Risk aversion influence on insurance market

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RISK AVERSION INFLUENCE ON INSURANCE MARKET

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Abstract: Human behavior, rational or irrational one, influences one of the most complex markets worldwide: the insurance market. In most situations, insurance markets are not competitive and risk neutral insurers negotiate under asymmetric information with actors who exhibit risk aversion. In this paper we develop a game theory model that analyzes the negotiation of an insurance contract under risk aversion conditions (in static and dynamic approach). Risk aversion influence was introduced in the model by intermediary of a discount factor (the in equivalent to players' patience) instead of using a utility function. The main conclusion is that the customer prefers to agree on a contract of insurance in the first stage of negotiation than having to wait for another round of negotiations, during which they could register various losses.

Keywords: contract negotiations, model, insurance, dynamic game, risk aversion, discount factor
JEL: G22, C78, C73, D81

1. INTRODUCTION

Negotiation is a way to communicate and compromise to reach mutually beneficial agreements. In such cases, agents have a common interest in cooperating, but have conflicting interests in terms of how this cooperation will take place. In other words, agents can benefit from agreeing to a result of the possible, but have conflicting interests regarding the result they prefer. The main problem faced by agents in such situations is to decide how to cooperate prior to completion of this process and obtain the associated benefits. Each agent would prefer to reach an agreement than to go to conflict and not be able to establish an understanding, but at the same time, agents would prefer to reach the best agreement to them.

The negotiation game in general admits a large number of equilibriums but some of which involve delay and inefficiency. Thus, complexity and bargaining in tandem may offer an explanation for cooperation and efficiency in repeated games. The Folk Theorem of repeated games is a very used result that shows if players are enough patience then it is possible to obtain a cooperative equilibrium of the infinite repeated game. A few contributions on folk theorem shows that the result survives more or less intact when incomplete (Fudenberg and Maskin, 1986) or imperfect public (Fudenberg and Levine 2007) information is allowed, or when the players have bounded memory (Sabourian, 2004).

In our paper we develop a game theory model that analyzes the negotiation of an insurance contract under risk aversion conditions (in static and dynamic approach). Risk aversion influence was described by intermediary of a discount factor δ rather using a utility function. Thus, risk aversion is considered equivalent to impatience. The main conclusion is that the customer prefers to agree on a insurance contract in the first stage of negotiation than having to wait for another round of negotiations, during which he could register different losses.

2. LITERATURE

Asymmetric information has been widely analyzed in the insurance literature since Rothschild and Stiglitz (1976) and Shavell (1979) first pioneered this area of research. Following in their footsteps, many other authors (e.g., Stiglitz, 1977; Wilson, 1977; Miyazaki, 1977; Spence, 1978; Dionne and Gagne, 2002, and Arnott and Stiglitz, 1988) have provided insightful theoretical analysis of markets characterized by asymmetric information problems (like insurance market). Several papers have used empirical data to further examine the theoretical predictions of asymmetric information in the real world.

Two types of asymmetric information problems, namely, adverse selection and moral hazard, have received a significant amount of attention in the insurance literature. Of those researchers who have found evidence supporting the existence of asymmetric information, only a few have identified its source. Most papers have studied adverse selection or moral hazard separately (as done by Pauly (1974) for insurance). Adverse selection with a risk-averse agent was treated by Salanie (1990) for vertical contracting and Laffont - Rochet (1998) for the regulation of firms. Landsberger and Meilijson (1994) studied competitive insurance markets when adverse selection bears on the insured' risk-aversion; Smart (2000) and Villeneuve (2003) extended their analysis to two-dimensional adverse selection, where both risk-aversion and risk are privately known by the insured.

Adverse selection on risk-aversion creates new difficulties when there is moral hazard, as the degree of risk aversion affects the agent's behavior and thus the principal's expected utility from a given contract. Dionne and Gagne (2002) separated moral hazard from adverse selection by analyzing the effect of the replacement cost endorsement.

Studying moral hazard, the existing papers on the generalized agency model (Baron and Besanko (1987), Chassagnon and Chiappori (1997), Steward (1994)) have focused on the case where the agent's private characteristic affects the technology. In that case, effort is a monotonic function of type under some regularity conditions. Analyzing optimal contracting under moral hazard when the agent's risk-aversion is his private information, de Meza and Webb (2000) study competitive equilibrium in an insurance market. Their model makes a number of simplifying assumptions: one of the two types is risk-neutral, he makes no effort, and more risk-averse agents always make more effort. Chiappori and Salanie (2000) and Abbring, Heckman, Chiappori and Piquet (2003) proposed employing dynamic data to verify the moral hazard problem.
Standard theoretical models of insurance emphasize the tradeoff between welfare losses from moral hazard and offsetting welfare gains from risk protection (Arrow (1963), Pauly (1968) and Ehrlich and Becker (1972)). The sign and magnitude of this tradeoff is an empirical question, but empirical evidence traditionally focuses on only one side or estimates moral hazard and risk protection using separate techniques. A more limited set of studies, including Feldstein (1973), Feldman and Dowd (1991), Finkelstein and McKnight (2008) and Engelhardt and Gruber (2010), examine risk protection as well as moral hazard associated with health insurance. These studies generally impose a functional form for utility to estimate risk protection and a separate functional form for demand to estimate moral hazard and then compare the estimates to get a sense of the tradeoff. They acknowledge that because both functional forms are likely mutually inconsistent; the estimated tradeoff can be subject to bias of unknown sign and magnitude.
One of the works that address the topic of insurance contracts on a non-competitive market is that of Kihlstrom and Roth (1982), in which a risk neutral insurer and an individual with risk aversion negotiate the terms of an insurance contract. They show that, in a Nash cooperative bargaining game, the insurer's expected gain is greater if negotiations are held with an individual with higher risk aversion. Roth (1985) extends the discussion by analyzing the impact of risk aversion, using a model of cooperative game with several years of negotiation. Again, it is shown that a risk neutral individual has a higher expected profit in case of negotiations with an individual with risk aversion. In this paper, we develop these models by introducing, in the specific context of the establishment of insurance contracts, a theoretic game model (non-cooperative), similar to that of Rubinstein (1982). Risk aversion is introduced through the discount factor. The non-cooperative game will have the same results on the analysis of attitudes towards "risk aversion" as the model of Kihlstrom and Roth (1982). Discussion of the results helps insurance companies identify the conditions necessary to benefit from risk aversion of their clients.
Roman (2009) shows that in repeated games it is possible to implement a cooperative solution even there are a finite repeated game, depending on discount factor and the number of game stages for risk neutral agents.
Knabe (2009) analyzing dynamic bargaining shows that for labor market, temporarily delayed responses to policy changes are sometime optimal solutions for each participant.
The equilibrium concept introduced by Wilson (1977) and Riley (1979) map the idea of a reaction to competitors including expectations about competitor behavior. A second approach analyzes dynamic models of insurance market interactions (Hellwig 1988; Asheim and Nilssen 1996; Ania, Troger, and Wambach 2002). A third research direction takes a different approach and does not include dynamics, but changes the negotiations or insurer characteristics (Inderst and Wambach 2001; Picard 2009).
Wambach (2000), Smart (2000) and Villeneuve (2003) introduce an additional dimension of asymmetric information by assuming that consumers furthermore differ in wealth/risk aversion. With two dimensions of asymmetric information, the single crossing property may be violated. They consider single contract offers and show that due to violation of single crossing there might be contracts with positive profits offered in equilibrium. However, Snow (2009) argues that this is simply a consequence of restricting insurer strategies to single contract offers as contracts with positive profits cannot be tendered in equilibrium when contract menus can be offered. In consequence, rather than settling on a mixed-strategy equilibrium, it seems sensible to rethink models of competition in adverse selection insurance markets.

3. NEGOTIATION MODEL UNDER RISK AVERSION

An individual with risk aversion (the client) who faces a possible loss of assets is concerned with finding a way of redistributing risk. Insurance is one way to achieve this objective. The insurer, faced with the obligation to provide a multitude of similar but independent risks, behaves as if he were risk neutral in order to diversify his risks.

Considering a situation where the client's wealth, expressed in monetary units, is given by $W_c > 0$ if the loss does not occur. If, however, the loss ($L > 0$) occurs, his wealth will be ($W_1 c - L > 0$), where L is supported entirely by the client.
The insurer has the initial W_i income. He might be willing to pay a sum A of the total loss ($A \leq L$), provided that he receive an insurance premium P. Let X_{nk} be the income of the individual n, depending on the situation k: n

can be equal to "c" (client) or "i" (insurer), and k can be equal to "1", i.e. where the loss L occurs or "n", i.e. where no losses occur.
Thus, we have the following relations:

$$X_{c1} = W_c - L - P + A \quad (1)$$

$$X_{cn} = W_c - P \quad (2)$$

$$X_{i1} = W_i - A + P \quad (3)$$

$$X_{in} = W_i + P \quad (4)$$

Following Arrow (1963-4) and Debreu (1959), a gain related to an event involving a loss not occurring, can be considered different from a gain related to a situation in which the loss occurs. This allows us to model for the gains of this economy in Edgeworth's box, characterized by the relations:

$$X_{in} + X_{cn} = W_c + W_i \quad (5)$$

$$X_{i1} + X_{c1} = W_c + W_i - L \quad (6)$$

In Figure 1, the initial allocation of income is given by α. Any distribution of income in Edgeworth's box can be made starting from α, by signing an insurance contract *(A, P)*. However, both parties could accept as a Pareto optimum only the subset between the two indifference curves ($J_c(\alpha)$ – the indifference curve of the customer with risk aversion and $J_i(\alpha)$ - the indifference curve of the risk neutral insurer). Equations (7) and (8) describe the indifference curves for client and insurer.

$$J_c(\alpha) = \{(X_{c1}, X_{cn}) : p * U_c(X_{c1}) + (1-p) * U_c(X_{cn}) = \mu\} \quad (7)$$

$$J_i(\alpha) = \{(X_{i1}, X_{in}) : p * X_{i1} + (1-p) * X_{in} = W_i\} \quad (8)$$

The insurer's neutrality towards risk and the concavity of the utility function of the customer with risk aversion implies that a Pareto optimum (interior) leads to a situation where the insured is fully covered in case of loss. Thus, the insurer shall bear the entire loss, so $X_{cn} = X_{c1}$ and $X_{i1} = X_{in} - L$.

In this competitive environment, we examine whether and how an increase in risk aversion may change a set of Pareto improvements, the set of Pareto optimums and the optimum within a competitive context. The risk aversion of the client will affect his indifference curve.

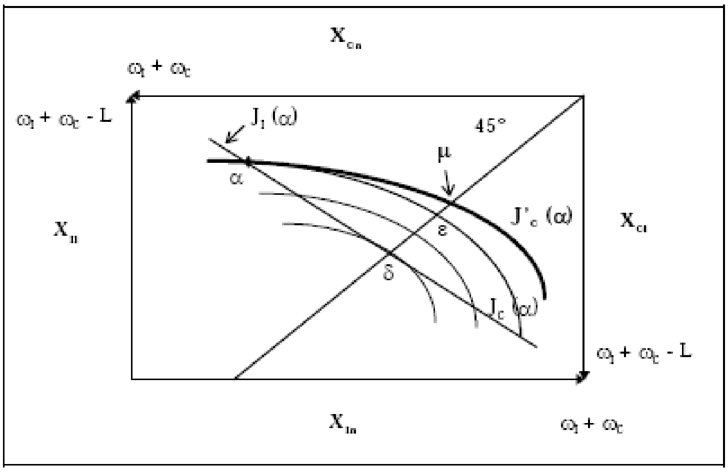

Figure 1.

Let *J'(α)* be the indifference curve of a customer who has an aversion to risk higher than the previous one, with *J(α)*. From the above chart, we can see that the set of Pareto improvements to α is extended, by engaging in an insurance contract. However, the unique competitive Pareto optimal δ is unchanged. Therefore, a risk neutral insurer cannot take advantage of the risk aversion of its potential customers in a competitive situation with identical competitors. For risk aversion to have an impact, the insurer must have a certain influence on the market. The following sections take into account the situation of an insurer with the power to influence the market.

4. THE AXIOMATIC APPROACH TO BILATERAL NEGOTIATION OF AN INSURANCE CONTRACT

To prove that in a noncompetitive context the insurer may take advantage of the risk aversion of his client in determining the parameters of the insurance contract, Kihlstrom and Roth (1982) applied the Nash cooperative solution to the bargaining game described above, if the insurer is a monopolist.
Given the four axioms governing a cooperative Nash solution of any game of two persons (efficiency, symmetry, independence of irrelevant alternatives and invariance to positive transformation), Nash (1950)

proved that there is a unique solution of this bargaining game *(S, d)*. This solution maximizes the geometric mean of the gains that players get by cooperating, unlike the situation in which they do not cooperate.
We apply this cooperative bargaining game on insurance market. The insurer and the insured will be player 1 and 2 in a bargaining game *(S, D),* where *S* is a compact and convex subset, representing a set of feasible expected gains and *d* is the result in case of disagreement. We will have:

$$(Y_1, Y_2) \in S \tag{9}$$
$$Y_1 = (1-p) * (W_i + P) + p * (W_i + P - A) \tag{10}$$
$$Y_2 = (1-p) * U_c(W_c - P) + p * U_c(W_c - P - L + A) \tag{11}$$
$$D_1 = W_i \tag{12}$$
$$D_2 = (1-p) * U_c(W_c) + p * U_c(W_c - L) \tag{13}$$

For this cooperative insurance game, Kihlstrom and Roth (1982) showed the following theorem:

Theorem. Let *(S',d')* be a game of negotiation on insurance contracts derived from *(S, d),* through the replacement of player 2 (customer with the utility function w) with a client with greater risk aversion (whose utility function is *w'= k* (*w*), where *k* is an increasing concave function).

1. According to the Nash solution, a player will get a higher utility through negotiations with customers more averse to risk, i.e. f_1 *(S', d')* > f_1 *(S, D).*

2. If *(A, P)* and *(A‘, P‘)* data are the insurance contracts given by the Nash solution of the games *(S, d)* and *(S ', d'),* then *A'<A* and *P'> P*. In other words, a client with greater risk aversion pays a higher premium and receives less coverage of potential losses.

5. THE DYNAMIC GAME ASSOCIATED WITH AN INSURANCE CONTRACT

The exhaustive set of possible subgames can be partitioned into two types: subgames in which the customer has the first move and subgames in which the insurer will make the first move. The parameters of the game are:
M_i – expected maximum share gain (calculated with the amount W_i+W_c) that the insurer can obtain in a subgame in which he is the one who makes the first offer;
m_i – expected minimum share gain (calculated with the amount W_i+W_c) that the insurer can obtain in a subgame in which he is the one who makes the first offer;
M_c – expected maximum share gain (calculated with the amount W_i+W_c) that the client can obtain in a subgame in which he is the one who makes the first offer;
m_c – expected minimum share gain (calculated with the amount W_i+W_c) that the client can obtain in a subgame in which he is the one who makes the first offer;
P – the probability that the loss occurs;
σ_i – the insurer's profit share (calculated with the amount W_i+W_c), if an insurance contract is not signed:

$$\sigma_i = W_i / W_i + W_c \tag{14}$$

σ_c - the client's profit share (calculated with the amount W_i+W_c), if an insurance contract is not signed:

$$\sigma_c = W_c - L / W_i + W_c \tag{15}$$

Risk aversion is introduced through a reduction factor that reflects the attitude towards risk and time, δ.
δ_i – Is the coefficient of risk aversion and time tolerance of the insured;
δ_c – Is the coefficient of risk aversion and time tolerance of the client. If we have a higher risk aversion, then δ_c parameter is close to zero.
Risk aversion is no longer related to any utility function. Thus, everything comes down to risk aversion and impatience considered as being equivalent. This implementation of risk aversion essentially implies that a negotiator always prefers to be insured than having to wait for another round of negotiation. In this case, insurance provides a feeling of comfort.

Nash equilibrium of subgames
Considering the subset of subgames in which the insurer makes the first move (See Figure 2), we will have:
At the beginning of the second period, the customer must make an offer. He knows the value of M_i, the maximum amount that the insurer can obtain in the future, if he rejects the offer and the loss *L* does not take place in this period.
Therefore, the client can offer at the most the rate given by the following relation (calculated as a percentage of W_i+W_c).

$$p * (\sigma_i) + (1-p) * \delta_i * M_i \tag{16}$$

Thus, the customer will remain with a minimum rate given by:

$$1 - (p * (\sigma_i) + (1-p) * \delta_i * M_i) \tag{17}$$

Assuming that the next move that will make them indifferent between accepting or reject, it will accept the contract.
2. Solving the problem using backward induction we find that the insurer must make his offer in the first period due on the fact that he actually knows that the client can obtain the minimum value given above, if he refused the offer of the insurer and the loss did not occur. Thus, the insurer is tempted to bid at a minimum level:

$$(1-p)*\delta_c*[1-(p*(\sigma_i)+(1-p)*\delta_i*M_i)]+p*(\sigma_c) \qquad (18)$$

The insurer will receive a maximum rate:

$$1-[(1-p)*\delta_c*[1-(p*(\sigma_i)+(1-p)*\delta_i*M_i)]+p*(\sigma_c)] \qquad (19)$$

After rewriting the relationship, we found that:

$$M_i=\frac{[1-[(1-p)*\delta_c*[1-p*(\sigma_i)]+p*(\sigma_c)]]}{[1-[(1-p)^2*\delta_i*\delta_c]]}$$

Following similar analysis to determine the minimum rate of gain m_i, we find that:

$$m_i=\frac{[1-[(1-p)*\delta_c*[1-p*(\sigma_i)]+p*(\sigma_c)]]}{[1-[(1-p)^2*\delta_i*\delta_c]]}$$

Considering the subset of the subgames in which the customer makes the first move, we have:

$$M_c=\frac{[1-[(1-p)*\delta_i*[1-p*(\sigma_c)]+p*(\sigma_i)]]}{[1-[(1-p)^2*\delta_i*\delta_c]]}=m_c$$

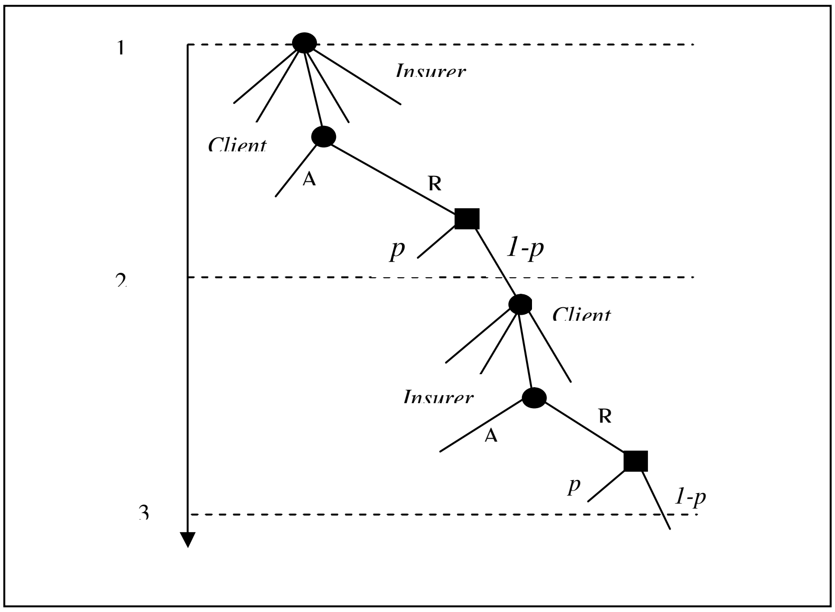

Figure 2. The Dynamic game of negotiation with the insurer move first

The analysis in this section defines a type of strategy perfect for both players within the subgame. Therefore, the insurer offers to take a M_i share of the total gain W_i+W_c. Give note to the fact that this total gain is possible only if the loss L does not occur. Thus, the customer is left with a share gain of $1-M_i$, which he accepts.
It is easy to verify mathematically that a reduction of the factor σ_c will lead to an increase of the share of gain M_i.

$$dM_i\Big/d\delta_c=-\frac{(1-p)[1-(p\sigma_i+(1-p)\delta_i(1-p\sigma_c))]}{(1-(1-p)^2\delta_c\delta_i)^2}<0$$

This means that, given the definition of risk aversion considered and under the specific conditions of the game described in this section, the insurer, which makes an offer to a client with risk aversion, will receive a higher share of earnings, if the potential client has a higher risk aversion, i.e. the δ_c factor is lower.
It is also easier to prove that a higher risk aversion or a higher impatience of the insurer will result in a lower income share: $\frac{dM_i}{d\delta_i}>0.$
It is also interesting to check how the insurer's risk aversion affects the impact of the client's risk aversion.
Mathematical verification is immediate, in that that an increase in δ_i will cause a stronger influence of the customer's risk aversion on the insurer's share gain:

$$\frac{d^2M_i}{d\delta_i d\delta_c} > \mathbf{0}.$$

This means that if the insurer is more risk tolerant or even neutral, the more he will use the aversion to risk of the customer to his own benefit. If the customer makes the first offer, the impact of his aversion to risk is similar.

Given the perfect symmetry, the impact of risk aversion of the client of the share gain of the insurer if the customer is one who makes the first move, is equal to the impact of risk aversion on the insurer's share, if he makes the first move but with a negative sign. Thus, when the customer makes the first move, the higher his aversion to risk or the lower δ_c is, the higher the insurer's share of my earnings will be. However, if the customer makes the first move within the subgame, the impact of his risk aversion is lower.

5. NUMERICAL EXAMPLE

We consider a problem of negotiation between the insurer Coface Austria Kreditversicherung AG (player 1) and insured Mairon Galati SA (player 2):

Numerical data that our analysis will build on are:

W_i *=209,908,200 RON* – The turnover of Coface Austria in 2010

W_c *= 54,875,898 RON* – The turnover of Mairon Galati SA in 2010

L = 14,116,000 RON – the maximum turnover to be insured

Let *P = 1.36%* - probability that the companies included in the insurance contract will become bankrupt (ex ante defined from other bank studies).

Then

$$\sigma_i = \frac{W_i}{(W_i + W_c)} = 27.85\%$$

$$\sigma_c = \frac{(W_c - L)}{(W_i + W_c)} = 70.28\%$$

The parameters of the model will be σ_c and σ_i, which are fractional numbers within the interval (0, 1). The higher the client's aversion to risk is the closer to zero σ_c is.

The evolution of the M_i share gain, depending on δ_i and δ_c

Table 1.

δ_i/δ_c	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
0.1	90.09%	80.97%	71.66%	62.16%	**52.46%**	42.57%	32.47%	22.16%	11.62%	0.86%
0.2	90.99%	82.61%	73.88%	64.78%	**55.29%**	45.38%	35.03%	24.20%	12.86%	0.97%
0.3	91.90%	84.31%	76.24%	67.63%	**58.44%**	48.60%	38.03%	26.66%	14.38%	1.10%
0.4	92.83%	86.09%	78.76%	70.75%	**61.97%**	52.30%	41.59%	29.67%	16.32%	1.27%
0.5	**93.78%**	**87.95%**	**81.45%**	**74.17%**	**65.95%**	**56.61%**	**45.88%**	**33.45%**	**18.86%**	**1.51%**
0.6	94.75%	89.89%	84.33%	77.94%	**70.49%**	61.69%	51.17%	38.33%	22.34%	1.87%
0.7	95.74%	91.91%	87.43%	82.11%	**75.69%**	67.78%	57.83%	44.89%	27.40%	2.44%
0.8	96.75%	94.03%	90.76%	86.75%	**81.71%**	75.21%	66.48%	54.15%	35.41%	3.51%
0.9	97.78%	96.25%	94.35%	91.94%	**88.78%**	84.46%	78.18%	68.23%	50.05%	6.26%
1	98.83%	98.57%	98.24%	97.80%	**97.20%**	96.31%	94.88%	92.19%	85.30%	28.79%

Following the table above, we see that the theoretical conclusions mentioned above are confirmed. If the insured is risk neutral (δ_i = *1*) he will receive the highest possible profit share (98.83%, 98.57%, 98.24%, 97.8%, 97.2%, 96.31%, 94.88%, 92.19%, 85.3%, respectively 28.79% share). Considering the situation where the customer has a maximum risk aversion (δ_c = 0.1), the insurer will receive the highest possible levels of income, regardless of his attitude towards risk (90.09%, 90.99%, 91.9%, 92.83%, 93.78 %, 94.75%, 95.74%, 95.74%, 96.75%, 97.78%, 98.83% share).

In addition, considering the column where δ_c has the value set at 0.5, there is a direct link between δ_c and M_i. In other words, the more δ_c increases, i.e. risk aversion of the insurer decreases, the more his share gain, M_i, will increase.

The evolutions of the share gains M_i and M_c are presented in Figure 3. We consider δ_i fixed at 0.5, δ_c moving between the values zero and one, with a step of 0.1. As shown in the conclusions above, we see that an increase in δ_c, which means a decrease in customer's risk aversion, caused a reduction in the share gain of the insurer, M_i and an increase in the customer's share, M_c.

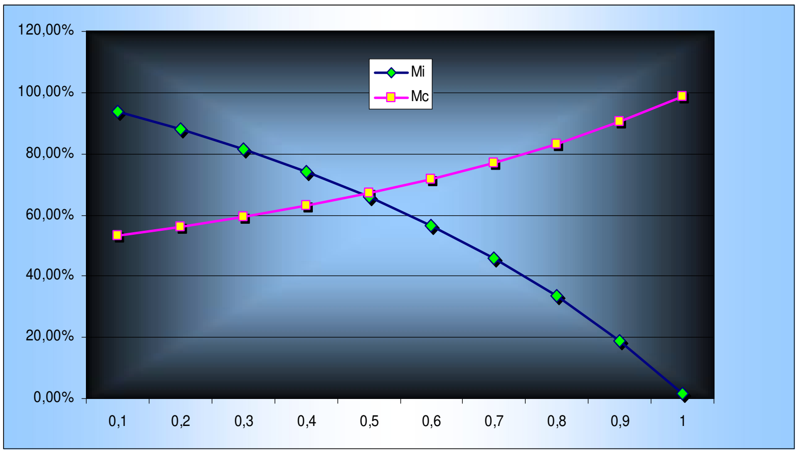

Figure 3.

Next, we will analyze the influence of the advantage of the first move in the subgame on the share of earnings of the insurer, M_i. The graph and table below show that, taking δ_i as fixed at 0.5, when the insurer makes the first move, he may use the customer's aversion to risk to increase his share gain more than he could have if the potential client was the one who made the first move.

For example, for δ_i set at 0.5 and δ_i equal to 0.2, the insurer will earn 5.83% if he makes the first move and a lower value (2.88%) if the potential client will be the first player in the negotiation. The same will be for any value that δ_i will have within the interval (0, 1).

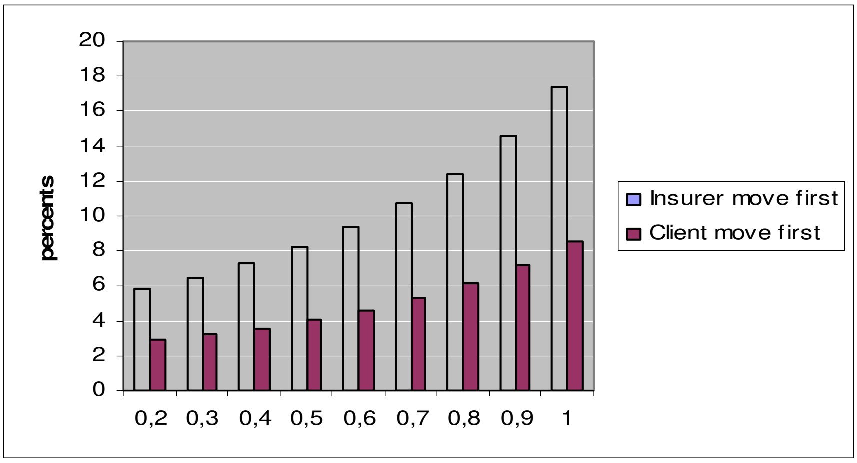

Figure 4. Evolution of the M_i share gain, related to changes in the risk aversion of the client, taking into account the advantage of the first move

Table 2.

First player/δ_i	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Insurer	5.83%	6.50%	7.28%	8.22%	9.35%	10.73%	12.43%	14.59%	17.35%
Insured	2.88%	3.20%	3.59%	4.05%	4.61%	5.29%	6.13%	7.19%	8.56%

6. CONCLUSIONS

In order to quantify the impact of risk aversion of the client on the income that the insurer may obtain, the insurance market must be characterized by imperfect competition, so that the insurers have the power to influence the market.
In this paper, we started from the negotiating insurance model discussed by Kihlstrom and Roth (1982). An insurer and a customer with risk aversion negotiate the terms of an insurance contract. Using a Nash cooperative bargaining solution for this game, Kihlstrom and Roth (1982) show that the insurers' expected profit is higher when negotiating with a client with risk aversion. We complemented the discussion by building a non-cooperative bargaining insurance game, according to Rubinstein's model. In order to include the influence of risk aversion, we preferred to use factor the δ rather than a utility function. Thus, risk aversion is considered equivalent to impatience. The customer prefers to agree on a contract of insurance now than having to wait for another round of negotiations, during which they could register the loss. In this case, the insurance provides a safe comfortable position on the client.
The results of the non-cooperative game model of negotiations conducted in several stages confirm the previous outcomes: that the insurer may benefit from the risk aversion of the potential client, receiving a higher payment when negotiations take place with a client with a higher risk aversion. This is true regardless of who makes the first offer, the insurer or the customer. If the insurer is the one who makes the first move, he can benefit more from the risk aversion of the client. In addition, as the insurer's risk aversion is lower or he is even neutral to risk, he has greater capacity to benefit from the risk aversion of his client. Results from the model suggests that the claim that risk aversion is a disadvantage for the customer is correct, also taking into account the type of negotiation and again confirming the results obtained Kilhstrom and Roth (1982). However, when it comes to assessing the size the impact of risk aversion, the specific rules applied and the behavior of players become important.

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