## **Vertical Restraints as Tools to Reduce Risks**

## **Associated with Cooperative Specific Investments**

##  **(The Logic of Vertical Self-Restraints).**

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**Abstract.** The paper discusses an approach to analysis of vertical restraints (VRs) as voluntary self-restraints in the situations of uncertainty. Not limited to consideration of uncertainty generated by market shocks (Rey and Tirole 1986; Hansen and Motta 2016), It takes into account possible termination of initial contract between firms at the ex post stage, i.e. when specific investments have been already made.

Risks of contract termination are especially significant for so-called «cooperative» specific investments which might be defined as investments favorably affecting the outside options of opposite side, i.e. the investor’s partner. Lotteries associated with cooperative specific investments are characterized by higher risk than lotteries associated with selfish specific investments (positively affecting the investor’s outside options) because cooperative specific investments (unlike selfish specific investments) increase the risk of initial contract termination and often worsen the investor’s outside options.

Firms actively respond to risk of contract termination by choosing an under-investment strategy. The problem of underinvestment could be solved by an advance compensation paid by a supplier to retailers for taking risk associated with specific investments. Unfortunately, the implementation of this scenario is complicated by threat of double moral hazard.

VRs *voluntarily* adopted by the supplier may be considered as substitutes to such compensation. They can increase the attractiveness of lotteries associated with specific investments by improving the retailer’s probability beliefs or payoffs in uncertain outcomes:

* VRs redistribute control in favor of the dealers reducing the uncertainty they face;
* VRs may be interpreted as an element of the signaling activity aimed to convince the dealer of the supplier’s willingness to continue cooperation at the ex post stage;
* in case the supplier prefers to interrupt the business agreement with the dealer at the ex post stage, the VRs, such as exclusive territories, will ensure that the dealer gets at least partial compensation for contract termination;
* and finally, VRs limit the possible redistribution of quasi-rent between the supplier and the dealer in the internal trade.

Keywords: vertical restraints; compensation for risk; vertical self-restraints; cooperative specific investments.

 JEL: D81, D86.

In publications dedicated to vertical restraints (VRs) analysis, insufficiently little attention is being paid to the discussion of which one of the parties is the initiator of these vertical agreements. It is generally assumed that they are "imposed" by one partner or another. The idea that firms, being valuable partners to their counterparties, have possibility to impose VRs, is indisputably reasonable. However, it is not unique and does not cover the variety of situations in which partners are signing VRs. There could be alternative explanations for VRs. For example, an alternative explanation is the idea that sometimes VRs are voluntary (i.e. are self-restraints).

 Rationale for this alternative approach to VRs interpretation, which has certain implications for antitrust regulation, is the main topic of our paper.

 In the first section we analyze the recent paper by Stephen Hansen and Massimo Motta entitled «Vertical Exclusion with Endogenous Competition Externalities» which attempts to explain the VRs by the suppliers’ intention to insure the dealers’ risks generated by market shocks. Following this approach in general, we have modified it by (i) focusing on risks which seems to be a more convincing reason to insure dealers, notably, the risk of contract termination associated with the implementation of *cooperative* specific investments, and (ii) putting no restrictions on the nature of agents’ risk attitude, and (iii) not confining ourselves to consideration of only such type of VRs as exclusive territories (ET).

 The second section discusses the factors that determine the amount of advance compensation should be paid to a dealer for taking risks associated with the implementation of totally unverifiable cooperative specific investments.

 And the main third section of the paper contains description of four possible ways by which VRs voluntarily adopted by a supplier may substitute costly and risky *ex ante* compensation discussed in the second section.

1. ***VRs and insurance of risks associated with cooperative specific investments***

Above-mentioned recent paper by Stephen Hansen and Massimo Motta[[1]](#footnote-1) considers VRs as an instrument to ensure the dealers against the risks associated with market shocks. In particular, Hansen and Motta propose a rationale for the supplier to insure dealers’ risks by setting ET (exclusive territories): "when firms compete downstream, and do not perfectly observe one another’s productivity shocks, competition generates uncertainty, leading risk-averse (limited-liable) agents to require a risk premium (additional surplus). To save on these costs, the upstream firm sometimes prefers to deal exclusively with one firm, and more generally offers asymmetric contracts in many cases." (Hansen and Motta 2016. P. 15).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (Hansen and Motta 2016) is partly based on the well-known article by Patrick Rey and Jean Tyrol «The Logic of Vertical Restraints» which was published more than thirty years ago. It is devoted to analysis of supplier’s choice between following options* unrestricted competition among dealers;
* exclusive territories (ET);
* minimum resale price maintenance (RPMmin).

Both varieties of VRs (ET and RPMmin) significantly decrease the degree of uncertainty which dealers face in the market. Setting minimum resale price eliminates the price competition, while the exclusive territories reduce the degree of uncertainty even more radically, completely eliminating the competition between dealers. Patrick Rey and Jean Tyrol identify two factors determining the decision of risk-neutral supplier which option to choose:* Arrow–Pratt measure of absolute risk-aversion (the authors analyze two extreme poles: risk-neutrality and infinite risk aversion, assuming that the increase in dealers’ coefficient of absolute risk aversion from 0 to ∞ leads to a monotonic shift from the results related to the initial level of Arrow–Pratt measure to the results obtained at its final level);
* the nature of the uncertainty in regional markets (in the model uncertainty might affect either the market demand or distribution costs of dealers (Rey and Tirole, 1986. P. 923)).

The following Table 1 systematizes results received by Rey and Tirole. *Table1. Comparison of profits obtained by a supplier.*

|  |  |  |
| --- | --- | --- |
|  | *Infinite risk aversion* | *Risk-neutrality* |
| *Demand Uncertainty* |  = >  |  > =  |
| *Retail Cost Uncertanty* |  > >  |  > =  |

Source: (Rey and Tirole, 1986. P. 931).It is important to note the opposite «direction» of RPM and ET: RPM is a restriction imposed on dealers, while the ET may be interpreted as a supplier’s voluntary restraint («a self-restraint») given that its choice between these VRs is being considered. Stephen Hansen and Massimo Motta revise (Ray & Tyrol 1986) in a different context. Firstly, they refuse to consider the minimum resale price maintenance and focus on comparison between competition among dealers and ET. Secondly, instead of considering the infinite risk aversion (equivalent to lexicographical nature of dealers’ preferences), they quite reasonably prefer to focus on the dealers’ degree of risk-aversion which is just «high enough». In their model the supplier’s choice between competition among dealers and the provision of ET also depends on the degree of dealers’ absolute risk aversion. But Hansen and Motta come to conclusion that the character of this relation is totally different than in (Rey and Tirole 1986). Ray and Tirole suppose that the less risk-averse the dealers are, the more profitable for the suppliers to restrict a competition by setting ET. Hansen and Motta think that the reverse is true: the more risk-averse the dealers are, the stronger the supplier’s incentives to limit competition among them. Hansen and Motta explain the discrepancy between the results of these two studies by the mismatch of preconditions. «The key difference … is that in (Rey and Tirole 1986) downstream shocks are perfectly correlated so that market structure does not affect downstream uncertainty. We instead show that competition creates uncertainty when shocks are imperfectly correlated, and as a result arrive at the exact opposite conclusion to that of Rey and Tirole (1986). In our model, when downstream firms are risk neutral the upstream firm allows competition, but when they are infinitely risk averse it provides a fully exclusive contract. Hence we argue that competition uncertainty creates fundamentally new effects in vertical markets as yet unrecognized in the literature» (Hansen and Motta 2016. P. 2).The findings of Hansen and Motta look convincing, but it seems that another (and simpler) explanation is possible. Lotteries considered in (Ray and Tyrol 1986) provide the dealers with the level of expected utility above the reserved utility which makes them attractive for dealers. In (Hansen and Motta 2016), on the contrary, dealers get the compensation for participation in unattractive lotteries. This determines the opposite ranking of competition among dealers and ET: in the first model, competition gives providers the opportunity to receive a higher franchise fee, in the second model - ET allows them to pay a lower compensation for risk. |

Market shocks related risks, which play a central role in (Rey and Tirole 1986; Hansen and Motta 2016), may be substituted (or, more accurately speaking, may be supplemented) by the dealers’ risks associated with supplier's opportunism at the *ex post* stage, i.e. after relation-specific investments have been carried out. This opportunism and the resulting underinvestment are especially harmful when dealers’ relation-specific investments are of a «cooperative» nature.

For a long time solely «selfish» totally or partially specific investments (the latter improve the investor’ outside options) were discussed in economic literature. And only in the 1990s the first articles dedicated to the analysis of so-called «cooperative» specific investments were published. (Che and Hausch 1999) should be especially noted among them. In this article the cooperative specific investments are defined as specific investments that directly benefit the investor’s partner. Unfortunately, the distinction between selfish and cooperative investments in (Che and Hausch 1999) which is based upon the consideration of internal trade without paying attention to possibility of contract termination, encountered some difficulties when applied in practice. For example, the effect of dealer’s cooperative specific investments - the supplier’s cost reduction (formally being characterized as «received by a supplier») - in the internal trade will be redistributed in favor of the dealer as long as the latter has all the bargaining power. And vice a versa, the effect of supplier’s cooperative specific investments - the increase in the dealer’s revenues (formally being characterized as «received by a dealer») will be redistributed in favor of a monopoly supplier.

In (Dzagurova and Agamirova 2014) we introduce the definition of cooperative specific investments which is slightly different from the traditionally used one introduced by Che and Hausch. It is based on consideration of not internal, but external trade (i.e. trade with alternative partners), more precisely, the changes in the partners’ outside options associated with specific investments. The differences between selfish and cooperative specific investments are determined by the direction of positive effects on the parties’ outside options: specific investments that improve the investor’s outside options in a traditional manner are defined as selfish, while specific investments that improve the outside options of the opposite side (the investor’s partner) are assumed to be cooperative.[[2]](#footnote-2)

For example, the specific investments in advertising of a good have mostly *selfish* nature when they are implemented by a supplier and *cooperative* – when they are implemented by its regional dealers.

It is important to note that the cooperative specific investments are much more risky than the selfish ones. They can result not only in the *ex post* renegotiations of initial contract but also in its total termination by the investor’s partner who might be better off realizing the benefits from the investments (for example, dealers’ advertisement or marketing activity) in cooperation with the another dealer. They are not interested in interaction w   In addition, the investor runs the risk not only of losing the money spent: the dealer’s cooperative specific investments, giving its partner the better outside options, can worsen the investor’s outside options (loss of time and initial options, strengthening of competitors and so on).

In contrast to economists, focusing on the quasi-rent redistribution, lawyers working in the field of contract law pay much attention to the situations in which one of partners is not interested in further cooperation on *any* terms providing participation constraint for the opposite side (Cafaggi and Grundmann 2013; Gómez 2006; 2014; Wagner 2012). But they do not consider lotteries associated with cooperative investments as a whole, focusing only on negative outcome (i.e. contract termination) and assuming that cooperative investments drop to zero in the absence of termination fees (Contract Law and Economics 2011. P. 347; Cafaggi and Grundmann 2013. P. 33). It is not always true, as the attractiveness of a lottery also depends on the dealer’s gains in the internal trade which may overbalance the losses from contract termination.

 Risk associated with the implementation of the cooperative specific investments seems to be a more convincing reason for a supplier to insure dealers than the market shocks discussed in (Rey and Tirole 1986; Hansen and Motta 2016). In contrast with the market shocks which are considered to be unobservable by a supplier even on the *ex post* stage, this risk is totally controlled by non-investing player. Implementation of specific investments is an effective method of dealer’s adaptation to market shocks, but the insurance of market shocks by a supplier lowers dealer’s incentives to make specific investments. It would be preferable to place these risks on the shoulders of dealers, who, unlike the supplier, can observe them and select suitable adaptation strategies. Adaptation of dealers to risk of contract termination by a supplier at the *ex post* stage, on the contrary, is undesirable for the supplier, because it is achieved through underinvestment in specific assets.

***2. Compensation paid to a dealer for taking risks associated with the implementation of cooperative specific investments***

In this article we do not analyze the attractive lotteries that provide the agent with at least reserved level of utility: . Our attention will be focused on lotteries that initially are not attractive to the dealer, and, accordingly, additional supplier’s efforts are required to get the dealer to participate. This can be achieved in different ways. In the first place we should mention a compensation for risk to be paid to dealer at the *ex ante* stage, i.e. prior to specific investments.

The size of such compensation depends on

1) the value of Arrow-Pratt measure (the smaller it is, the less the compensation);

2) the riskiness of the lottery.

For a ***risk-neutral*** agent all the favorable lotteries ( ) are attractive and all the unfavorable lotteries are unattractive. So the amount of compensation paid to a risk-neutral agent should at least match the value of the ***fair premium*** denoted *r\*.*  The volume of fair premium does not depend on the attitude of an economic agent to risk, it is just the difference between initial and expected wealth:

*r\* = W0 - EW*.

The favorability of the lottery and its attractiveness for agents who are risk-averse or risk-loving ceases to be identical terms. Exceptions are the obvious unattractiveness of unfavorable lotteries for risk-averse agents who reject even a fair lottery, and the obvious attractiveness of favorable lotteries to risk-lovers willing to pay for participating even in a fair lottery. Not all favorable lotteries are attractive for risk-averse agents and not all unfavorable lotteries are not attractive for risk-lovers.

The compensation for agents who are risk- averse or risk-lovers is necessary to adjust for the amount of *risk loading* denoted *l*. The risk loading is the excess of expected wealth which is necessary to motivate the risk-averse agent to accept a fair lottery (or the maximum price the risk-lover is ready to pay for participation in a fair lottery). In other words, risk loading is another name for compensating income variation (not to be confused with equivalent income variation is called «risk premium» , where is certainty equivalent of a lottery).

*Wb*

*a certainty line*

*EW*

*Wg*

*W2*

*L*

*EW*

*W1*

*l*

*u(EW)*

*W\**

 *W*

*W1*

*u(EW)*

*0*

*l*

*u(W)*

*l*

*45о*

*45о*

*Picture 1.* Risk loading *(l)*

*Table 2.* A compensation to be paid for participation in unfair lotteries.

|  |  |  |
| --- | --- | --- |
|  | *Risk-averse* | *Risk-lover* |
| *unfavorable**lottery* | ( + ); ( + )*Compensation paid to dealer* |  ( + ); ( - )*Compensation (?)* |
| *favorable**lottery* | ( - ); ( + )*Compensation (?)* | ( - ); ( - )*The agent is willing to pay**for participation in the lottery* |

*Picture 2.* A minimum compensation to be paid to an agent for participation in the lottery *L*

*Wb*

*EW*

*W0*

*Wg*

 *r\**

*W2*

*L*

*0*

*W1*

*l*

***compensation***

*45о*

*Eu*

*0*

*1*

*Wb*

*EW*

*W0*

 *Wg*

 *r\**

*W2*

*L*

*0*

*W1*

*l*

**

*45о*

***compensation***

*0*

*EW*

*1*

|  |  |
| --- | --- |
| Risk-averse | Risk-lover |

where

point *0* – initial position;

point *L –* lottery *L: u(W0 ) < Eu(L);*

point *1 –* lottery *1: u(W0 ) = Eu(1);*

*r\* – fair premium: r\* = W0 - EW;*

*l – risk loading*

The disadvantage of compensation paid to dealers at the *ex ante* stage is that it is risky for the opposite side, i.e. for the supplier as dealers can take possession of compensation, refusing to make investments. However, it may be reasonable to discuss the hypothetical possibility of such compensation as an initial option from which it will be convenient to proceed to the analysis of alternative ways to increase the attractiveness of lotteries associated with implementation of cooperative specific investments. We will adhere to the following prerequisites.

* No double or reverse moral hazard. We consciously ignore the reverse moral hazard (double-sided moral hazard), i.e. opportunism of the dealers at the *ex ante* stage noted above.
* No limitations on the attitude to risk. We will not restrict ourselves to the analysis of only risk-averse or risk-neutral dealers, as it was done in (Rey and Tirole 1986; Hansen and Motta 2016).
* Interpretation of specific investments not as expenditures (Hart, 1995; Che and Hausch, 1999; Smirnov and Wait 2004; Zhang and Zhang 2014), but as «a result» of incurred costs (for example, the reduction of supplier’s production costs or the increase in dealer’s revenue) (Segal and Whinston 2000; de Meza and Selvaggi, 2007; Fumagalli and Motta 2009).
* Taking into account uncertainty created by the external environment (in particular – by market shocks) along with the uncertainty caused by unpredictable behavior of the supplier.

The generalized expected utility of a dealer:

,

where:

- dealer’s cooperative specific investments (as defined above);

- dealer’s assessment of the probability that the contract will be terminated by the supplier at the *ex post* stage;

the indexes *in* and *ex* correspond to situations of internal and external trade accordingly

*U (Lex)* = *∫ u(W) dFex (W|i)* the expected utility of a dealer from the external trade;

*U (Lin)* = *∫ u(W) dFin (W|i)*  the expected utility of a dealer from the internal trade;

costs of specific investments, *c' > 0, c" ≥ 0*;

 *COMP(i)* - the amount of compensation paid to a dealer, *COMP ' > 0*.

The optimal level of cooperative specific investments and the size of dealer’s compensation can be found using Grossman-Hart two-step procedure.

In the first step we determine the function *COMP(i)* - the minimum compensation that should be paid to the dealer for each level of cooperative specific investments :

*Min*

,

where is reserved utility of the dealer at the *ex ante* stage.

In the second step, the supplier chooses the level of cooperative specific investments *i\**, which maximizes the difference between the supplier’s gains from specific investments in the internal trade *B(i)* and the compensation paid to the dealer:

*The distribution functions Fin (W|i) and Fex (W|i)*

We assume that higher level of cooperative specific investments leads to more favorable (in the sense of second-order stochastic dominance) distribution *Fin(W|i)* and, on the contrary, to less favorable distribution *Fex (W|i)*. In other words, the bigger cooperative specific investments allow firms better withstand market shocks in cooperation with the main supplier, and worse - in the case of contract termination.

Thus, the higher level of dealer’s specific investments increases the dealer’ s gains from cooperation with the supplier

*The level of cooperative specific investments and the probability of termination of the initial contract.*

The higher level of selfish specific investments *ceteris paribus* always reduces the likelihood of termination of the initial contract by the investor’s partner, as terminating party deprives itself of the possibility to get a certain part of the growing quasi-rent.

 However, the reverse is not true for cooperative investments because the benefits of the supplier in external and internal trade grow simultaneously while increases.

*i*

*Рiсture.3*

Starting with a certain level of cooperative specific investments made by dealers it becomes unprofitable for the supplier to break the contract. Unfortunately, rather often this level is difficult to achieve due to underinvestment problem.

***3. The Logic of Vertical Self-Restraints.***

In order to avoid paying preliminary compensation, suppliers may use alternative methods to maintain the incentives to make cooperative specific investments. Among others they may use VRs as tools to increase the attractiveness of the lotteri generated by the implementation of specific investments. VRs can perform the following functions:

* VRs redistribute control in favor of the dealers reducing the uncertainty they face;
* VRs may be interpreted as an element of the signaling activity aimed to convince the dealer that the supplier is going to continue cooperation at the ex post stage;
* the VRs, such as exclusive territories, will ensure that the dealer gets at least partial compensation (compensation for termination of exclusive contract) in cases when the supplier prefers to interrupt the business agreement with the dealer at the *ex post* stage;
* and finally, VRs limit the possible redistribution of quasi-rent between the supplier and the dealer in the situation of maintaining the relationship.

*4.1. Redistribution of control.*

Picture 4 illustrates the process of redistribution of control in Edgeworth box where the horizontal axis represents money, and the vertical axis represents control. Considering money (a compensation paid to dealers) and control be able to substitute each other, draw the indifference curves of the parties. The shift from point *0* to point *1* is beneficial to both parties (a Pareto improvement). It corresponds to a redistribution of control in favor of the dealer enabling to reduce its risk and, accordingly, the size of compensation for risk paid by a supplier.

 *Dealer*

 ***money (a compensation)***

 ***control***

 *Supplier*

 *0*

 *1*

*Picture 4. Redistribution of control.*

From this point of view not only the agreements of exclusive distribution (in particular, ET analyzed in (Hansen and Motta 2016)), but also other varieties of VRs that result in a reallocation of control (non-compete obligations , refusal to buy, quantity rationing/ forcing ) in favor of dealers could be interpreted as tools aimed at reduction of compensation received by the dealers.

*4.2. Signaling activity.*

Interpretation of VRs through the lens of signaling activity is not new, but traditionally VRs (such as exclusive dealership, recommended retail prices (RRP), minimum resale price maintenance or best price guarantee (BPG)) are considered as signals of quality or status of the goods sent by the dealer to *end users* (Levy 2004; Vertical Restraints for On-line Sales, 2013; Vertical restraints: new evidence from a business survey 2016).

A signal that supplier sent to dealers is discussed in (Lafontaine 1993), where a franchisor, who does not have an established reputation, sends the signal of its «quality» to franchisees by offering them a contract with a high royalty rate, i.e. a contract in which its revenues are highly dependent on how successfully a franchisee company operates. We will adhere to a similar logic, considering the attempts of the supplier to affect the dealers’ probability beliefs. The difference though is the content of the signal. The willingness to sign a restrictive agreement, having voluntarily taken additional responsibilities, is a signal that the supplier belongs to the "quality" agents’ category, i.e. a signal that the supplier is going to continue cooperation with the dealer at the *ex post* stage. Such activity (vertical self-restraints) is disadvantageous (or, at least, less advantageous) to suppliers who intend to break the contract (because of termination penalties discussed later).

As a result, the VRs voluntarily set by a supplier affect increase the probability which the dealer attributes to a favorable outcome. This signal works as a substitute of risk compensation paid by the supplier at the *ex ante* stage just in the same manner as probability premium [[3]](#footnote-3) can substitute risk loading .

*W2*

*W*

*W1*

*u(EW)*

*W0*

 *p*

*W\**

*u(W)*

 *l*

*Picture 5.* Risk loading *(l)* and probability premium ( .

The relevance of the interpretation of VRs as elements of the signaling activity looks more convincing when the specific investments have cooperative character because they (1) have no positive effect on the outside options of a dealer (and may even worsen them), and (2) create an incentive for the supplier to terminate the initial contract. The result is the increased riskiness of the lottery.

|  |  |  |
| --- | --- | --- |
| *Selfish (s)* |  | *Cooperative (c)* |
|  |  |  |
|  | < |  |

where

 and – the probabilities of initial contract maintenance;

 – internal trade gains of the investor (supposed to be the same regardless of the nature of specific investments);

 and – external trade gains of the investor, .

*4.3. Agreements protecting the interests of dealers in case of the termination of contract by a supplier.*

We do not consider situations in which "the contract can use, instead of a non-verifiable dimension[[4]](#footnote-4), some verifiable proxy of the desired contractual behavior, and thus make use of legal enforcement of this proxy, given that Courts could use legal remedies for its breach"[[5]](#footnote-5), discussed in details in economic (*Klein, 2000)* and legal (Gómez, 2006, 2014; Economic Analysis of the DCFR: The work of the Economic Impact Group within CoPECL, 2010 ; Contract Law and Economics Encyclopedia of Law and Economics, 2011; Economic Analysis of the DCFR, 2010; Wagner, 2012) literature.

If the cooperative specific investments are supposed to be totally unverifiable, the efficient method to insure the investor against termination of the contract by its partner at the *ex post stage* may be a conclusion of additional agreements, such as VRs (for example, exclusive territories or non-compete agreements). Termination of the main contract necessarily entails the termination of these supplementary agreements, and almost automatically termination sanctions - penalties specified in these agreements – will be imposed on the supplier.

The functions performed by these penalties can be interpreted somewhat broader than that simple protection of the privileges received by the dealers.

 First, termination sanctions increase the stability of the main contract, acting as a complement to other mechanisms to ensure self-enforcing nature of the incomplete contract (Klein, 2000).

Secondly (and this is closer to the subject of this article), termination sanctions increase the attractiveness of the lotteries associated with cooperative specific investments, and, accordingly, the incentives to implement them. In this case the emphasis is made not on the decreased probability of termination of the main contract, but rather on the increased payoff of investor in "bad" state. Moreover, the willingness of the supplier to pay the bigger termination fees can also be interpreted as the element of signaling activity. Thus, the imposition of penalties for the termination of VRs on the supplier (inevitably accompanying the termination of the main contract) should have a positive impact on the level of specific investments of the dealers.

*4.4. Agreements protecting interests of the dealers in internal trade.*

This topic, unlike the preceding, does not have distinct peculiarity related to the cooperative nature of specific investments. It equally applies to selfish specific investments and, accordingly, it has been discussed in more details in economic literature. There are a lot of publications dedicated to discussion of the role of VRs as agreements protecting dealers’ interests in internal trade in countering the underinvestment problem.

 In particular, in (Klein and Murphy, 1988) attention is focused on gains received by the dealers in the internal trade. Benjamin Klein and Kevin Murphy are skeptical about Lester Telser’s «consumer free riding on special services» theory. They think that «vertical restraints, by themselves, do not create a direct incentive for retailers to supply the desired services»[[6]](#footnote-6) and the minimum resale price maintenance and some other VRs, which weaken price competition between dealers could guarantee the proper amount of pre-sale services «…only under the unrealistic assumption that the sole avenue of non-price competition available to retailers is the supply of the particular services desired by the manufacturer»[[7]](#footnote-7) .

Klein and Murphy suggest an alternative (to version of Lester Telser) explanation of how VRs can counteract the underinvestment problem. They suppose that a significant role is played by the fact that VRs provide dealers with additional income. Indeed, the dealers’ profits increase when

* they receive exclusive/preferential status or guarantees for volume/structure of supply
* minimum resale prices are set.

 Klein and Murphy believe that it is the desire to access these additional money flows which animates the competition among dealers and leads to increase in pre-sale services. At the same time RPMmin  in combination with ET protects from lowering the quality of services which could be fraught with competition in the markets with established minimum prices. The long-term considerations (for example, the fears to lose the status of exclusive distributor as a result of opportunistic behavior) ideally fit the logic of repeated games analysis and could discipline the partners, promoting a cooperative outcome.

 However, we cannot always rely on the long-term considerations. It is necessary to borne in mind that the provision of pre-sale services carried out within each period, may be associated with one-shot specific investments (i.e. implemented not at each stage, but at the beginning of the long-term interaction between the parties).

If so, then it is possible to argue that the VRs providing the higher dealers’ payoff in the «good» state of the world (when the partners trade with each other) increase the attractiveness of a lottery associated with specific investments.

***Conclusion***

This article contributes to the literature on VRs by introducing their interpretation as agreements, that are not imposed on a firm by its partners but are voluntary «self-restraints».

It considers the dealers’ cooperative specific investments but obviously the symmetrical problem statement that is involving the discussion of suppliers’ cooperative investments has an equal right to exist. In both cases a central theme is the desire of a firm to strengthen its partners’ incentives to implement cooperative specific investments which we (slightly different from Che and Hausch) define as specific investments improving the investor’s partner outside options. Lotteries associated with cooperative specific investments are characterized by higher risk than lotteries associated with selfish specific investments (positively affecting the investor’s outside options) because cooperative specific investments increase the risk of initial contract termination and often worsen the investor’s outside options.

Our study is limited to consideration of lotteries which initially are unattractive for the investor (for the levels of investments in which a supplier is interested in. The problem of underinvestment could be solved by an advance compensation paid by a supplier to retailers for taking risk associated with specific investments. Unfortunately, the implementation of this scenario is significantly complicated by double moral hazard.

We consider VRs that make the lotteries associated with cooperative specific investments less risky as efficient substitutes of an advance compensation. In particular, we identify four explanations of VRs voluntarily adopted by the partner of investing side:

1. redistribution of control in favor of the investors reducing the uncertainty they face;
2. signaling activity aimed to convince the investors of their partner’s willingness to continue cooperation at the ex post stage;
3. protection of the investors’ interests in the case of contract termination;
4. protection of the investors’ interests in the internal trade.

This approach stressing the positive effects of VRs is intuitively clear but definitely needs to be validated through further applied studies. It has the potential to be useful both in antitrust proceedings and regulation discussions.

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1. (Hansen and Motta 2012). https://sites.google.com/site/massimomottawebpage/

 This paper has several more recent versions, the latest one is dated February 2016. [↑](#footnote-ref-1)
2. When both sides improve their outside options, the specific investments are called «hybrid». [↑](#footnote-ref-2)
3. The probability premium, usually denoted by π, is the excess in the probability of winning, that makes

the individual indifferent between the certain outcome and a fair lottery. [↑](#footnote-ref-3)
4. An economic variable is unverifiable if the costs to the parties of establishing the value of the variable in a legal proceeding exceeds the gains. [↑](#footnote-ref-4)
5. (*Gómez,* 2006, p.19) (*Klein, 2000, p.79).* [↑](#footnote-ref-5)
6. (Klein and Murphy 1988, p.266) [↑](#footnote-ref-6)
7. (Klein and Murphy 1988, p.266) [↑](#footnote-ref-7)