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*Toimitusneuvosto*

Pekka Vihervuori, puheenjohtaja

Antti Jokela

Matti Ilmari Niemi

Pekka Timonen

*Toimittaja*

Mika Hemmo

*Tilausosoite*

Suomalainen Lakimiesyhdistys

Kasarmikatu 23 A 17

00130 Helsinki

p. (09) 603 567, f. (09) 604 668

[sly@lakimies.org](mailto:sly@lakimies.org)

[www.lakimies.org](http://www.lakimies.org)

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**Timo Kaisanlahti**

**EXTENDED LIABILITY AND  
EXTERNALIZATION OF RISK IN  
STOCK MARKET**



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# Extended Liability and Externalization of Risk in Stock Market\*

## 1. INTRODUCTION

### 1.1. Background

#### 1.1.1. *Conventional wisdom*

Limited liability prevails today: the most universal principle of company legislation – here in Finland as well as in other market economies – is that an owner risks of her total wealth only that amount she has invested in the shares of a particular company. Creditors of a firm cannot collect from shareholders' personal assets if their claims are not fulfilled. A company is responsible for paying damages and other debts only in the amount of assets it has; you cannot go after the owners for more than they have invested in the company.

In financial parlance owners bear only part of the wealth negative effects of an enterprise's activities.<sup>1</sup> By setting an upper cap on potential loss, limited liability is generally seen as a vehicle for promoting investments. Without this privilege investors would be unwilling to turn over funds to companies about which they had only partial information and control.<sup>2</sup> Investors, at least the individual ones, are risk-averse actors who prefer a certain prospect to a risky one even though the latter represents the very same monetary value as the certain alternative.<sup>3</sup> If the creditors and other claimants of a company were

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<sup>1</sup> Of the importance of limited liability in theoretical finance see generally Suvas 1994.

<sup>2</sup> See *e.g.* Greenwald – Stiglitz 1992, p. 49.

<sup>3</sup> Risk aversion means diminishing marginal utility for wealth: a risk averse person will get more “pain” from a euro lost than “pleasure” from a euro gained more, Weston – Copeland 1992, p. 359. In a similar manner Klein – Coffee 1996, p. 233: “A critical axiom of modern investment analysis is that in their major investment decisions the overwhelming majority of people are risk averse. One corollary is that investors will accept volatility risk only if they are paid to do so.”

allowed to break through the corporation veil, it would likely deter individuals from participating in enterprises as minority owners.

There are also other rationales for limited liability derived from investors' aversion towards risk. Customarily these are evaluated in a theoretical setting considering what would happen if a listed company, whose shares are traded in a public securities market, were not allowed to provide the protection of limited liability for its owners. The leading American proponents of economic analysis of company law, judge *Frank Easterbrook* and professor *Daniel Fischel*, identify several consequences from abolishing limited liability.<sup>4</sup>

First, the most self-evident outcome under an unlimited liability regime is that a typical investor would reduce the number of firms in her stock portfolio to minimise the risk of losing her whole wealth due to a claim against one of the companies. By diminishing the monitoring costs limited liability thus allows for a more efficient diversification. As portfolio diversification reduces the risk of investors, it provides them a possibility to bid more for a company's shares meaning that for certain amount of financing an enterprise needs to issue less shares than under unlimited liability. Thus the cost of capital for an enterprise is lowered as a by-product of diversification.

Second, considered from a slightly different angle, an accompanying benefit of limited liability is aiding management in making optimal decisions on investment. While the risk of owners to losses is limited to the amount they have in the shares, managers can invest, no matter of the risk, in any project with positive net present value. In other words, management of a company with limited liability is free to take up riskier ventures – holding out greater returns – than would be allowed by the owners under an unlimited liability environment.

Moreover, an unlimited liability would intensify the monitoring of managers. The acts of managers are watched over to a greater extent the more risk the investors have to bear. By extending the risk to investors, they will expend more resources on the controlling function. Costs of this activity, however, would not arise only from watching over the managers. When the liability is unlimited, the wealthiest shareholders would most likely be the targets for claims. Consequently, under a regime of unlimited liability an investor is interested in the financial status of her fellow owners to evaluate her own potential liability due to a possible claim. The situation preferred is where all the investors have (about) the same wealth. To provide this, the current owners must have a control of new ones; investors with lesser means than the existing shareholders would not be accepted.<sup>5</sup>

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<sup>4</sup> Easterbrook – Fischel 1991, s. 41–44.

<sup>5</sup> For empirical evidence see e.g. Turner 2001 who studied trading in the shares of an Irish bank,



In other words, unlimited liability hinders efficient trading in stock markets. With limited liability the bundle of ownership rights and duties in a company are transformed into a homogenous commodity, *i.e.* a share, whose fair price can be established in continuous trading by market participants through demand and supply. Therefore, by allowing the free transfer of shares, a limitation on liability supports informational efficiency of markets. The more efficient the pricing process gets the lower the cost of capital is for firms. At the same time limited liability provides a powerful incentive for managers to act more efficiently. If individual owners have the option of disposing their shares in markets for a fair price, the incumbent management is under a threat that the new investors will replace them with another, a more efficient management team. This threat induces the managers to work hard in order to keep the share price up which in turn will raise the costs of a possible take-over and thus diminishing its probability.

### 1.1.2. Challenge

The conventional wisdom of virtues of limited liability, however, has been challenged. Two American law scholars, *Henry Hansmann* and *Reiner Kraakman*, stood up 11 years ago proposing that shareholders should face unlimited liability towards tort creditors.<sup>6</sup> They argue that shareholder liability is a question of tort law rather than a matter of company legislation.

A company may be operated in such a way that renders it “judgement-proof”, *i.e.* having only nominal assets available to pay the claims of tort victims.<sup>7</sup> Generally a non-disputed fact is also that limitations on shareholder liability – as any other restriction of liability – is likely to encourage accident prone, high-risk operations, most notably by lowering the threshold for a company to engage itself in a hazardous industry. While shareholders have to face the costs of possible tort claims only up to the value of their shares, the limitation of liability externalises these costs from their investment calculations. Since

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The Ulster Banking Company, in the period October 1874 to December 1879. Pursuant to the section 18 of the Banking Copartnership Regulation Act of 1825, the shareholders were jointly liable for debts of the bank up to three years after they had disposed their stocks. Turner found that trading was illiquid because shares could only be sold to those with certain levels of wealth on approval of the stockowners’ committee. Therefore, according to Turner (*ibid*, p. 24), “– unlimited liability hindered the working of the capital markets by increasing the costs of associated with trading.”

<sup>6</sup> Hansmann – Kraakman 1991.

<sup>7</sup> Economist *Steven Shavell* introduced this concept in 1980s, see Shavell 1986.

externalisation is permitted by law, a company involved in hazardous activities may have a positive net value considered from shareholders' view point. Thus, such a company may be an attractive investment. This does not, however, necessarily mean that its operations are generally desirable. The net benefit to society as whole may be negative due to externalisation, meaning that profits to shareholders from these activities are less than the loss of welfare due to potential accident costs.<sup>8</sup> From these observations Hansmann and Kraakman derive the claim that limited liability is a socially dubious arrangement: “– if a promoter can neither purchase insurance or recruit investors without it, the proposed venture may very well not be socially efficient in the first instance.”<sup>9</sup>

Several empirical studies have been carried out on this matter. For example, in a paper published in 1990 *Al Ringleb* and *Steven Wiggins* concluded that “– the incentive to evade liability has led to roughly a 20 percent increase in the number of small corporations in the U.S. economy.”<sup>10</sup> According to Ringleb and Wiggins large companies contracted out their hazardous processes to smaller, judgement-proof firms. On the other hand, *Richard Brooks* has found in his fresh study of oil industry that major companies have increased their own shipping capacity since 1990 when Oil Pollution Act was enacted; that statute toughened significantly oil spill liability, allowing even the cargo-owner to be reached in some US states. Therefore one can claim, as Brooks does, that the liability-shifting benefits of contracting out were overcome by the dramatic increase in the potential liability.<sup>11</sup>

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<sup>8</sup> Particularly professor *Lynn LoPucki* has elaborated this argument further in a series of articles in late 1990s; see LoPucki 1996, 1998, 1998a and 1999). According to LoPucki American companies are getting more and more judgement proof because they can take advantage of secured credit, asset securitization and foreign havens for secreting assets in addition to traditional vehicles for avoiding legal liability – such as scattering assets among subsidiaries (LoPucki 1996, p. 14–38). See also Mendelson 2002, p. 1236 who claims even that “[a]s among excessively risky projects, corporations will be more inclined to select those with a relatively delayed realization of excessive costs. Projects where the risky activity leads to a latent injury – one not immediately detectable, such as pollution or cancer – will be preferred.” More emotionally loaded comments are expressed by Mitchell 2001, p. 59: “Limited liability means never having to say you are sorry – or at least feel the pain or sorrow.”

On the other hand, these kinds of arguments have been countered by professor *James J. White* who claims that major companies face significant barriers to judgement proofing; contract and other voluntary creditors, according to White, force major companies to maintain substantial amount of equity capital on which tort creditors are able to free-ride (White 1998, p. 1394–1412). Critical comments against the judgement proof -argument à la LoPucki are provided also by Schwarcz 1999 and 1999a as well as by Mooney 1999. Evaluation of this debate, however, is outside of our scope. For the purposes of this article it is enough to note that Hansmann and Kraakman base their argumentation on the risk of possible judgement proofing of shareholders.

<sup>9</sup> Hansmann – Kraakman 1991, p. 1892.

<sup>10</sup> Ringleb – Wiggins 1990, p. 589.

<sup>11</sup> Brooks 2002, p. 122.

The proposal to abolish limited liability relies heavily on the efficiency of markets for insurance as well as for equity investments and other securities. Because currently even enterprises whose owners are protected by limited liability have purchased liability insurance,<sup>12</sup> Hansmann and Kraakman argue that most likely firms would decide to have more insurance under unlimited liability in order to cover those tort losses which are foreseeable.<sup>13</sup> They also presume that modern developments in risk assessment as well as the globalisation of insurance markets have made liabilities much easier to insure.<sup>14</sup> Moreover, even if companies were not able to purchase total shelter against tort judgements, this would not establish an obstacle for the unlimited liability rule; according to Hansmann and Kraakman modern securities markets would provide means for an investor to diversify her risk if the unlimited liability were pro rata.<sup>15</sup>

In order to understand this proposition, we must notice that unlimited liability may be arranged at least in two different ways. Firstly, the rule may be “joint and several liability” meaning that each shareholder is potentially liable for the full amount of tort judgement to the extent that it exceeds the value of the firm’s assets.<sup>16</sup> Thus, she would also bear her fellow stockowners’ portion of the compensation for damages if they lack financial assets or are judgement-proof otherwise.

The alternative to joint and several liability is pro rata rule under which each stockholder is personally liable for a judgement exceeding the company’s assets but only for the percentage that her ownership represents of all the shares issued.<sup>17</sup> An investor who possesses one thousandth of shares may be assessed against for the very same percentage of the excess liability. If a company that has issued one million shares is unable to meet a judgement of one milliard euros, each share would be asserted one thousand euros.<sup>18</sup>

An equally important feature of the pro rata rule is that it applies to the original amount of excess liability meaning that the absolute maximum value of liability per share is derived from the total shortfall. If in our previous example

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<sup>12</sup> For an evaluation whether insurance might undermine the deterrent effect of liability and thus be socially undesirable, see Shavell 2000.

<sup>13</sup> Hansmann – Kraakman 1991, p. 1888–1889.

<sup>14</sup> On the general availability of insurance, see Stiglitz 1994, p. 287–288.

<sup>15</sup> Hansmann – Kraakman 1991, p. 1903–1904.

<sup>16</sup> See generally Ribstein – Kobayashi 1998 which provides a comparison of joint and several liability with non-joint liability.

<sup>17</sup> Leebron 1991, p. 1581, remarks that also the prevailing rule of limited liability is actually a pro rata -arrangement: losses up to the amount of the investment – with a zero amount of excess liability – must be allocated among the owners according to their proportions of share capital.

<sup>18</sup> This example is modified of the one provided by Leebron 1991, p. 1578.

all her fellow stockholders were judgement-proof, a owner of a single share would have to bear only one thousand euros. When a particular investor is unable to fulfil her proportion of excess liability, the other members of the company are not obliged to step in her place. In other words, each owner is liable only for her share of the judgement.<sup>19</sup>

A pro rata rule is not equivalent to a joint and several liability coupled with a contribution rule. Under the latter arrangement an owner's maximum responsibility depends on the wealth of her fellow stockowners because she is liable for the amount of judgement that cannot be collected from others. Ultimately, under a rule of joint liability, even when contribution rule is applied, an investor might be held liable for the one milliard judgement of our earlier example. The value of a share would therefore depend on the owner's wealth: the richer the person is, the more she is risking *de facto* by investing in a share of a enterprise under a rule of joint and several liability. If the fellow stockholders have moderate means compared to her, it is likely that she will have to pay some of the damages levied against the ones that turn out later to be judgement-proof.

This risk of being liable also for other stockowners portion of the judgement is the very reason for Hansmann and Kraakman to clearly favour the pro rata rule against the rule of joint and several liability: "Under a pro rata rule, shares would have the same expected value for all shareholders."<sup>20</sup> In effect, they argue that a pro rata rule would make the owners to internalise the costs of torts in a homogenous way which should also be reflected in the share price at a stock exchange.

At modern stock exchanges the transactions of shares can be very rapid. It is the very basis of liquidity that the markets can offer to investors. In the regime of extended pro rata -rule, however, this feature would induce the owners to sell their shares opportunistically in order to escape liability as soon as they hear of tort liability that were about to materialise. Therefore, in order to determine which ones of the stockholders are to bear the extended liability, a timing rule has to be chosen. Hansmann and Kraakman propose a rule under which liability would primarily attach those who were owners at the moment the company's management became aware that a claim of mass tort would be filed. This information-based rule would prevent investors evading responsibility for tort damages. If the moment cannot be determined in a particular case, then the hour

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<sup>19</sup> A similar arrangement is employed at the insurance market of Lloyd's in London, see Arshadi – Karels 1997, p. 172.

<sup>20</sup> Hansmann – Kraakman 1991, p. 1904.

when the claim was actually filed would be decisive. Moreover, when the company is dissolved before filing, the persons who were the last shareholders of the company would bear the liability.<sup>21</sup>

Hansmann and Kraakman also claim that the costs of collection would not be prohibitive under a pro rata -rule. They refer to current bankruptcy mechanics: accounts receivable are already collected routinely from dozens even hundreds of debtors by bankruptcy trustees.<sup>22</sup>

## 1.2. Aim and Structure of the Study

This paper discusses the concept of limited liability and explores its rationale and restrictions. I will focus on a company's non-contractual tort and other extra-contractual liability. This choice is made in order to sharpen the exposure. With a strict focus on torts and other extra-contractual liabilities, I also pass the question which creditors are involuntary and which are not.<sup>23</sup> In other words, I do not get involved in the debate on whether a borrower or some other stakeholder in a contractual relationship with a company is capable of taking limited liability into account when she is negotiating the price and other conditions for the transaction.

In the introduction chapter was provided a sketch of back-and-forth arguments of current laws and economics debate of the desirability of limited liability.<sup>24</sup> However, after this general description of the playing field, I do not purport to offer a complete review of jurisprudential literature on this matter; there are several up to date surveys available already.<sup>25</sup> Instead, my aim is to study some of the most fundamental assumptions of pro rata -liability.

I hasten to admit that the following exposure is by no means novel or original. It has been developed in financial economics years ago. My contribution is in application of these concepts to the very basic question whether limited liability – in its pro rata or absolute form – is indispensable condition for diversification. So far I have not encountered a similar study, at least in none of the legal journals or other jurisprudential literature I am familiar with.

<sup>21</sup> *Ibid*, p. 1897.

<sup>22</sup> *Ibid*, p. 1900.

<sup>23</sup> *Ibid*, s. 1920–1921.

<sup>24</sup> This study is exclusively a law and economics exercise; for an account of ethical arguments see e.g. Kilpi 1998, p. 177–196. A review of feminist critique is provided by Wylie 1999, p. 28–37.

<sup>25</sup> See Carney 2000, Halpern 1998 and Kraakman 1998.

## 2. WHAT DOES DIVERSIFICATION ACCOMPLISH?

The benefits of diversification in risk pooling are the functional justification for insurance as well as for stock market.<sup>26</sup> This point can be captured by considering a historical example of medieval ship-ownership, *commenda*, where the passive investor, commendator, provided capital to the managing party to finance a sea-voyage or other overseas venture of commercial nature.<sup>27</sup> Consequently, vessels were owned by commendators who were wealthy private merchants. To begin with, simplifying the exposition, let us assume that commendators had only one ship each. Thus they all faced the same uncertainty: the risk of losing a major part of personal wealth. A commendator, however, had an advantage by enjoying limited liability: she could lose her vessel but not be subjected to other demands arising from the venture.<sup>28</sup>

In the following it is assumed, for descriptive purposes, a probability of 20 per cent that a ship is lost, either sunk in a storm or taken over by pirates. In such a case the commendator receives nothing. But as a counter-weight to this downside risk, there is also the potential upside; in the following example we assume that if the ship returns successfully – with a probability of 80 per cent – from its journey, the commendator's net profit will be 100.000 euros. On the other hand, if the vehicle is wrecked or lost otherwise, she has to shoulder a loss of 50.000 euros *i.e.* the average market value of a ship in our example.

To quantify the risk that each commendator faces, we can apply common probabilistic means, *variance* and *volatility*. Variance is a vehicle to answer the question of how much will possible outcomes deviate from the expected one (*i.e.* average of potential payoffs): each square of the difference between a potential payoff and the expected one is multiplied by the probability of that potential payoff and then all terms are summed.<sup>29</sup> More formally, variance measures the average square of the difference between actual payoff and its expected value.<sup>30</sup> However, the variance is in squared units of the underlying data which is rather cumbersome to consider; if some unknown variable ( $X$ ) is measured in euros, the variance of  $X$  tells us the dispersion in squared euros.<sup>31</sup>

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<sup>26</sup> See Arrow 1965.

<sup>27</sup> See *e.g.* Hamilton 1997, pp. 621–624; Kohn 1999, pp. 14–16; and Briys – de Varanne 2000. The following mathematical exposition is based on Mason 1995.

<sup>28</sup> Hamilton 1997, p. 623.

<sup>29</sup> Weston – Copeland 1992, p. 364.

<sup>30</sup> In other words, variance is equal to the weighted average of squared deviations from the expected value, *e.g.* Ross 1999, p. 12.

<sup>31</sup> Ashenfelter *et al.* 2003, p. 50.

This problem can be overcome by taking the square root of the variance, which results in volatility (*i.e.* standard deviation).<sup>32</sup>

In our example there are only two possible outcomes. Either the ship is lost or it returns safely. For the first mentioned outcome the probability is 20 per cent and the payoff –50.000 euros while for the other outcome, the vessel returning safely, the probability is 80 percent with the payoff of 100.000 euros. The volatility amounts to 60.000 euros in this setting.<sup>33</sup>

It is not exaggerated to state that in medieval times each sea voyage was an individualistic one even if it was not a search for new worlds. Therefore, the risk of encountering pirates or unbearable storms was independent of the fates of other ships. In these circumstances the commendators soon began to transact between themselves in order to control risks. They swapped the payoffs of the voyages as well as the losses. In order to illustrate the benefit of this exercise, we return to our example. The object of our interest is a case where there are two commendators, A and her fellow merchant B, owning one ship each on voyages with maximum payoff of 100.000 euros and with maximum loss of 50.000 euros. When a commendator swaps half of her expected payoff against the other, the probabilities are following:

- First, the probability that both the ships return safely is 64 per cent (*i.e.* 80% \* 80%). Then the total payoff for each commendator is 100.000 euros, including half of the net payoff from her vessel (50.000 euros) as well as from the other commendator's ship (50.000 euros). Therefore, in this case the monetary outcome for both of them is the same as if they had not entered into the swap-agreement between themselves.
- Second, in a case where commendator A's ship did not come back she had nevertheless a share of 50 per cent in B's vessel. If that one returned safely, our commendators's payoff was 25.000 euros (*i.e.*  $\frac{1}{2} * -50.000 + \frac{1}{2} * 100.000$ ) with a probability of 16 per cent (*i.e.* 20% \* 80%). However, with the same probability the case could be a reversed one: commendator A's ship returns from the voyage while B's vessel is lost. In this case the payoff of the commendator is the same as above: she is netting 25.000 euros with a probability of 16 per cent. Therefore, the probability for this outcome is doubled to 32 per cent.

<sup>32</sup> See *e.g.* Dembo – Freeman 1998, p. 60 or Warsham – Parramore 1997, p. 58.

<sup>33</sup> Volatility:  $60.000 = [20\% * (-50.000 - 70.000)^2 + 80\% * (100.000 - 70.000)^2]^{1/2}$ .

- Finally, the possibility that both ships were lost cannot be excluded from consideration. The probability of this alternative is, however, only 4 per cent (*i.e.* 20% \* 20%) under the swap arrangement between commendators A and B.

What can be accomplished under this arrangement? The expected payoff of commendator A has remained the same 70.000 euros as before entering the swap transaction with her fellow merchant. But the advantage of the transaction is that the risk of extreme negative outcome, *i.e.* risk of losing all, diminishes to only 4 per cent from 20. The lesser risk can be manifested by stating that the volatility has fallen by 17.574 euros, from 60.000 to 42.426 euros.<sup>34</sup> This advantage, however, comes at a cost: the potential for the maximum payoff – netting 100.000 euros – decreases due to this arrangement from 80 to 64 per cent.

Both parties, commendator A and B, benefit from the transaction of swapping half of their potential payoffs against each other: collectively the risk arising from the ship ownership is borne more efficiently. This gain is not limited to a company of two, it can be increased further by adding more and more parties to the arrangement.

Diversification, however, does not ever change the real risk in the economy, it only reallocates it. The expected payoff to individual parties remains at 70.000 euros. Although the standard deviation of each party's payoff is lower with the swapping compared to indivisible ownership, it remains true that the commendators collectively bear all the shipping risk in the economy, irrespective of the arrangement concerning ownership. The advantage of diversification is simply in cutting of the most extreme outcomes.<sup>35</sup>

### 3. RISK OF JOINT FAILURE DUE TO EXTENDED LIABILITY

One of the corner-stones of modern financial theory is that diversification of assets reduces risk.<sup>36</sup> In the light of the virtues of diversification presented in the preceding chapter, the proposition of Hansmann and Kraakman seems to be a

<sup>34</sup> Volatility:  $42.426 = [4\% * (-50.000 - 70.000)^2 + (16\% + 16\%) * (25.000 - 70.000)^2 + 64\% * (100.000 - 70.000)^2]^{1/2}$ .

<sup>35</sup> Mason 1995, pp. 169–170.

<sup>36</sup> The classical analyses of this feature are provided by Markowitz 1952 (p. 78: “Diversification is both observed and sensible; a rule of behavior which does not imply the superiority of diversification must be rejected both as hypothesis and as a maximin”) and Roy 1952 (p. 138: “In general, it will be desirable to hold our resources in a large number of different forms, because



reasonable one: if an investor holds a portfolio of different stocks issued by several companies, the pro rata liability does not appear to place too heavy a burden on her.

There is, however, a countervailing force; pooling intensifies the risk of joint failure. This effect can be captured by examining a group structure of firms where the parent company can transfer funds and other resources between its subsidiaries. Under such an arrangement the probabilistic likelihood of joint failure of companies belonging to the same group is greater relative to operating these companies individually.

Hansmann and Kraakman do indeed acknowledge that the pro rata -rule would add to the risk. Nevertheless, they interpret this to have only a minor effect; it could be diluted with a more intense diversification:

“It seems unlikely that even a catastrophic liability judgement would impose costs exceeding a publicly-traded firm’s value by more than, say, a multiple of five. Thus, an unlucky small shareholder who had placed 5% of a \$100.000 portfolio in the stock of such a firm would stand to lose \$25.000, or 25% of her portfolio’s value, in worst case scenario. A large institution with 0,2% of its assets invested in the same stock would lose 1% of its asset value. Although such losses would be serious, they would hardly be beyond the pale of ordinary market fluctuations.”

Here Hansmann and Kraakman are sketching – what they think to be – the extreme outcome. As we have seen, diversification, however, is by no means a *Deus ex machina* that can make the risk of extended liability for a shareholder to disappear. Hansmann and Kraakman disregard the effect of possible joint failure. They describe a scenario where it is possible that one, but only one, of the portfolio firms ends up in insolvency.

Moreover, they are not willing to spell out the highest multiple of liability: the multiple of five is provided only as an example. Later, one of the authors, Reinier Kraakman, has come out with even a higher figure: “– – in the worst case – – the resulting liabilities would be unlikely to exceed the company’s assets by a factor of more than a ten.”<sup>37</sup> The guidance for a risk averse investor is sparse: the reservation, “unlikely”, does not ease the uncertainty.

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although we may diminish the chance of a large gain somewhat by so doing we also reduce the probability of really catastrophic outcome”). For a retrospective review, see Fabozzi *et al.* 2002. Prices of listed shares reflect the effect of diversification. If the diversification option was not allowed or otherwise unavailable, meaning that each investor could place her funds only in a particular company, the price of that company’s share would be higher *ceteris paribus* because it includes also the compensation for specific risk, see Damodaran 2001, p. 163.

<sup>37</sup> Kraakman 1998, p. 651.

### 3.1. Numerical Example

In order to demonstrate the limitations of Hansmann and Kraakman's view, we play it safe and set the factor of extended liability at still a higher level, let us say 25: an investment of *e.g.* 100 euros means risking an extra 2.400 euros at maximum if this extended liability materialises.

The choice of this multiple 25 can be derived from the well-established fact that diversification of an investor's portfolio in some 20 or 30 different companies neutralises the variability of an portfolio's return due to the unique, company-specific risk.<sup>38</sup> This type of risk stems from those perils surrounding an individual company that are peculiar to that particular enterprise and its line of business. But even with that kind of diversification an investor cannot avoid all the risk, she has to bear the market risk regardless the number of companies in her stock portfolio; there are no means available to get rid of the risk that is inherit in the stock market, deriving simply from the choice of being present at the market as an investor. Market risk arises because there are always economy-wide perils which threaten companies in all lines of business. That is why share prices of listed firms tend to move together; generally, when the market is going up or down, there are only few exceptions. Therefore, each investor is always exposed to market risk, no matter the number of companies whose shares she has in her portfolio.<sup>39</sup>

Now we are ready to proceed with our example: A prudent risk averse investor wants to construct a portfolio of investments, *i.e.* companies, in such a way that does not expose her personal property to extended liability beyond the funds invested in this portfolio. She is willing to risk a certain fixed amount, for example 100.000 euros, that is placed in the portfolio but not a cent extra (*i.e.* the maximum of acceptable liability). How should she construct her portfolio?

To answer this question, let us suppose further that every company in the portfolio faces a potential loss of fixed amount, 1.000 euros, whose probability of occurrence is 1 per cent. Each company in the portfolio contributes 4 cents per euro of coverage to the portfolio, or four times the expected loss. For example, for providing coverage for the maximum acceptable liability, 100.000 euros, the amount invested in each company should be 4.000 euros; the expected loss in each company being 1.000 euros as already stated.

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<sup>38</sup> Gilson – Black 1995, p. 92: “Holding 20 properly chosen stocks reduces unsystematic variance [unique risk] by roughly 95% and thus achieves most of the value of diversification.” For an economic analysis of the way that unique risk is reduced by diversification, see Statman 1987.

<sup>39</sup> Brealey – Myers 2000, p. 167–168.

An additional investment object, *i.e.* a new company, contributes to the portfolio's risk-bearing capacity – as Hansmann and Kraakman tell us – but at the very same time adds to the probability of the portfolio's loss. Data in Table 1 below distinguishes the risk-bearing and risk-producing effects from each other. The table is slightly modified from Smith – Kane 1994 (p. 9–10); the following presentation also follows quite closely their argumentation.

**Table 1:** Probability that portfolio will fail due to extended liability of 25 times invested capital per a company

Number of Companies in Portfolio	Number of failures that can be absorbed with Portfolio funds	Probability that Portfolio will fail <sup>40</sup>
1	0	1,00 %
2	0	1,99 %
3	0	2,97 %
4	0	3,94 %
~	~	~
23	0	20,64 %
24	0	21,43 %
25	1	2,58 %
26	1	2,78 %
27	1	2,97 %
~	~	~
48	1	8,34 %
49	1	8,64 %
50	2	1,38 %
51	2	1,45 %
52	2	1,54 %
~	~	~

<sup>40</sup> The probability of failure can be obtained following the *addition theorem of probability*. See *e.g.* Ross 199, p. 4. In a case of two companies (A and B) this means adding up the individual probabilities of failure of both companies and distracting from this sum the multiple of these probabilities, *i.e.*  $\text{Prob}(A) + \text{Prob}(B) - (\text{Prob}(A) * \text{Prob}(B)) = 0,01 + 0,01 - (0,01 * 0,01) = 1,99 \%$ . For three companies the probability of failure can be derived from the following:  $\text{Prob}(A) + \text{Prob}(B) + \text{Prob}(C) - [\text{Prob}(A) * \text{Prob}(B)] - [\text{Prob}(A) * \text{Prob}(C)] - [\text{Prob}(B) * \text{Prob}(C)] + [\text{Prob}(A) * \text{Prob}(B) * \text{Prob}(C)]$ . The formula gets more complicated as the number of companies is increased but the principle remains the same.

73	2	3,71 %
74	2	3,84 %
75	3	0,69 %
76	3	0,72 %
77	3	0,76 %
~	~	~
98	3	1,72 %
99	3	1,78 %
100	4	0,34 %
101	4	0,36 %
102	4	0,37 %
~	~	~
123	4	0,82 %
124	4	0,84 %
125	5	0,17 %
126	5	0,18 %
127	5	0,18 %

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When an investment of 4.000 euros, that equals four times the expected loss, 1.000 euros, is added to the portfolio, one might expect the risk-bearing capacity of the portfolio to strengthen quickly. The table illustrates, however, that the strengthening does not begin to occur until 100 investment objects are included in the portfolio.

Adding investments does not help risk-bearing because funds accumulated from 24 or fewer investments cannot cover even a single loss. Because a loss is more likely to occur when additional companies are entered in the portfolio, the probability of failure increases. Not until the portfolio consists of 25 investments of equal size will the probability decrease.

The argument above is well-understood by Hansmann and Kraakman. However, they do miss the fact that the probability of failure with several, in our example 25, investments is still larger than with only a single one. Not until the number of companies exceeds 99 does the probability of (joint) failure diminish below 1 per cent that is the failure rate of a single investment in our example.

If more new investments beyond 100 are added, the probability of failure continues to follow the pattern just described above. The probability increases except at points of discontinuity where the assets in the portfolio reach the level where they can absorb another loss. For every 25<sup>th</sup> investment, the capacity to absorb a loss increases by one unit; and the probability of failure reaches a new low at the very same point.

The marginal effect of adding an extra investment is to weaken the portfolio

except where that investment contributed resources allow the portfolio to absorb an extra loss. In other words, local and ultimate effects of adding new firms to a portfolio can be in opposite directions. However, the additional capacity gradually overcomes any tendency of extra investments to weaken the portfolio. With 1.000 companies, for instance, the probability of (joint) failure is not detectable at the sixth decimal place.

To summarise, funds required to maintain the probability of failure at a given level depend on the probability of loss and the number of companies in the portfolio. An increase in the number allows a smaller per-investment contribution to risk-bearing capacity, but the absolute level of this capacity still increases with the number of investments. Although risk-bearing resources are employed more efficiently in a large portfolio, a higher absolute level of these resources is required as the number increases.

On the other hand, it is utmost crucial to notice that the assessment made in the example presented above was made possible in the first place by the fact that the maximum (potential) liability was known *ex ante* by setting the numerator at 25. As already said, Hansmann and Kraakman have offered multiples of five and ten only as examples that will “likely” be enough to cover even the highest monetary value of any tort judgement. By this indeterminacy, however, an investor is denied the certainty of her possible maximum liability. Therefore, in order to minimise her risk she has to employ a multiple as high or higher as used in our example. The transactions costs of providing diversification with shares in some 100 companies will be prohibitive for investors with modest means.

### 3.2. Extended Liability in Economic History

The predetermined multiple for liability resembles the system of uncalled capital that dominated the early stock markets: part of the share capital was kept uncalled in order to secure the goodwill of creditors. In 1850s the unpaid portion of shares was considered in England as a security of highest order in favour of creditors because it constitutes a continuous guarantee fund which is effectively beyond the control of management.<sup>41</sup>

Some jurisdictions even provided for mandatory double liability. Such a system existed in the American banking sector prior to Great Depression. The National Banking Act of 1863 stated that each shareholder shall be liable to the amount of the par value of the shares held by her in addition to the amount

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<sup>41</sup> Jeffrey 1946, p. 348.

invested in such shares. Thus, shareholders were liable for assessment for the benefit of creditors if the bank failed; the liability was, however, limited to the par value of the shareholder's stock. The system lasted over 70 years until it was repealed in early 1930s.<sup>42</sup>

American professors *Jonathan Macey* and *Geoffrey Miller* have studied thoroughly the effects of the double liability. They found that the system did not exist only on paper. On the contrary, it was effectively enforced: thousands of cases were argued before lower courts and even the Supreme Court of the United States made over 100 decisions on this topic. Moreover, about half the amount assessed on shareholders were actually collected from them. Macey and Miller find this to be a good recovery rate given that the double liability had a drastic effect on shareholders: many of them were insolvent when their banks failed.<sup>43</sup>

To be sure, some jurisdictions have experienced even with the unlimited version of pro rata liability. Most notable of these is the state of *California*. Before year 1931 pro rata liability was provided by California law to local companies. At that time, however, large tort actions against enterprises did not exist. Moreover, regarding also voluntary creditors, shareholders were liable for the firm's liabilities only for three years after the credit was taken. Thus, one cannot draw straightforward inference from that experiment regarding the potential effects of pro rata liability in today's environment.<sup>44</sup>

One could also refer to the example of *American Express Corporation*. When this company was founded 1850, the paragraph 5 of its charter gave the board of directors the right to assess for loss and damages on pro rata basis. This paragraph was, however, abolished in 1965, when American Express became a limited liability company.<sup>45</sup> Until that year the firm provided a real world example to examine the effects of the Hansmann and Kraakman proposal.

A professor of economics, *Peter Grossman* has examined with statistical means the liquidity of shares issued by American Express in 1950s. In his article published in 1995 Grossman finds that there existed regular market for American Express shares that were actively traded. The number of stockholders was also high, averaging about 25.000.<sup>46</sup> The wealth of owners did not appear to

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<sup>42</sup> General economic analysis of the system are provided by Esty 1998, Wilson – Kane 1996 and Yan 1999.

<sup>43</sup> See Macey – Miller 1992 and Macey – Miller 1993. Cf. Jackson 1993.

<sup>44</sup> See Weinstein 2001, p. 4, fn. 3 and 4, and p. 17.

<sup>45</sup> Grossman 1995, p. 75.

<sup>46</sup> One particular shareholder, however, controlled a position of 10 per cent at that time, *ibid*, p. 77.

have been a factor in the share price at any time. Moreover, the spread between bid and asked prices were comparable to other shares in the same price range.<sup>47</sup> On this evidence Grossman concludes that the case of American Express gives support to the notion that limited liability is not a necessary condition for the liquidity of shares.<sup>48</sup>

Grossman, however, misses a fundamental point. The pro rata liability did not exist *de facto*. The paragraph referred above states that “[The] Trustees are hereby further authorised and empowered in the extraordinary loss or damage – – to assess the whole or any portion of the amount of such loss or damage on each and every of the members – – of [the] Company in proportion to the number of shares – – owned and held by each.”<sup>49</sup> This is clearly to be read that the pro rata liability was not unconditional. It depended on the Trustees, *i.e.* the board of directors, which in turn consisted of major shareholders and their representatives. Thus, it is highly unlikely that they would have drawn a decision to allow the liability due to a judgement of amount exceeding the company’s assets. And no tort victim or any other person could activate the pro rata liability against the board’s will.

#### 4. OTHER ALTERNATIVES TO ENSURE SATISFACTION OF TORT CLAIMS

Proponents of the unlimited pro rata liability could counter the arguments presented above by stating that those are of a secondary importance only; the coverage of tort victims should be the main concern, not the possible effects on shareholders. In order to overcome this line of argumentation one has to provide alternatives that satisfy tort victims at least as well as the proposed unlimited pro rata liability of shareholders. After all, even the proponents of pro rata liability cannot immediately exclude the possibility that an alternative legal vehicle could be more effective in providing coverage for tort victims. Therefore, in the following we concentrate on coverage-oriented reform proposals which seek to guarantee that the company or its owners have adequate funds to bear tort claims.

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<sup>47</sup> *Ibid*, p. 76.

<sup>48</sup> *Ibid*, p. 84.

<sup>49</sup> *Ibid*, p. 73, fn. 73.

## 4.1. Requirement of Mandatory Insurance

The most standard off-the-rack proposal *de lege ferenda* to satisfy the claims of tort victims is to require companies to carry insurance for that purpose.<sup>50</sup> The benefits of insurance, however, are easily misunderstood. A representative example is offered by a British professor of company and securities law, *Ben Pettet*:

“A company hit by huge mass tort claims will probably be insolvent whether it was adequately capitalised or not. [– –] What is needed is a law requiring companies to purchase liability insurance against tort claims to the extent that the claims overtop their assets. [– –] – – only if the assets were exhausted and the claim remained partially unsatisfied would the overtop insurance cut in and provide funds.”<sup>51</sup>

This statement by Pettet is based on a non-explicit presumption of insurance coverage being available; if this option exists it would mean that a insurance firm would provide effective monitoring. However, this is not true: the insurance market does not offer non-limited cover because that is not required by the law. If it were required, the mandatory coverage requirement would in essence substitute the judgement of the insurance market for that of the legislator or regulator about the acceptable level of risk. By a law imposed duty to provide coverage does not make the unlimited risks more insurable than they are in a setting prevailing today where such a duty is non-existent. Insurers simply do not offer those types of coverage that they cannot provide on a cost-effective basis. If they are required, they tend to offer the minimum coverage with maximum exclusions and exceptions permitted by law.<sup>52</sup>

Insurers are just as capable as investors in diversifying risks.<sup>53</sup> Due to specialisation efficiencies, however, insurance market is the best available institution to monitor and quantify tort risks; the business of insurers is just that of monitoring and assessing tort risks. This applies if, and only if, insurers are able to link premiums, *i.e.* their fee, and other conditions of an insurance policy

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<sup>50</sup> See *e.g.* Shavell 1986, p. 54.

<sup>51</sup> Pettet 1995, p. 157.

<sup>52</sup> LoPucki 1996, p. 81.

<sup>53</sup> Arrow 1965, p. 47: “– – there are no other major institutions in which the shifting of risks through the market appears in such an explicit form as in insurance and common stocks.” Franke 1996, p. 117: “We regard the shareholders as financiers and insurers of exogenous and endogenous risks of corporations. They diversify their portfolios and so get rid of unsystematic risks – –.” See also Skogh 1991, p. 1.



to precautions of a particular insured enterprise. If insurers cannot assess the company's level of care and derive terms of insurance policy to it, then a classical dilemma of "moral hazard"<sup>54</sup> arises and enterprises are likely to take less care than if they did not have to buy coverage.<sup>55</sup> The dilemma of moral hazard is that it provides an enterprise the incentive to try transfer its risk for payment below the expected cost, to obtain a free gift.<sup>56</sup>

In an environment proposed by Pettet the moral hazard problem is escalated because a company would be required to take the policy on behalf of not itself or shareholders but possible tort victims. The moral hazard problem can be certainly be overcome by adjusting the insurance premium to reflect the increase in the expected loss resulting from the lesser care taking. The problem, however, is with this option that the premium requirement in an unlimited liability environment would likely to be set at a level so high that it would not be feasible for firms at all.

We are not claiming that in the prevailing regime of limited liability the companies are monitored perfectly by insurers. The point is that there are alternatives in practice to monitoring the behaviour and adjusting the premium accordingly. These take the form of partial insurance coverage, as in deductible or coinsurance. In both cases the resulting coverage is not complete; it leaves some risk on a risk averse enterprise and it does not completely solve the moral hazard problem.

If companies were required to have coverage to an unlimited amount they would have the hardest time finding such an insurance;<sup>57</sup> it would be outside the boundaries of insurability.<sup>58</sup> Insurers cannot control the actions of a company that does not have a true interest to limit accidents because the ultimate beneficiaries of the coverage would not be the company itself or its investors but outsiders, the tort creditors.

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<sup>54</sup> Culp 2002, p. 316 provides a general description of the moral hazard problem: "When the purchaser of insurance can take actions that impact either the probability of incurring an insurable loss or the size of the loss and asymmetric information prevents the insurer from perfectly observing those actions of the insured, the problem of moral hazard may arise." Of optimal insurance contracts under moral hazard see Winter 2000, p. 155–183.

<sup>55</sup> See *e.g.* Shavell 1986, p. 54, where it is observed that if insurers cannot determine the quality of a utility's training program for a nuclear facility, the utility's incentives to adequately train a worker will be dulled by a liability insurance.

<sup>56</sup> Mackaay 1982, p. 179.

<sup>57</sup> Viscusi (1990) found in his statistical study of insurance markets in different US jurisdictions that the availability of insurance varies under different statutory regimes: the more the provisions capped the potential liability, the more insurance coverage was being available.

<sup>58</sup> Berliner (1982) reviews the general conditions of insurability.

Legislators in Finland and elsewhere have surely laboured numerous requirements for citizens to purchase liability coverage. The most notable example is the compulsory insurance for automobile owners that is common in most developed economies. But it is based on actuarial data of accident frequencies for different driver categories and as well for amounts of coverage actually paid; established insurers have collected such data during several decades. Similar information, however, is impossible to have of unforeseeable accidents that companies might cause in the future; experience based premiums can be determined *ex post* and so they will lag behind the observations of risky behaviour.<sup>59</sup> Thus, insurers would not simply offer unlimited coverage for such accidents.

To counter the argument presented above one could refer to the example of *Lloyds of London* which is world-famous for providing insurance even for the most extraordinary and bizarre accidents.<sup>60</sup> The sample size of similar events may be very small or even non-existent. Thus, there is no actuarial data available of such accidents to base a premium required meaning that the risk exposure from providing insurance may be considerable.<sup>61</sup>

Nevertheless, such contracts do exist and premiums for them are set in practice. It could be well argued that this kind of an insurance offered without actuarial basis is really equivalent to a lottery. Wouldn't Lloyds or similar organisations be then ready to offer insurance as well to cover the upper unlimited liability that Pettet refers to? The answer is no. Even the society of Lloyds is no place to find unlimited coverage: members have to name the maximum liability they can carry per year.<sup>62</sup> This in turn means that contracts written always provide the maximum amount to be paid. Thus, by contradicting the very basic principles of actuarial practice the proposal of Pettet is non-feasible in the real world of insurance.

Hansmann and Kraakman are by no means in favour of a mandatory insurance requirement described above.<sup>63</sup> However, in essence, they are proposing a similar system; they are only approaching the matter from a different angle than Pettet.

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<sup>59</sup> Carney 2000, p. 686.

<sup>60</sup> Lloyd's is an insurance provider *sui generis*: it is not a company but a brokered market in which underwriting syndicates both compete and co-operate. The extraordinary policies issued by Lloyd's include a concert pianist's hands and the legs of a racehorse. Arshadi – Karels 1997, p. See also [www.lloydsolondon.com](http://www.lloydsolondon.com).

<sup>61</sup> Allsopp 1995, p. 354.

<sup>62</sup> Gastel 1995, p. 57: "Once elected into the Society, members select a membership category, based on their wealth. This dictates the maximum amount of risk they can underwrite for that year."

<sup>63</sup> Hansmann – Kraakman 1991, p. 1927.

In order to ease the worried mind of a small risk averse shareholder facing the prospect of unlimited liability they introduce a new concept: “portfolio insurance” which would cover the investor’s stock holdings in a case of a tort claim. Hansmann and Kraakman, according to their own words, “– do not see no reason why unlimited coverage ought not be available to small shareholders for a price that is not prohibitive.”<sup>64</sup> What distinguishes this kind of insurance, however, of more common liability contracts written today, is exactly the open-ended nature of a possible loss that has to be covered. Therefore, this type on coverage does not exist in the current insurance markets. And just due to this feature of limitless liability, it is also unlikely that insurers would ever be willing to write such policies in the future. Hansmann and Kraakman do not seem to recognise the importance of this difference even though they state that the proposed concept of portfolio insurance is “unconventional.” On the contrary, they are ready to equalise portfolio insurance with more typical policies such as life insurance: “– insurers – might be willing to supply such coverage because, like life insurance sold to airline passengers, it would be profitable.”<sup>65</sup>

To repeat shortly the argument we have already presented above, there is clearly no actuarial data available of corporate mass torts as is of motoring accidents. Therefore, it is highly unlikely that the insurers could assess the risks to set a premium for a portfolio insurance. This is also demonstrated in telephone interviews carried out by Hansmann and Kraakman where “– writers of liability insurance for business claim to be able to control moral hazard by inspecting their insureds and employing experience ratings.”<sup>66</sup> This is certainly so, but these interviewed insurance specialists have most likely considered in their comments only coverage of well-known risks and limited, not unlimited coverage.<sup>67</sup>

<sup>64</sup> *Ibid*, p. 1901.

<sup>65</sup> Hansmann and Kraakman also refer (*ibid*, fn. 62) to the British experience with mandatory auto liability insurance that does not carry upper cap, at least for personal injuries. However, maximum potential liability can be estimated quite accurately even regarding the British automobile insurance. Pursuant to Section 145(4) of the Road Traffic Act provides that the minimum insurance cover against property damage must be at least £250.000. Moreover, a person is exempted from the requirement to have an automobile insurance – against liability for death and injury to any person as well damage to property – altogether if she deposits with a certain authority a sum of £500.000. See Evans 2000, p. 326–327. This amount, covering all liability, represents reliable estimate of the maximum insurance coverage to be upheld by a court.

<sup>66</sup> Hansmann – Kraakman 1991, p. 1890.

<sup>67</sup> Halpern 1998, p. 590. Also Faure 1995, p. 459: “– an insurer in essence will never provide unlimited coverage.” For similar comments made by a representative of the insurance industry see e.g. Aickin 1986: “No risk is insurable without cover limitations to define the risk which is transferred.” See also Culp 2002, p. 319: “It is rare to find an insurance contract without a policy limit some kind.”

Moreover, in theoretical studies of insurance, it has been concluded that upper limits are optimal because beyond some point the expected benefit of additional coverage is smaller than its costs, given that the price of insurance must reflect the cost of paying losses that otherwise would fall on the counter-party of the contract.<sup>68</sup> To summarise, the theory of unlimited pro rata liability asks for more than the insurance market can ever bear.<sup>69</sup>

At least in theory, insurance does not have to be bought from a third party; there is the possibility of “home-made” insurance. Already in 1976 *Richard Posner* proposed an in-house alternative to a mandatory insurance. According to him, a company involved in a dangerous activity should “– post a bond equal to the highest reasonable estimate of the probable extent of its tort liability.”<sup>70</sup> A requirement of posting such a bond would reserve funds available to meet possible tort liabilities of the company. This proposal, however, does not lend itself to be easily implemented in practice. For one thing, the “reasonable estimate” of maximum liability is hard to assess, even if one would be able to agree who – Posner does not provide guidance on this matter – is to make such an estimate. Difficulties in assessment are at least as severe as in the alternative of mandatory insurance.

## 4.2. Superpriority of Tort Claims

Still another option in providing more coverage to accident victims is to raise their status in a bankruptcy estate. A tort creditor’s claim is unsecured by its nature. Thus she is – among the other unsecured creditors – the last one to collect from a bankruptcy estate. And most likely the estate’s funds are already exhausted before her.

A security interest in property is a lien acquired by contract to assure performance of a debt of other obligation. Under the insolvency legislation, a secured creditor with a validly obtained lien has absolute priority – up to value of her security – over tort claims and other unsecured liabilities. Shortly, she can collect ahead of others, *inter alia* tort victims; they recover from the collateral only to the extent of the value, if any, in excess of the amount owed to the secured creditor. Only after her claim is satisfied, the other creditors may share remaining value of that asset in proportion to the proved amount of their claims.

The pros and cons of secured debt are heavily debated today among

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<sup>68</sup> For a review, see Harrington – Danzon 2000, p. 287–288. Huberman *et al.* 1983, p. 416–426, provide a mathematical exposure of this.

<sup>69</sup> Bratton – McCahery 1997, p. 655.

<sup>70</sup> Posner 1976, p. 520.

American scholars.<sup>71</sup> Professor *Mark Roe* summarises possible benefits from an economic point of view:

“First, the secured creditor can monitor the security offered and thereby sometimes stop the debtor from substituting riskier projects than it anticipated at the time it lends to the debtor. Second, the creditor may cut down on its own information gathering: it understands one part of the debtor’s business and lends on the assets in the business it understands – –. Third, the first creditor is worried about the debtor borrowing and dissipating the proceeds of future loans, leaving the first creditor with a diluted claim it must share with other creditors; grabbing priority and a key asset reduces the debtor’s and the new lender’s incentives to borrow and take on risky projects in which the proceeds of the loan could be dissipated.”<sup>72</sup>

Despite of these benefits some American professors, nevertheless, have been eager to propose a change in the law.<sup>73</sup> They would like to provide the tort victims priority over the secured creditors. According to this proposal the claims of tort victims can be elevated over those of secured creditors. By this the risk of damages would be internalised more than today by all investors that provide capital: only the harm in excess of the company’s whole capital could be externalised. In other words, not just the stockowners but also the providers of the enterprise’s debt capital would shoulder the risk to the amount of their investments.

On the other hand, there are several academics who disagree with the proposed elevation of tort claims. They suggest that without priority secured lending would not exist because the mere entry of judgements would virtually extinguish their interests.<sup>74</sup> Considered from the opposite view, however it can be claimed that tort creditors are better off with the current regime of secured lending: without the value furnished by the secured creditor the debtor would not be able to own the property in the first place.<sup>75</sup>

A somewhat milder version of superpriority has been offered in the literature: involuntary creditors should be allowed to have priority over not

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<sup>71</sup> For economic analysis of law, the secured debt represents an unresolved puzzle. Already in late 1970s *Thomas H. Jackson* and *Anthony T. Kronman* raised the question: Why does the law allow a debtor prefer some creditors over others by securing their claims, instead of requiring equal footing to all creditors by a rule of sharing ratably in the debtors estate? (Jackson – Kronman 1979, p. 1146). Both Adler 1998 and Bowers 2000 review debates of this puzzle.

<sup>72</sup> Roe 2000, p. 217.

<sup>73</sup> See *e.g.* Clark 1976, p. 551, fn. 123; Leebron 1991, p. 1643–1649; and LoPucki 1994, p. 1907–1916.

<sup>74</sup> See *e.g.* Kripke 1985, p. 941–946.

<sup>75</sup> This summary draws on LoPucki 1996, p. 11.

secured creditors but unsecured voluntary creditors. This alternative does not alter the bargain of secured creditors but it comes with a price tag: besides introducing difficulty of determining which creditors are voluntary the coverage for tort victims would be less than with strict superpriority. Another alternative is to reserve a part of secured debtor's collateral for unsecured tort victims.<sup>76</sup> Still another one is to allow only a partial priority of secured creditors.<sup>77</sup> When these options are considered, however, one needs to take into account the efficiency of secured debt: the higher the cost of financing the lesser funds are available for distribution to all creditors of the particular company.<sup>78</sup>

Surprisingly, the law and economics scholars seem to have missed another but quite obvious alternative:<sup>79</sup> In a case where a company is unable to cover the amount of tort judgement, the current holders of ordinary shares could be replaced by tort claimants. Then existing shares are nullified and new shares issued to accident victims, actually to a public governmental authority that holds them in a trust for the benefit of tort creditors. This would also mean that the bankruptcy is not an allowed option.

In due time the public authority would arrange an auction or otherwise resell the shares back to market and the collected monies would be allocated to tort victims. These funds would amount (almost) to the market value of the company's share capital and not just residual of the assets that are to be shared with other unsecured creditors. Considering the market value of major listed companies in Finland and elsewhere, it is likely that the collected amount of funds would be considerable. However, it remains as an empirical question whether this alternative is more effective in recovering than the pro rata -rule.<sup>80</sup>

The proposed arrangement is not a novelty. It resembles the solution tested in the Norwegian banking crisis.<sup>81</sup> In late 1980s the state of Norway took the control of several banks that were about to collapse. The existing shares were

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<sup>76</sup> Schwarcz 1997, p. 427, fn. 3, referring to a proposal made by professor *Elizabeth Warren* in 1996.

<sup>77</sup> Bebchuck – Fried 1997, p. 1328. See also Bebchuck – Fried 1996.

<sup>78</sup> See Mokal (2002) for a demonstration that secured credit, by inducing creditors to lend when they would not do so without being offered priority, is mutually advantageous for all kinds of creditor, even the unsecured ones.

<sup>79</sup> This alternative is not mentioned in the bibliographical surveys of limited liability debate by *e.g.* Carney 2000, Halpern 1998 and Kraakman 1998.

<sup>80</sup> See section 1.1.2 (*in fine*) above. Moreover, this proposal has similar flavour of fairness as the pro rata -rule because tort victims replace the owners of the company that has caused the accident.

<sup>81</sup> For a general description of the crisis, see *e.g.* Ongena *et al.* 2000, p. 4–9.

nullified by writing down the value of equity capital to zero and the state emerged as the sole owner of new equity capital. Some of these new shares were later sold to the market participants.<sup>82</sup>

This alternative does not affect the price of debt financing; the efficiency of secured credit would be preserved because the position of it is left intact. Moreover, the transformation of tort creditors to beneficial owners of equity capital would in principle be without an impact on the value of shares because the transaction affects only the ownership of the company but not the cash flows between it and outsiders.

To be sure, the prospect of possible major tort claim may depress the share price because the current owners try to rush and sell their stocks before they are nullified. But when the authority later resells the new shares back to the market, their valuation would derive from the business prospects and assets of the company.

## 5. SUMMARY

Investors may easily divide their holdings between several listed companies. By diversifying the portfolio funds most of the specific risk deriving from each company in the portfolio is eliminated; however, the market risk is always to be shouldered if an investor participates in the stock market. But this is the burden that an investor takes on to carry knowingly.

Tort victims do not enjoy similar luxury of choices regarding risk-control as investors. They cannot *ex ante*, before the accident materialises, decide the maximum loss they are ready to carry. To be sure, a potential victim may take out an insurance. But it cannot be known with certainty whether the insurance will cover that particular accident which she is to encounter later; the policy may well exclude that particular type of accident *e.g.* as a *force majeure*. Moreover, the insurance policy has an upper cap in almost every case: a provision sets the maximum that can be paid out to the victim. Liability in excess of this threshold is not covered by the insurance.

Shareholders are efficient risk-bearers. Therefore, one is tempted to conclude that they are better suited to bear the costs of accident than tort victims. Within this framework American legal scholars *Henry Hansmann* and *Reinier Kraakman* have proposed in early 1990s that each shareholder of a listed company should have a secondarily liability to bear the tort judgements of the firm on a pro rata basis.

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<sup>82</sup> Mayes – Halme – Liuksila 2001, p. 38–39.

In this article, however, I have pointed out to the crucial condition for risk-bearing based on diversifying the stock portfolio: the maximum liability in each company has to be known *ex ante*. This compels the authority to state explicitly the upper limit for liability. The current system where the excess liability is set at zero is also a choice made by the legislator. No matter the actual choice, a system where each and every shareholder takes on a pro rata liability for assessment when she purchases her shares is viable as long as the maximum liability is specified *ex ante*.

There exists, however, an alternative to extended liability to stockholders. If the legislator or regulator does not want to choose the numerator for liability, an option is to nullify the current share capital of a company unable to meet the mass tort claim and grant the same amount of new equity in favour of the accident victims. These shares in turn can be resold at the stock market and the proceedings allocated to the victims.

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