

Chain-management: between cooperation and competition

MR.DRS. H.J. BREMMERS

*Department of Management Studies
Wageningen Agricultural University
Hollandseweg 1 "De Leeuwenborch"
6706 KN Wageningen
The Netherlands*

Introduction

The combination of the words 'chain' and 'management' suggests an optimism in the possibility to influence and control a flow of goods or services in a way that preset targets are met. 'Chain' stands for the system of stages that are linked through the process that aims at narrowing the gap between primary extraction and final use. 'Management' denotes the possibility to coordinate the processes that exist between these stages.

'Control' can be accomplished in different ways. From a governmental point of view, control can be accomplished through legal prescriptions, that have to comply with rulemaking of the European Union (somewhat old-fashioned depicted as EC). Governmental control is not solely accomplished through limiting prescriptions but can be realised by incentives too. Incentives or directives can focus:

- the chain and the different stages in the process especially when subsidies or quality assurance aim at maintaining a flow of goods that is essential for the functioning of society;
- can pin-point the beginning of the chain, for instance as takes place in product-liability;
- can pinpoint the end of the chain, for instance to protect consumers' rights.

The *legal* framework limits the possibilities for individual enterprises to cooperate and/or to compete. From an *economic* standpoint of view, cooperation or competition that takes place within the legal framework can influence the (transaction) costs of entities within a chain. And moreover, between legality and economicity interdependencies exist, law can be viewed at 'from the perspective of the economist' (E.J.P. Mackaay, 1988).

Opportunities and limitations of chain management can be located in:

- the legal framework that provides the space and possibilities in which parties can operate;
- economic factors that provide positive or negative impulses for the bargaining process itself as is the case when contracting costs exist;

- legal impulses that have effects on the bargaining process and that can be restated in economic criteria, such as liability rules.

Studying chains is not a one way process. In gathering and analysing chains and presenting information about chains in a coherent and consistent manner, chains are object in a double sense. Through the gathering of knowledge about chains and the use of this knowledge, a spin-off of scientific findings to the companies that are linked in chains could be realized.

The question can be asked if there are limitations to the management of chains from a legal perspective. If such hurdles exist, attention should be drawn to the limitations of chain-management itself, that is, in essence, cooperative action.

In this paper attention is concentrated on the following key-areas that are of importance in studying the possibilities to cooperate and/or to compete:

- national trade barriers and horizontal or vertical agreements between companies to reduce competition (par. 2);
- the assessment of quality and product specifications (par. 3);
- the joint effort to solve the environmental problem (par. 4).

On each of the above areas of possible interference with national and european regulations are considered. In paragraph 4 more than moderate attention is payed to chaining problems in the environmental-damage issue, as it is of special concern in future research. In par. 5 concluding remarks will focus on consequences for the direction of future research with regard to legal issues in chain-management.

Realising a european market: getting rid of trade-barriers

As the major goal of the european unification effort is to reduce limitations for competition within the European borders, all three named areas are of concern, as measures of individual states or companies can disturb a 'workable competition'. Rules against unfair competition (art. 85 - 90 of the EC-treaty) and against governmental barriers were created to enhance such circumstances (L. J. Brinkhorst/R. Barents, 1990 page 107).

So competition is enhanced by:

- the breaking-off of national trade barriers for the flow of goods over the borders (par. 2.1);
- a restrictive policy on agreements between individual companies (par. 2.2).

As the EC has created a autonomous judicial system (Van Gend en Loos, Court of Justice case 26-1962), that passes by national legistic efforts, chain management should not conflict but only be subsidiary to efforts to achieve a free EC-market (Simmenthal case, Case 106-1977).

Trade restrictons

A common markt encompasses not only the free transfer of goods (art. 30 -37), but also the free practice of professions (art. 48/52), of delivering services (art. 59) and of capital (art. 67). Import barriers can lie in prices (duties and taxes, art. 12) or quantitative import restrictions. The Dassonville-case has shown that any measures that can have the same impact as quantitative import restrictions are prohibited (Dassonville case; Court of Justice Case nr. 8-1974).

Intercompany agreements and economic power

In a competitive market profit margins are under constant pressure and producers are forced to innovate to create a temporary advantage. Paradoxically, protection that companies seek through mutual agreements, is motivated by competition itself, since in a perfect and liberal market any profit margin will diminish. As long as there is a difference between costs and selling-price more companies will join on the market.

Trade barriers on the other hand have a negative impact on real income of consumers.

Cooperative action of companies to protect prices and market shares can violate art. 85/86 of the Treaty, if the agreement possibly has a negative influence on trade between Treaty-countries, even if the horizontal agreements exist between companies that are located in only one EC-country (VCH-case, Court of Justice case nr. 8 - 1972; compare H.W. de Jong, 1990). According to art. 85,1 common market objectives can be frustrated if agreements, decisions or coordinated behaviour can diminish trade between Treaty-countries and aim at or result in an obstacle for competition. Such agreements should be reported to the Commission that can grant exemption from the prohibitions of art. 85. Exemption can be granted if cooperation aims at technical improvement of products or (economic) progress. Art. 85,3-b however states that such exemption may not result in or aim at eliminating competition for an important part of total production.

Article 86 concerns the *disuse* of economic power, for instance as a consequence of take-overs (Case 6-1972, Continental Can).

Under dutch law, the Ministry of economic affairs should be informed about the agreements on price or market regulations (art. 2 ECA, Economic Competition Act) which can be generalized (art. 6 ECA). The measures against agreements on the basis of the dutch Economic Competition Act (ECA) can concern (generic) annulment after suspension. This measure focuses on the agreement itself (art. 23 ECA) and is primarily a horizontal instrument. The publication of information (art. 19/24) however aims at mobilising public opinion and is therefore a vertical instrument. The ECA can be used against specific clauses in horizontal agreements that frustrate public interest, and can for the same reason be used against economic dominance in a market (art. 24 ECA).

As dutch law concerns only those regulations on competition and economic power positions that have negative consequences for *public* interest (particularly when a situation occurs that can be characterized as unfair competition), it is possible that dutch policy violates EC-regulations that are based on the principle of *prohibitive* regulation. It should be noted too, that under dutch law there should be a formal agreement between companies before government interference is applicable, while on the European level even coordinated action between organisations can lead to measures from the European Commission on the basis of EEC's provision nr. 17 (RUG, 1992, page 87).

Cooperation in the chain

Horizontal agreements between companies operating in the same branche can have vertical implications. This is of importance: for understanding transactions between companies vertically in a chain, apparently agreements on cooperation horizontally matter.

Market structure can stimulate the realisation of horizontal agreements in a vertical-upward direction. Referring to the pork meat-chain, constant pressure on transfer-prices for pork between retail trade and delivering companies cannot be met by quality improve-

ment alone, since such quality improvement will only lead to lower prices (for the consumer) or larger profit margins (for the super market chains). The constant pressure on prices, that is a consequence of oligopolistic tendencies in the retail-sector, and strong competition in stages upward the chain, leads to the shifting of pressure on margins upward, to the farmers, with possibly fatal consequences for Dutch companies in the near future. As downward the chain loss of margin on meat is compensated through gains on other products (companies have a highly diversified composition of products to offer) and the acquisition of products by customers takes place through 'package-deals' with retailers, specialisation upward the chain becomes a death-trap for which quality improvement gives no definitive solution.

Another 'inequality of arms' should be noted. Retailers have a freedom of choice between the delivering companies, but the same freedom of choice is not applicable upwards the chain because of cost- and capacity- and storage-structure. Cost-structure is important because realised long-term investments create inflexibility in production; capacity-structure is important because the existing over-capacity aggravates pressure on margins; and storage-costs are important because the loss of clients is immediately translated in cost of capital that lies fallow.

Quality improvement has (as stated) only a positive aspect for the short run since it opens up markets abroad, it compensates in a sense the natural disadvantage that exists in the distance to the consumer abroad, and creates a temporary margin at home in a competitive market. At the home-market it helps to keep up with companies in the same branch. Of course quality improvement itself is a welcome result of competition, but for the companies involved it is only profitable if profit margins can be restored.

It may therefore be of importance for survival of companies in the dutch agri meat-sector to come to joint calculation schemes on product prices in relation to quality, but joint action violates the aim of disclosure of markets and is therefore of special interest for european monitoring agencies too.

Whereas european policy aims at enhancing competition, dutch law and practice are permissive despite recent measures of the Department of Economic Affairs to prohibit agreements on vertical price regulations (and perhaps necessarily is in the light of policy in other countries).

Quality improvement

Quality prescriptions can have a positive and a negative impact on competition. From a Hayekian point of view, as Hayek promotes a liberal economy that is totally different from the Netherlands' guided economy, economic policy should concern mainly the prohibition of cartels and the setting of qualitative non-discriminating requirements for new businesses and for products (B. Hessel, 1992, page 5). Since national quality prescriptions can conflict EC's primary objective, quality assessment from a european perspective aims at protection of end-users (Rau case 261-1981) and by the object of eliminating unfair competition.

Prescriptions on product quality and composition that are officially motivated by health protection on art. 36 (Sandoz case 174-1982) can come in violation with with art. 30 of the Treaty, if the measure has similar effects as a quantitative import restriction. From the Cassis de Dijon-case it follows that national rules to protect consumers' safety and health

are not applicable if this protection is guaranteed by the rules of the state of origin (L.J. Brinkhorst/R. Barents page 109).

For integral chain management it means that quality regulations downward a chain are prohibited if such regulations aim at frustrating EC-policy to open markets.

Environmental care

From a European point of view, environmental care is of special interest. On a global level no legal authority exists that can force national governments to diminish environmental pollution. On a mondial level the enhancement of environmental care can only be stimulated indirectly through the expression of recommendations. The formulation of rules by individual governments must be seen in relation with and subordinated to EC-rule making (L.J. Brinkhorst/R. Barents, page 210).

Art. 130,4 states that measures are taken on a European level only if through community better results can be realized than on a national level. Art. 130t leaves open the possibility for national environmental rulemaking to be more severe than EC-measures. According to art. 130t these measures must fit in the context of the Treaty.

From the primary objective of the EC as an economic community, the possibilities to alleviate rulemaking and rule-enforcement on a national level can therefore diminish. For instance the possibilities to cut down the number of enterprises that have to ask for special permission if entrepreneurial operations create environmental risks under the 'Wet Milieubeheer' (General Environmental LAW, GEL), by the formulation of general rules as is possible under Dutch law (art. 8.40 GEL), are narrowed by the EC-directive on Integrated Pollution Prevention and Control (J. Verschuuren page 107 - 108).

In Dutch law there are three sources for legal restraints on the creation of environmental pollution. Apart from public law, that is based on specialisation in environmental sectors (air, water, soil, sound) and are linked to the GEL (with exception of the Water Pollution Act), environmental pollution and the behaviour that causes environmental damage, is opposed by criminal and civil law. In the following, attention will be focused on civil law, as tort law (especially art. 6:162 of the Dutch Civil Code) is less vulnerable for conflict with efforts on the European stage than public law.

Civil law can take two extreme positions as to the question who exactly has to bear the loss that occurs on an incident with environmental damage. With the absence of any civil rules that hold the polluter responsible for environmental damage, it is the pollutee that has to bear the loss. This does not necessarily mean that damage will *not* form part of the private costs of a firm, since victims might be willing to pay for preservation of their health and property. At the other extreme, under a system of strict liability, it will be the polluter that bears the financial consequences. This does not necessarily mean that the victim's role is a passive one, since through contracting and negotiations, polluters can come to an agreement on the costs of the damage caused.

Civil law therefore influences behaviour in a situation of strict liability, although ex post compensation is its primary objective. This is because compensation itself has an ex post and an ex ante aspect. From an ex post standpoint, compensation refers to the righteousness of the recouperation of any loss. The financial loss should be the burden of the actor that, in an entrepreneurial setting, aimed at a profit in acting as he did. Ex ante it can bring about cost minimization and prevention efforts.

In dutch law, similar as in the american law system, there is a tendency towards strict liability when creating a risk for the property or health of others. Strict liability rules do not necessarily have to be effective from a society's point of view in reducing social costs, as will be argued further. The (effectiveness of a) liability rule is of importance since it has an impact on vertical chain-transactions. Before studying the influence of such rules, in the following subsection companies' behaviour is looked at.

Private effectiveness and environmental care

From a company's perspective, the development of a corporal environmental care system is one out of several strategies that can be adopted to meet environmental risk (see for instance P.F. Claes/H.J.J.M. Meerman page 110). In coping with environmental risk, first a choice has to be made between between taking action and doing nothing. If a decision has been made to act, then a choice is due between risk-reduction and risk-compensation activities. Risk-reduction can be accomplished by the adjustment of activities, by investments (e.g. the implementation of a care system in the organsation) or by combination of these strategies. Risk compensation is established by insurance or by creating financial provisions.

When meeting environmental risks in an active way, costs will occur. The costs an individual company will meet in producing for the market, consist of traditional production and marketing costs and will possibly be increased by risk reduction costs. In the following we exclude the problem of choosing between risk compensation and risk reduction assuming that I, the present value of risk reduction costs, equals present value of insurance premiums (P) and the present value of provisions (O). In all three cases a stream of cash outflows (Zt) will occur so that:

$$E(I) = PV [E(Pt)] = PV [E(Ot)] = PV [E(Zt)]$$

Risk reduction costs are the costs incurred by reducing environmental risk. If risk is not totally reduced, environmental damage may occur. Total costs of a firm may, but are not necessarily composed of traditional production costs, risk reduction costs and pollution costs. If total costs weigh in total on the firm, decisions have to be made as to what level

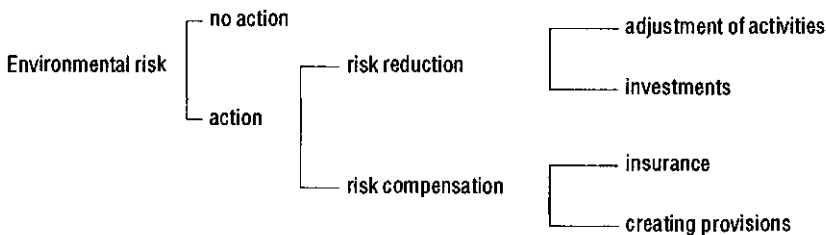


Figure 1. Risk strategies

risk will be reduced. Under the following assumptions the risk reduction level can be assessed positively (compare: R.W. Holzhauser/R. Teijl page 125):

- negative consequences of environmental pollution weigh upon the polluter solely.
- the chance on an incident that incurs pollution costs will be reduced by investments that in turn raise production costs;
- total operations of the firm will not be reduced in meeting environmental risk (as is the case in a short term situation);
- production takes place under perfect market conditions. There is no information problem for the management of the firm.
- the firm's goal in the short run is to reduce the environmental risk to a level on which total costs at a given activity level are minimal.

The following symbols are used:

C_0 : the traditional costs of current activities

D_0 : environmental damage

p : change for environmental damage

T : costs of risk prevention

As the chance for damage will be reduced by investing more money in prevention measures $p = f(T)$. The company's total costs (C) under the specified conditions earlier will therefore depend upon D , $p(T)$, T and C_0 . As C_0 isn't adapted on the appearance of environmental risks (or stated differently, as the activity level is supposed to be a constant), C_0 will not be a determining factor in assessing the optimal risk reduction level. An individual optimum occurs when marginal expected environmental damage equals marginal risk prevention costs.

In a perfect market with the same cost structure for all the companies on that market an optimal situation will be brought about. This means that total wealth is maximized. Under the circumstances in this subsection, a liability rule has not much to offer.

In the real world however, costs of pollution will primarily weigh upon pollutees because external effects occur.

External effects and the market

In the above example environmental damage is supposed to bring about internal effects, that is costs for the individual company, which stimulate to alter behaviour in a more profitable direction. If external effects exist, the burden of environmental pollution will weigh upon others than the entrepreneur, so that, apart from results of bargaining efforts, no stimulus to alter behaviour is brought about.

An externality is, 'a cost or benefit that the voluntary actions of one or more people impose or confer on a third party or parties without their consent' (R. Cooter and Th. Ulen, page 169). Externalities bypass the main instrument to internalise environmental pollution costs, namely the price mechanism.

The existence of externalities presuppose the beaconing of organisations to markets. A market functions as an instrument for competition. Agreements between actors on markets mitigate competition and favour organisation. Any voluntary agreement on pollution prevention and control, on quality or the use of marketing instruments (e.g. price,

quantity produced, sold and its quality) reduce free competition between organisations and itself bring into existence organisation itself.

Markets link organisations that are involved in the propulsion of goods and ultimately link consumers to producers and polluters under circumstances (in the absence of government intervention) to pollutees. The division between markets and organisations is transparent and as O.E. Williamson (1975) argued, a result of economic behaviour itself, in particular by weighing of coordination costs and transaction costs, that is the costs of information gathering, negotiating costs and contracting costs.

The problem R.H. Coase aims at, concerns the transformation of external effects into private costs. As H. Demsetz (1988, page 14) and many others in concordance with Coase's analysis states, when transaction costs and income effects are zero, the initial optimal market situation will perpetuate no matter how property rights are distributed. In a situation of free negotiations between polluters and pollutees, external effects will result in private firm's costs to a level that matches the willingness-to-pay. From a society's standpoint the thus created market situation is optimal in the sense that it minimizes costs. Two propositions R.H. Coase makes in his analysis are, first and extremely important, the absence of transaction costs, and second the absence of influences from wealth redistribution.

D.W. Bromley (1991, page 74), P. Burrows (1979) and others have, as R. H. Coase (1960) had already argued, confirmed that transaction costs *do* matter. P. Burrows argues that in a zero-contracting costs situation, a Kaldor-Hicks optimal situation (Q1) will result from negotiations.

The negotiations that will take place between the parties will result in a redistribution of wealth and a shift in the allocation of resources. The shift, however Kaldor-Hicks efficient, is not neutral (compare: H.J. Simon, 1993). For instance, H. Demsetz (1988, page 59) states, referring to driver liability under perfect market conditions, drivers would avoid accidents and would negotiate with pedestrians if risk avoiding behaviour could be bought at lower costs. If pedestrians were liable for accidentants, they would change their behaviour to avoid accidents.

The shift in wealth distribution in either liability situations is a consequence of the fact that under strict liability rules the pollutor pays to the pollutee, while in a non-liability situation the income stream flows in just the opposite direction. Under positive transaction costs circumstances the new equilibrium will be different too (figure 2), namely Q2 if polluters are held liable and Q3 with pollutees' liability.

It is shown that the distribution of property rights (the ownership of a controllable stream of income that is linked with assets according to D.W. Bromley) is of significant importance for the results of negotiations. It should be noted that wealth distribution is a prominent political issue, and so is therefore the initial distribution of property rights. Outcomes of analyses on economic efficiency of liability rules under assumptions of neo-classical economic theory do not guarantee a fair and just distribution of wealth. Solutions for the environmental problem cannot therefore result from traditional economic theory alone.

Free competition can not only have undesired effects on income and wealth distribution, but on the environmental problem itself, since in a neoclassical model, an implicit assumption is made of a stream of inputs and outputs that can be repeated endlessly. Limi-

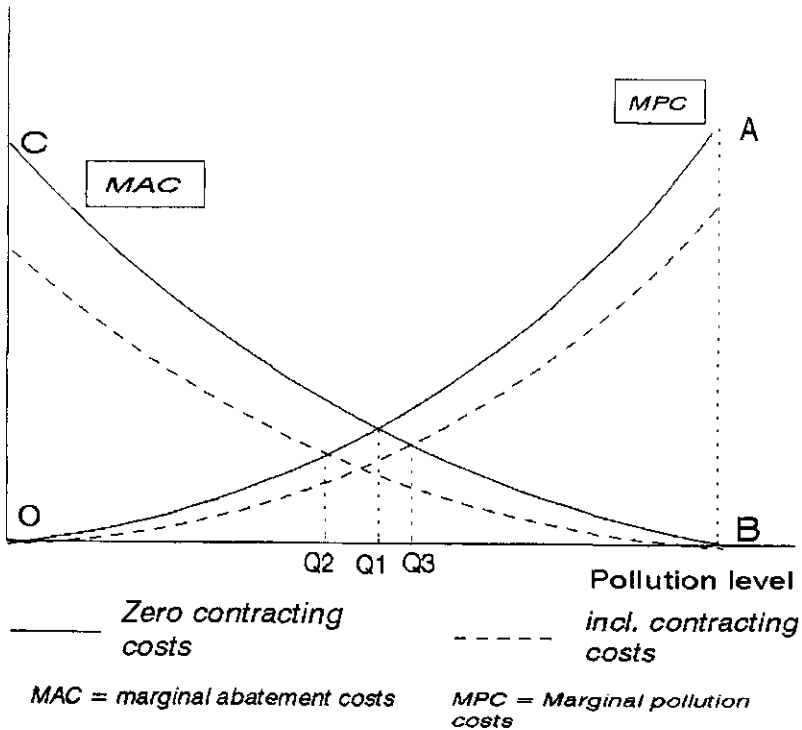


Figure 2. The influence of transaction costs on the market optimum

tations of the competitive model are briefly summarized by D.W. Bromley who states that the market is an inappropriate instrument (1991, page 20):

- if high transaction costs exist;
- if large and nonmonetary benefits and costs occur;
- in cases of high uncertainty over the future;
- with the threat of potential irreversibilities.

In looking for a liability rule that is effective from a societal point of view, one should bear in mind the disadvantages of neoclassical economic analysis. In environmental care often negotiations between victims and offenders are impossible as a consequence of high transaction costs.

Effectiveness in non-negotiation situations

One can ask if a single liability system exists that succeeds in minimizing social costs in non-negotiation situations.

The appropriateness of a specific liability rule can give information about tendencies towards cooperation on environmental care in chains and, as a by-product, on effectiveness of product-liability, which is in essence a vertical chain-problem. The assessment of a liability rule that is effective in minimizing social costs depends on the specific possibilities

to create or imitate market situations (what R.A. Posner (1986) calls: 'mimicking the market'; see H.J. Simon (1993) page 31).

E. Mackaay (1990, page 141 - 147) compares the costs of (environmental) damage (D) with the costs of risk prevention of the offender (Co) and the cost of prevention of the victim (Cv). Mackaay argues that there exists no single liability system that is efficient under all possible combinations of D, Co, and Cv. The following analysis is presented (E.J.P. Mackaay 1990, adj.):

D, Co, Cv	Liability on negligence		Liability on created risk	
D < Co < Cv or D < Cv < Co	1	Damage for victim	6	Damage on offender
Co < D < Cv	2	Precaution offender	7	Precaution offender
Co < Cv < D	3	Precaution offender	8	Precaution offender
Cv < D < Co	4	Precaution victim	9	Damage on offender *
Cv < Co < D	5	Precaution offender*	10	Precaution offender *

The liability regimes give non-optimal solutions under the specified conditions in cases 5, 9 and 10. In situation (5) the offender bears all costs (D = Co so the offender had to take prevention measures), of which the victim is capable at lower costs. In situation (9) the offender is held liable but costs to prevent damage are higher than damage itself. In situations (9) and (10) the victim is able to prevent damage at lower costs.

E. Mackaay uses the level of (possible) damage as an indicator for the level of precaution that should have been taken, the problem exists to get information about damage and prevention costs, information that is usually not available.

Criticisms on the above analysis may further focus the supposed independency of variables. Levels of care and damage are instead interdependent as higher levels of care result in the reduction of losses and injuries and the different impact on behaviour as to the risk aversion tendency of individuals.

A more thorough analysis, including some of the mentioned factors is given by S. Shavell (1979). Attention is focused on the prevention of accidents. Results of Shavell's theoretical analysis are summarized below. First a unilateral case is regarded, that is a situation in which the polluter has the power to influence the level of (environmental) damage.

UNILATERAL CASE:	LEVEL OF CARE	LEVEL OF ACTIVITIES
I Accidents between strangers		
Negligence rule	Efficient	Too high*
Strict liability	Efficient	Efficient
II Accidents between sellers/strangers		
Negligence rule	Efficient	Too high**
Strict liability	Efficient	Efficient
III Accidents between sellers and customers		
IIIa customers have complete riskinformation		
Not liable	Efficient	Efficient
Negligence rule	Efficient	Efficient***
Strict liability	Efficient	Efficient

UNILATERAL CASE:	LEVEL OF CARE	LEVEL OF ACTIVITIES
IIIb customers misperceive risk		
Not liable	Not efficient	Not efficient
Negligence rule	Efficient	Too high/too low****
Strict liability	Efficient	Efficient
* No stimulance on reducing the activity level		
** Costs of accidents are not integrally included in market prices		
*** Customers' perceived costs are product costs + expected damage		
**** Customers' perceived costs are too high, too low; activity level is too low, too high		

The general conclusion can be drawn that in unilateral cases, strict liability is efficient under all the named circumstances, whereas negligence is only efficient under (1) perfect risk information (2) with direct contact between seller and customer. Chain management will primarily be appropriate in cases where sellers and customers both can influence risks of accidents.

BILATERAL CASE:	LEVEL OF CARE	LEVEL OF ACTIVITIES
I Accidents between strangers		
Negligence rule	Efficient	Too high*
Strict liability with defense of contributory negligence	Efficient	Too high (victim)
II Accidents between sellers/strangers		
Negligence rule	Efficient	Too high
Strict liability with defence of contributory negligence	Efficient	Too high (victim)
III Accidents between sellers and customers (nondurables)		
IIIa customers have complete risk information		
Not liable	Efficient	Efficient
Negligence rule	Efficient	Efficient***
Strict liability with contributay negligence	Efficient	Efficient*****
IIIb customers misperceive risk		
Not liable	Not efficient	Not efficient
Negligence rule	Efficient	Too high/too low****
Strict liability with a defense of contributory negligence	Efficient	Efficient*****
* No stimulance on reducing the activity level		
** Costs of accidents are not integrally included in market prices		
*** Customers' perceived costs are product costs + expected damage		
**** Customers' perceived costs are too high, too low; activity level is too low, too high		
***** Inefficient if goods are durables; frequency of use is not reduced		

Consequences

Since there is no liability rule that guarantees optimal results under all circumstances, the problem arises to specify such rules under differing conditions. For chain management it would be important to analyse effects on behaviour since liability rules for different kinds of external interference (products, hazardous substances etc.) are not the same.

Let us look at the consequences of the above analysis for cooperation on the environmental issue. For pollution problems that are unilateral (and many problems in fact are)

strict liability is possibly efficient on the level-of-care issue and in influencing the level of activity.

In bilateral cases it may not be efficient at all in influencing the level of activity. Governmental restrictions on the level of activities however may lead to increased cooperation in a chain to alleviate pressure on profits. Cooperation and joint quality improvement may be induced by the tendency towards strict liability. This tendency is itself stimulated by inefficiencies of other liability systems. Cooperation may be stimulated too by the joint effort to reduce the level of risk, for instance in realising technical improvements.

In product liability, the producer that brought the product in circulation, is held liable under dutch (art. 6:185 - 6:193 of the dutch Civil Code) and EC-rules (dutch law is a result of the EC-directive on product liability). Risks however may be created by the use of products (e.g. faulty storage). In fact this means that a system of strict liability combined with contributory negligence may be efficient.

If customers are strangers to the original producer, activity level may not be efficient. This means that by narrowing the gap between consumer and producer, social effectiveness of product liability may be increased. Integral chain management, by which the information gap between consumer and producer is closed, may have a positive impact on judicial effectiveness, and in the long run a positive impact on product improvement.

Research on chain-management

As the opportunities for vertical coordinated action can violate the basic principles of the EU, one can ask what sense it makes to study chaining activities. Why, in other words, are chaining activities of special interest since these activities can diminish competition by reducing the possibilities to enter the market by firms from abroad? That is because cooperation is possible, even under EC-law, but within boundaries.

First it should be specified where these boundaries are located, in a more exact manner than has been done in this paper. Secondly, research should focus on identifying logistic and private measures that are most effective within the boundaries of EC-law. And third, scientific research should focus on the specific consequences for individual companies within a chain as to strategy, logistics, production and product specifications in connection with legal constraints on cooperation. In doing so, scientific research on the management of chains can focus:

- horizontal research of branches (milkbranche, seedbranche etc.);
- vertical research on the flow of products;
- research on aspects of chains (quality, environment).

On the above analysis a special preference for one of these approaches can not be stated. In analysing vertical effects, information has to be gathered on horizontal agreements (par. 2). Research is necessary on the effects of product liability, since the original producer is held liable and operations in following chains are of special concern to him (par. 4.4). In quality-assessment, restrictions on horizontal agreements with regard to basic qualities of products and brands influence behaviour vertically upward (par. 3). The environmental aspects can be studied by looking at transactions between stages vertically and if such transactions cannot occur, the effect of legal prescriptions and liability rules

on chain behaviour (par. 4.3). Studying chain management encompasses more than the processes that take place in a chain by following the product, since *cash flows go the other way around* (par. 2).

My conclusion is that studying chain management does not necessarily mean focusing on the chain itself.

References

- Algra N.E.: Het slachtoffer: Van beklagens- naar benijdenswaard? TBA juli/aug 1993 page 282 - 287 (The victim: to be pitied or to be envied?)
- Brinkhorst L.J. en R. Barents: Grondlijnen van Europees recht; Samson uitg., Alphen aan den Rijn/Brussel 1990 (transl.: Introduction to European law).
- Bromley D.W.: Environment and economy - property rights and public policy; Oxford/Cambridge 1991.
- Burrows P.: The economic theory of pollution control; Martin Robertson & Co Ltd., Oxford, 1979.
- Claes P.F./H.J.J.M Meerman: Risk management; Stenfert Kroese, Leiden/Antwerpen, 1991.
- Coase R.: The problem of social cost; Journal of Law and Economics, 1960, page 1 - 44.
- Cooter R. and Thomas Ulen: Law and economics; Glenview/London 1988.
- Demsetz H.: Ownership, control and the firm; Oxford 1988.
- Donkers R.: Het milieubeleid van de Europese gemeenschappen; Account Dossier nr. 10 (1992) page 2 - 7 (Environmental policy of the EC).
- Economisch recht (transl.: Law and economy); publication of University of Groningen, Faculty of Law, sept. 1992; in cooperation with the university of Leiden, Utrecht and Rotterdam.
- Faure M.: Milieubescherming door aansprakelijkheidsrecht of regulering? Ars Aequi- Rechtseconomie, oktober 1990, blz. 157 - 167 (Protecting the environment through liability or rulemaking?)
- Holzhauser R.W. and R. Teijl: Inleiding rechtseconomie; Gouda Quint, Arnhem 1989 (Introduction law and economics).
- Jong H.W. de: Nederland: kartelparadijs van Europa? ESB/3749 (1990). (transl. Holland: cartel-paradise of Europe?)
- E.J.P. Mackaay: Het aansprakelijkheidsrecht; Rechtseconomie, AA, oktober 1990 blz. 141 - 147 (transl. Justice and liability).
- E.J.P. Mackaay: Het recht bezien vanuit de bril van de economist, R.M. Themis, 1988 (transl. Law from the perspective of the economist).
- Posner R.A.: Economic analysis of law; Toronto, 1986.
- Simon H.J.: Publiekrecht of privaatrecht? Tjeenk Willink, Zwolle, 1993 (Transl.: Public or private law?).
- S. Shavell: Strict liability vs. negligence; Discussion Paper Numer 728, november 1979, Harvard Institute of Economic research, Harvard University Cambridge Massachusetts.
- Verschuuren J.: Europese eisen aan de integrale milieuvergunning; M&R 1993/2 page 104 - 117 (European demands on integral environmental permits).
- Williamson O.E.: Markets and hierarchies, Free Press, New York, 1975.