incentive signals from the judicial system can change a manufacturer's product safety incentive signals from Type III risk reduction orientation to Type II risk reduction orientation. In a survey conducted for American manufacturers regarding their approach to risk management (in which a majority of manufacturers agreed to the active intervention of trial lawyers in Type II accidents as well as large jury awards), 87.9% of American manufacturers responded that their current safety programs focused more on Type II risk reduction than on Type III risk reduction. (See Graph VIII) If Japanese manufacturers have more opportunities to receive incentive sig-

299. See supra notes 173-79 and accompanying text.
301. This information is based on a survey conducted for manufacturers participating in The Roles of Warnings and Instructions Program in Madison, WI, (Sept. 15-17, 1993). See Appendix II.
nals from the judicial system, they would be more likely to place a higher priority on reducing Type II risks than on reducing Type III risks.

Graph VIII

Q. Choosing between A and B, two different approaches to risk reduction, which one more closely describes your company's current safety program?

A. Reduction of product risk which may cause serious accidents even though the probability of the accident is low.

B. Reduction of product risks which often cause minor damages.

C. The Effects of Judicial Signals on Corporate Policies

Strong incentive signals from judicial systems lead manufacturers to take a more organized approach toward comprehensive product safety. Recently, American courts have required manufacturers to institutionalize adequate "regular safety procedures" or a "formal safety review committee."302 Responding to these incentive signals, some American companies have developed product safety programs, in which they analyze how they can improve the safety of their products or which product risks they should eliminate.303 The PSP survey showed that 58.9% of American manufacturing companies have formal product safety programs as opposed to 40.2% which do not.304

In contrast, such programs are not common in Japan. According to a survey conducted for Japanese manufacturing companies, 36% had prod-

302. Owen, supra note 148, at 35.
304. See Appendix I. In the same survey, 68.2% of manufacturers responded that litigation fees were one of their most important concerns. See note 22 and accompanying Table I.
uct safety programs, 41% did not have such programs, and 21% were planning to establish such programs, projecting possible enactment of a product liability law. This survey indicates that in Japan, where incentive signals from political institutions and market mechanisms are significant, some manufacturers have product safety programs even without strong judicial signals. However, incentive signals coming from the judicial system will undoubtedly increase the number of manufacturers with safety programs. (See Graph IX)

Graph IX

Q. Does your company have a (formal) product safety program?

<table>
<thead>
<tr>
<th></th>
<th>U.S.</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>No</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Planning to Have</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Yes</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Number of responding manufacturers:

Japan: 930  U.S.: 107

Stronger incentive signals from a judicial system can lead manufacturers to establish comprehensive and systematic strategies for improving product safety. Without such comprehensive and systematic safety policies, manufacturers may focus solely on high probability risk reduction in the pursuit of profits. If the Japanese judicial system had more opportunities to send stringent incentive signals, more Japanese manufacturers would take an organized approach toward product safety and would adjust their policies from targeting Type III risk reduction to targeting Type II risk reduction through continuous corporate programs promoting product safety.

Conclusion

Judicial systems, political institutions, and market mechanisms in the United States and Japan have created incentive signals targeting various types of product risks. Different characteristics of these institutional mechanisms in both countries suggest alternative approaches to encourage manufacturers to improve product safety. Institutional mechanisms in both countries have succeeded in reducing Type I risks, those which have a high probability of causing severe injury. In a competitive market, manufacturers also attempt to reduce Type III risks, which cause minor injury or

305. AIU INSURANCE COMPANY, supra note 21, at 6. When this survey was conducted, the Japanese Product Liability Law had not been enacted.
inconvenience. Nevertheless, there are serious limits on the ability of each incentive mechanism to target Type II risks, which cause severe injuries but with low probability.

To target Type II risks, the United States has frequently used the judicial system as an incentive-creating mechanism. Various characteristics of the American judicial system, including lawyers, legal theories, and decision makers, have contributed to sending more effective incentive signals to Type II risk-creating manufacturers than have other institutional mechanisms. In targeting Type II risks, incentive signals from the American judicial system have overcome the limitations of political institutions or market mechanisms in targeting such risks. More importantly, as the media and political propaganda created by tort reform supporters label the current state of the American product liability litigation as a "crisis" or "explosion," manufacturers receive stronger incentive signals.

However, if incentive signals from the judicial system are too strong, manufacturers will lead political institutions to limit such incentive signals by pushing for and achieving tort reform, thus undermining the effect of the judicial system as an incentive-creating mechanism. The tort reform currently being discussed by the U.S. Congress may change the ability of the American judicial system to perform effectively as an incentive-creating mechanism.

In contrast, the use of the judicial system as an incentive-creating mechanism has been more limited in Japan. In particular, the Japanese judicial system has failed to target Type II risks. The small number of attorneys in Japan, and their limited competition, restricts victim access to the judicial system, especially in Type II injury cases. Even though victims could bring a lawsuit, it had been difficult for them to prevail without strict liability-based tort law. In addition, the non-jury system often poses a bar to sufficient recovery for victims in Type II injury cases at both the liability and determination stages.

Extensive government intervention in Japan, however, has caused Japanese political institutions to send incentive signals more effectively than American political institutions. Additionally, in the Japanese marketplace, consumer demand for better quality creates strong incentive signals for manufacturers to reduce product risks. Nevertheless, it is questionable whether Japan will be able to maintain these affirmative effects of the political and market signal-oriented approaches in the future.

With the end of the stable one-party ruling, Japanese political institutions may not be able to preserve their strong bureaucracy and long-term relationship with industry groups. While the new government policy of "deregulation" can contribute to improving consumers' standard of living by making products less costly, it also will reduce the ability of Japanese political institutions to serve as incentive-creating mechanisms.

It will also be more difficult for market mechanisms to send strong incentive signals. As less costly foreign-made products become available in Japan, the traditional quality-focused consumer demand may fade. Furthermore, internationalization of Japanese companies makes strict quality
control more difficult. In addition, possible changes in the employment system of Japanese companies may also undermine the function of Japanese market mechanisms as incentive-creating mechanisms.

Japan’s newly enacted product liability law, which adopts strict liability in product liability cases, will open the door to a judicial signal-oriented approach to promote product safety. Strong incentive signals from the judicial system are more likely to target Type II risks and will lead manufacturers to increase their focus on reducing them. Also, such incentive signals will encourage Japanese manufacturers to take a more organized approach to promoting product safety.

The Product Liability Law, however, will be just the first step in a new approach to promoting product safety in Japan. Even if Japanese courts can utilize the new law, they still would face serious limitations in creating stringent incentive signals, especially those targeting Type II risks. Therefore, Japan must consider overall reform of the judicial system to be able to utilize it as a more effective incentive-creating mechanism. Subjects of the reform should include the system of lawyers and decision makers, and other procedural systems that tend to limit the opportunities where the Japanese judicial system could function as an incentive-creating mechanism. If Japan could use the combination of the political, market, and judicial institutional mechanisms more effectively by activating its judicial system, it would be able to promote comprehensive product safety more successfully in the long run.
Appendix I

The Report of Corporate Policy for Product Safety

The survey QUESTIONNAIRE REGARDING PRODUCT SAFETY POLICY OF MANUFACTURING COMPANY (the "PSP" survey) was conducted at nine product safety conferences held by the Department of Engineering Professional Development and College of Engineering at the University of Wisconsin-Madison between November 1992 and October 1993. This report contains information gathered from the corporate representatives of 107 American manufacturing companies who participated in the following product safety conferences: "The Fourth Annual Product Liability Conference for Engineers" (November 5-6, 1992); "Establishing and Implementing the Product Safety Program" (February 1-3 and August 2-4, 1993); and "The Role of Warnings and Instructions" (March 18-19 and September 15-17, 1993). The focus of each conference was corporate strategies for product safety practices.

To avoid serious bias against litigation, this report excludes data collected from participants in the following three litigation tactics/management-oriented programs: "The Successful Defense of a Product Liability Lawsuit" (April 5-6, 1993); "Training the Engineering Expert Witness" (May 3-4 and October 7-8, 1993); and "Litigation Management" (July 7-8, 1993). This report also excludes information collected from participants in a conference covering international product safety standards, entitled "Internationalization of U.S. Product Liability Practices—EC Directives" (June 3-4, 1993).

Answers from companies other than manufacturing companies were excluded. Only one questionnaire was collected from each company or each division of a multi-industrial company.

I. About Responding Companies

1. Number of workers

<table>
<thead>
<tr>
<th>Number of responding manufacturers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50</td>
<td>3</td>
</tr>
<tr>
<td>50-200</td>
<td>26</td>
</tr>
<tr>
<td>200-1000</td>
<td>40</td>
</tr>
<tr>
<td>More than 1000</td>
<td>38</td>
</tr>
</tbody>
</table>
[Note: The original survey had groupings of "50-200," "200-1000" and "more than 1000." The assumption is that companies interpreted these groupings to mean "50 up to 200," "200 up to 1000" and "1000 or more than 1000."]

2. Responding companies' capital amounts

Number of responding manufacturers - 107

<table>
<thead>
<tr>
<th>Capital Amount (billion)</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 0.11</td>
<td>37</td>
</tr>
<tr>
<td>0.1-1</td>
<td>32</td>
</tr>
<tr>
<td>1-10</td>
<td>10</td>
</tr>
<tr>
<td>10-50</td>
<td>5</td>
</tr>
<tr>
<td>More than 50</td>
<td>7</td>
</tr>
<tr>
<td>N/A</td>
<td>16</td>
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</tbody>
</table>
[Note: The original survey had groupings of "$100 million - $1 billion," "$1 billion - $10 billion," "$10 billion - $50 billion" and "more than $50 billion." The assumption is that companies interpreted these groupings to mean "$100 million up to $1 billion," "$1 billion up to $10 billion," "$10 billion up to $50 billion" and "$50 billion or more than $50 billion." ]

II. Product Safety Program and Policy

1. Does your company have any formal product safety program?

<table>
<thead>
<tr>
<th>Number of responding manufacturers - 107</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>
2. Does your company have any independent division, office, or person in charge of a safety program?

Number of responding manufacturers - 107

<p>| | |</p>
<table>
<thead>
<tr>
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<th></th>
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</thead>
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</tr>
</tbody>
</table>

3. Does your company have any division or office to which the customers can easily have access in order to make a claim concerning your company's product?

Number of responding manufacturers - 107

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>82</td>
</tr>
<tr>
<td>No</td>
<td>19</td>
</tr>
<tr>
<td>N/A</td>
<td>6</td>
</tr>
</tbody>
</table>
4. What kind of a product safety program has your company implemented or is planning to implement? (Circle all which apply)

A. Establishing a product safety division or office
B. Making a safety manual
C. Establishing safety standards
D. Making a check list
E. Reviewing the current user's manual and catalog
F. Educating employees
G. Publishing a safety guide for users
H. Other (Please describe)

Number of responding manufacturers - 107

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>52</td>
</tr>
<tr>
<td>B</td>
<td>55</td>
</tr>
<tr>
<td>C</td>
<td>69</td>
</tr>
<tr>
<td>D</td>
<td>45</td>
</tr>
<tr>
<td>E</td>
<td>78</td>
</tr>
<tr>
<td>F</td>
<td>65</td>
</tr>
<tr>
<td>G</td>
<td>40</td>
</tr>
<tr>
<td>H</td>
<td>9</td>
</tr>
<tr>
<td>N/A</td>
<td>4</td>
</tr>
</tbody>
</table>
III. Trouble Resolution

1. During the past one year, have you had any complaints regarding your company's product?

Number of responding manufacturers - 107

<table>
<thead>
<tr>
<th>Yes</th>
<th>97</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>8</td>
</tr>
<tr>
<td>N/A</td>
<td>2</td>
</tr>
</tbody>
</table>
2. During the past one year, have you had any complaints that a user of your product was injured or his or her property was damaged?

Number of responding manufacturers - 107

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>91</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
</tr>
<tr>
<td>N/A</td>
<td>1</td>
</tr>
</tbody>
</table>

3. If yes, who contacted your company about the accident?

A. A lawyer
B. The user
C. Other

Number of responding manufacturers - 93

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Lawyer</td>
<td>55</td>
</tr>
<tr>
<td>B. User</td>
<td>49</td>
</tr>
<tr>
<td>C. Other</td>
<td>33</td>
</tr>
<tr>
<td>N/A</td>
<td>7</td>
</tr>
</tbody>
</table>
4. If yes, how did your company respond to such an accident claim?
   (Circle all which apply)

   A. Compensation
   B. Exchanging the product
   C. Refund
   D. Apology
   E. Explanation
   F. Other (Please describe)

Number of responding manufacturers - 93

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>44</td>
</tr>
<tr>
<td>B</td>
<td>41</td>
</tr>
<tr>
<td>C</td>
<td>21</td>
</tr>
<tr>
<td>D</td>
<td>18</td>
</tr>
<tr>
<td>E</td>
<td>36</td>
</tr>
<tr>
<td>F</td>
<td>32</td>
</tr>
<tr>
<td>(Litigation)*</td>
<td>16</td>
</tr>
<tr>
<td>N/A</td>
<td>6</td>
</tr>
</tbody>
</table>

* The number of respondents who specified “litigation” in the category “Other.”
5. If yes, what did your company do to prevent future claims? (Circle all which apply)

A. Research on users of the same kind of product
B. Recall of the same kind of products
C. Change the product design
D. Attach or change a safety warning
E. Nothing
F. Other (Please describe)

Number of responding manufacturers - 93

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>39</td>
</tr>
<tr>
<td>B*</td>
<td>27</td>
</tr>
<tr>
<td>C</td>
<td>61</td>
</tr>
<tr>
<td>D</td>
<td>57</td>
</tr>
<tr>
<td>E</td>
<td>16</td>
</tr>
<tr>
<td>F</td>
<td>5</td>
</tr>
<tr>
<td>N/A</td>
<td>2</td>
</tr>
</tbody>
</table>

* Including the respondents who answered “retro-fit” in the category “Other.” (The number of those people are excluded from the number in the category “Other.”)
IV. Product Liability Lawsuit

1. What are your most important concerns in the event of an accident involving your product? (Circle all which apply)

A. Criticism against your company (Negative reputation)
B. Litigation fees
C. Compensation
D. Negotiation with the victim
E. Reduction of sales
F. Costs for recall of similar products
G. Other (Please describe)

Number of responding manufacturers - 107

<table>
<thead>
<tr>
<th>A</th>
<th>69</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>73</td>
</tr>
<tr>
<td>C</td>
<td>64</td>
</tr>
<tr>
<td>D</td>
<td>22</td>
</tr>
<tr>
<td>E</td>
<td>51</td>
</tr>
<tr>
<td>F</td>
<td>37</td>
</tr>
<tr>
<td>G</td>
<td>27</td>
</tr>
<tr>
<td>N/A</td>
<td>7</td>
</tr>
</tbody>
</table>
2. Has your company ever experienced a product liability lawsuit?

Number of responding manufacturers - 107

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>91</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
</tr>
<tr>
<td>N/A</td>
<td>5</td>
</tr>
</tbody>
</table>

3. If yes, how did your company resolve such a lawsuit?
   (Circle all which apply)

   A. Settlement
   B. Judgment
   C. Other (Please describe)
Number of responding manufacturers - 91

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Settlement</td>
<td>76</td>
</tr>
<tr>
<td>B. Trial (Judgment)</td>
<td>65</td>
</tr>
<tr>
<td>C. Other</td>
<td>19</td>
</tr>
<tr>
<td>N/A</td>
<td>4</td>
</tr>
</tbody>
</table>

V. Product Liability Insurance

1. Does your company have product liability insurance?

   A. Yes
   B. No
   C. Self insurance

Number of responding manufacturers - 107

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>74</td>
</tr>
<tr>
<td>B. No</td>
<td>4</td>
</tr>
<tr>
<td>C. Self-insurance</td>
<td>24</td>
</tr>
<tr>
<td>(A and C)*</td>
<td>6</td>
</tr>
<tr>
<td>N/A</td>
<td>11</td>
</tr>
</tbody>
</table>

* The number of respondents who chose both A and C.
2. If yes, your company has product liability insurance for:

A. All of products
B. Almost all products
C. Only some kinds of products

Number of responding manufacturers - 92

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>79</td>
</tr>
<tr>
<td>B.</td>
<td>1</td>
</tr>
<tr>
<td>C.</td>
<td>1</td>
</tr>
<tr>
<td>N/A</td>
<td>11</td>
</tr>
</tbody>
</table>

11.96%
Appendix II

The following two surveys were completed by corporate representatives from manufacturing companies participating in a product safety program, "The Role of Warnings and Instructions" (September 15-17, 1993, Madison, Wisconsin).

Survey 1

1. Choosing between A and B, two different approaches to risk reduction, which one more closely describes your company's current safety program?

   A. Reduction of product risk which may cause serious accidents even though the probability of the accident is low.
   B. Reduction of product risks which often cause minor damages.

<table>
<thead>
<tr>
<th>Number of responding manufacturers - 33</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
</tr>
<tr>
<td>B.</td>
</tr>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>
Survey 2

What is your impression of the following comments?

1. "If your product causes serious injuries in an accident, trial lawyers will try to bring a lawsuit against your company, even though the probability of such an accident is low."

<table>
<thead>
<tr>
<th>Plaintiff's claim</th>
<th>Your impression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Defect¹</td>
<td>A. Strongly agree</td>
</tr>
<tr>
<td></td>
<td>B. Agree</td>
</tr>
<tr>
<td></td>
<td>C. Disagree</td>
</tr>
<tr>
<td></td>
<td>D. Strongly disagree</td>
</tr>
<tr>
<td>Design Defect²</td>
<td>A. Strongly agree</td>
</tr>
<tr>
<td></td>
<td>B. Agree</td>
</tr>
<tr>
<td></td>
<td>C. Disagree</td>
</tr>
<tr>
<td></td>
<td>D. Strongly disagree</td>
</tr>
<tr>
<td>Warning Defect³</td>
<td>A. Strongly agree</td>
</tr>
<tr>
<td></td>
<td>B. Agree</td>
</tr>
<tr>
<td></td>
<td>C. Disagree</td>
</tr>
<tr>
<td></td>
<td>D. Strongly disagree</td>
</tr>
</tbody>
</table>

¹ A defect arising from a product which deviates from the standards of other same kind of the products
² A defect arising from an "unreasonable" design choice
³ A defect arising from failure to warn against potential hazard by adequate safety warning labels or instruction menus

The number of responding manufacturers - 39

<table>
<thead>
<tr>
<th>Plaintiff's Claim</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Defect</td>
<td>21</td>
<td>15</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Design Defect</td>
<td>23</td>
<td>12</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Warning Defect</td>
<td>22</td>
<td>13</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

2. "If your product causes serious injuries in an accident and your company is sued, a jury will award a large amount for damages for the victims, even though the probability of such an accident is low."

<table>
<thead>
<tr>
<th>The issue of the case</th>
<th>Your impression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Defect¹</td>
<td>A. Strongly agree</td>
</tr>
<tr>
<td></td>
<td>B. Agree</td>
</tr>
<tr>
<td></td>
<td>C. Disagree</td>
</tr>
<tr>
<td></td>
<td>D. Strongly disagree</td>
</tr>
<tr>
<td>Design Defect²</td>
<td>A. Strongly agree</td>
</tr>
<tr>
<td></td>
<td>B. Agree</td>
</tr>
<tr>
<td></td>
<td>C. Disagree</td>
</tr>
<tr>
<td></td>
<td>D. Strongly disagree</td>
</tr>
<tr>
<td>Warning Defect³</td>
<td>A. Strongly agree</td>
</tr>
<tr>
<td></td>
<td>B. Agree</td>
</tr>
<tr>
<td></td>
<td>C. Disagree</td>
</tr>
<tr>
<td></td>
<td>D. Strongly disagree</td>
</tr>
</tbody>
</table>
### Table: Plaintiff’s Claim

<table>
<thead>
<tr>
<th>Plaintiff’s Claim</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing Defect</td>
<td>17</td>
<td>14</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Design Defect</td>
<td>18</td>
<td>12</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Warning Defect</td>
<td>13</td>
<td>18</td>
<td>7</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

### The Issue of the Case

- **Manufacturing Defect**: 17% Strongly Agree, 20% Agrees, 40% Disagree, 60% Strongly Disagree, 100% N/A
- **Design Defect**: 18% Strongly Agree, 20% Agrees, 40% Disagree, 60% Strongly Disagree, 100% N/A
- **Warning Defect**: 13% Strongly Agree, 20% Agrees, 40% Disagree, 60% Strongly Disagree, 100% N/A

- □ Strongly Agree
- □ Agree
- □ Disagree
- ■ Strongly Disagree
- □ N/A