

## **A theoretical note on the mutual insurance cooperatives: Is the mutual form out-dated?**

by Hong Wu



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*During the past 25 years several mutual insurance cooperatives have been demutualized into joint-stock corporations, both in Sweden and in other countries. This process of demutualization raises a compelling question: Do mutual cooperatives have any future in the insurance industry? Aimed at providing some possible answers to this question, this paper presents a theoretical analysis of previous research on this issue. Taking as the point of departure a risk-sharing theory about mutuals' formation is presented. The paper argues that mutual form can be a good risk-sharing instrument suitable for a less developed insurance market. Then we compare mutuals with stocks from two aspects: agency problem and capacity of dealing with event correlation.*

*The comparison leads to a conclusion that mutuals have advantages on some special lines of insurance and on dealing with event correlation. Mutuals should further search for effective ways to ease the owner-manager conflicts in their management. Finally, the paper takes Chinese agricultural insurance market as a practical example to demonstrate the environment in which mutuals can be an efficient form in promoting the maturity of a market in a transitional period.*

### **I. Introduction**

There are two major types of ownership structures in the insurance industry: stock insurance companies and mutual insurance cooperatives. By definition, stock companies employ standard corporate form; Shareholders of a company provide capital and own residual claims to the company's profit. Customers come to the company to buy one or some of the company's policies. They pay a fixed risk premium in advance, switch their risks to the company, and thus become policyholders of the company. Accordingly, an insurance contract is a contract between an insurer (a com-

pany owned by its shareholders) and an insured (a policyholder). In mutual cooperatives, however, policyholders are owners of a mutual company. As to stock companies, mutuals collect premiums in advance, but any surplus should be returned to their policyholders. A mutual contract is a contract between policyholders in a mutual cooperative.

*Hong Wu, PhD, research fellow, Department of Economics, Göteborg University. The author is highly grateful to Dr. Mikael Lönnborg for his reading of the draft of this paper and giving constructive comments. Financial support by Knut och Alice Wallenbergs Stiftelse, Sparbankernas Forskningsstiftelse, Stiftelsen Lars Hiertas Minne and Svenska Försäkringsföreningens Minnesfond is also acknowledged.*

The policyholders in the same mutual cooperative share their risks with each other and therefore “insure” each other.

This article will focus on mutuals, although a comparison between mutuals and stocks will be made. The reason for placing emphasis on mutuals is that we are interested in understanding if the mutual form is dated, and if there exist circumstances in which the mutual form can still be an alternative as a risk-sharing instrument when demutualization seems prevalent in recent years. In actuality, the mutual form has been holding a significant position in the insurance industry for a long time and mutualizations occurred occasionally in history. There must be some reasons for it, so we hope to make sure of how the mutual form proceeds. We wish to avoid ignorance to the mutual form.

In Section 2, we first introduce a new theory, a risk-sharing theory originated by Göran Skogh (1999), on the question of how a mutual cooperative is formed. This theory not only gives us a new idea on mutuals’ formation but it also explains why mutuals come earlier than stocks in many lines of insurance. This theory leads us to see that the mutual form may be a good risk-sharing instrument in some less developed insurance markets where new risks, unknown risks and uncertain risks are dealt with.

Then in Section 3, we will look into the differences between mutuals and stocks from two perspectives: agency problem and event correlation problem. In so doing, we are able to understand mutuals’ advantages and to see under which circumstances the mutual form could be a superior alternative. Section 4 will discuss some issues about the Chinese agricultural insurance market, arguing that governmental policies of supporting mutuals can facilitate the emergence of risk-sharing in this vital market for a country in a transitional period. Section 5 concludes the article with a review of some major points.

## 2. The risk sharing theory

The mutual form has existed actively as a fully functional and efficient form of organization in the insurance industry for hundreds of years. But the knowledge about the formulation and development of mutuals is random. It is a common understanding that mutual cooperatives are formed to decrease distortion due to asymmetric information (Smith and Stutzer, 1990 and 1995). In other words, some of mutual cooperatives appear to be:

*...due to the coming together of specific professions or industries who perceive themselves as being low risk and who view mutuality as a method of avoiding the diversity of risk types which proprietary companies attract.<sup>1</sup>*

There are exceptions, however, as Göran Skogh (1999) presented a theory on risk-sharing institutions for unpredictable losses. To illustrate the theory we take a farmers’ society as an example and suppose that two risk-averse farmers A and B, since they planted a same crop under a same condition, faced independently<sup>2</sup> a same risk. No insurance company would provide them with any kinds of insurance. The reasons for the refusal to insure the risk could be that there was no insurance company at the time, or there were insurance companies but no company supplying insurance to insure the risk facing the two farmers. Another possibility could be a situation with existence of an insurance product but the two farmers would regard it too expensive so that they preferred to stay out and to have the risk born themselves. In either case, the risk facing them could not be spread in a sense of the classical definition of insurance and they had to bear it themselves (the classical definition of insurance will be clarified below).

One day the two farmers happened to meet and talked about it. The intelligent farmers

soon realized that they could have the risk spread between them and, by doing so, they shared the risk with each other and could benefit from the sharing. They did it by signing a mutual sharing agreement (contract) in which they promised that when any one of them suffered a loss, the other would share half of the loss. They also specified that the loss as caused by the considered risk. They agreed with this “equal-sharing” agreement based on their belief that the considered risk that they would face was the same and independent. This hypothetic case demonstrates a key point in Skogh’s risk-sharing theory, that according to Skogh (1999), the mutual sharing agreement signed is the root of a mutual cooperative.

We know the basic “diversification theorem” in portfolio theory, which states that if a risk-averse individual has a choice between two assets with identical but random returns, the individual prefers to invest half of his or her endowment in each asset. The theorem can be restated as two risk-averse individuals face respectively and independently an identical risk, they both will be benefited by sharing their total risk (the sum of their individual risks) equally. This restated theorem was proved in Skogh and Wu (2003). And the theorem considering two individuals can also be easily expanded to a situation of any number of individuals (say  $n$ ) faced with an identical risk independently. Furthermore, the larger number of individuals in a mutual pool, the better their risks will spread, given that transaction cost is not considered.

The theorem emphasizes only that risks facing individuals are identical and independent, and real distribution of the identical risk is not necessarily to be known. When distribution of a risk is unknown, we consider that the risk is uncertain one according to Frank Knight (1921); “If you don’t know for sure what will happen, but you know the odds, that is risk. If you don’t even know the odds, that is uncer-

tainty.” When a risk is uncertain, insurance against the risk may not be available. Or even if insurance is available, it may not be priced properly and therefore, it may be an unwise choice to the risk bearer.

To see the reason, we first look at the classical definition of insurance. As we mentioned before, an insurance contract includes a pure insurer (an insurance company), who offers different insurance policies. Policyholders pay a fixed risk premium, and transfer their risk to the company. A key point is that the risk premium is usually calculated according to distribution of a considered risk.

Under the situation that distribution of a risk is unknown, it will be difficult to define a proper risk premium due to the lack of information. Thus, either no insurance company will insure the risk, or corresponding insurance product is not properly (usually highly) priced. Since policyholders on a stock insurance company have no right on the company’s final profit or loss, when a risk premium is defined inadequately, customers can suffer a loss by paying too high price, while they can avoid the loss by not buying the insurance. In the previous example, that the risk facing the two farmers was not insurable can be because of the uncertainty of the risk.

The risk-sharing theory states, however, that to have a mutual sharing agreement, it is not an obligation to have information on a distribution of a risk, although information can always be of help in improving a mutual sharing contract. Like in the previous example, the farmers shared their risks by signing the agreement and promising to share half of the total loss based on only that the risk facing them was the same and independent. Information on the distribution of the risk was not required. The farmers needed only to pay compensation for a possible loss, otherwise, there would be no payment at all. They could not lose by signing the agreement. Moreover, no loss on paying too high price holds even if

prepayment may be charged and other investment activities may involve. The reason is that mutuals are in principle owned by their policyholders and the policyholders bear final outcome of the companies' performance.

In a brief summary of the risk-sharing theory, a mutual sharing agreement (a mutual contract) can be an alternative to an insurance contract when there is uncertainty. Since the mutual sharing agreement constructs the root of a mutual cooperative, the theory further states that the mutual cooperative is an institutional solution for unpredictable losses and the stock form comes later when information on a distribution of a considered risk becomes available.

To complete the story about the two farmers' society, we explore further into their sharing agreement. We have mentioned that the restated diversification theorem stands theoretically up under the situation of having more than two individuals. After they enjoyed their sharing agreement for a while, the two farmers found it beneficial to invite more farmers to join them, who would share the risk in a large society and benefit from that. They tried to do so but found that it was difficult to find farmers who faced exactly the same risk as they did. In other words, risks facing farmers might vary and therefore, in order to have a large pool, the farmers had to consider modifying the equal sharing agreement.

To modify the equal sharing agreement, information on the considered risk was needed. In a recent study Skogh and Wu (2003) addressed that, even if exact distributions of individuals' risks are unknown, a proportional relationship among individuals' risks will be enough to improve the equal sharing agreement; If farmer C planted the same crop as farmers A and B under the same condition, but he planted twice as large as farmers A and B. When all other things are equal, we get a proportional relationship, 2, among the farmers' risks. This is an important argument that

information requirement to develop a mutual contract is less than that to have an insurance contract. In other words, to develop a mutual pool and to modify an equal sharing contract, there is no obligation to have information on exact distribution of a considered risk although information on the considered risk is necessary. This helps on looking at different stages of a mutual pool development.

In general, the farmers would always benefit from getting information on the considered risk. The more precise the information is, the better the risk sharing is. Skogh and Wu (2003) further argued that according to Borch's theory on the general Pareto optimal reciprocal treaty, information will be helpful in introducing a side-payment into a mutual sharing contract, which is a Pareto improvement compared with a sharing contract without a side-payment allowed. The importance of getting information pushed the farmers to put effort on investigating the risk and finding out as much information as possible.

There is the so-called transaction cost that people have to pay in order to find partners, to look for information on risks, and to modify contracts. To decrease the transaction cost, the farmers needed a society to be organized in a more efficient way.<sup>3</sup> They might, for example, introduce prepayment to ease moral hazard problem. They accumulated surplus to spread the risk in a time dimension. They made investment for their members to decrease the members' payment, and so on. Step by step, the simple two-farmers' mutual sharing agreement would be enlarged into a mutual sharing society with several farmers in the society, and then would eventually be developed into an advanced mutual cooperative.

Essay III in Wu (2002) addressed the question in greater detail as why and how a mutual society, which may consist of only a few individuals at the beginning, would develop into a mutual cooperative. Here we emphasize that what makes the risk-sharing theory inter-

esting is the less information requirement on developing a mutual contract than on having an insurance contract; It is possible to have an sharing agreement (therefore to initiate a mutual sharing society) without knowing information on distributions of risks.

### **3. The mutual cooperative: agency problem and event correlation**

We may argue that the risk-sharing theory relates more closely than other theories to a “pre-modern” or “pre-mature” mutual sharing society. In this section, we look at mature mutuals from two aspects. The first is that mutuals have a different agency problem from stocks. The second is that mutuals have an advantage over stocks on dealing with correlated risks, although this advantage is not unique to the mutual form. It is because mutuals have some advantages over stocks that mutuals have been able to compete with stocks for many years in the insurance industry.

#### **Agency Problem**

As previously stated, the mutual form and the stock form are different in their ownership structures; Mutuals are owned by their policyholders while stocks are owned by shareholders, who are usually not the companies’ policyholders. This difference shows that a contradiction between policyholders and owners in stocks does not exist in mutuals and therefore moral hazard problem between them does not exist in mutuals. From a theoretical point of view, therefore, there should be no “exploit” that mutuals’ owners could possibly put on their policyholders. When it comes to business accounting and dividend distribution, policyholders in mutuals should have trusted their company more than policyholders in stocks.<sup>4</sup>

On the other hand, equity of mutuals belongs to their policyholders as a group. Individual policyholders have no claim to a mutu-

al’s equity except in the case of dissolution. Thus, policyholders in mutuals, in practice, often do not well understand their ownership and therefore pay little attention to their mutuals’ operation and management. Consequently, connection between policyholders in mutuals is usually rather loose. Managers of mutuals can run the mutuals for their own benefit rather than for the mutuals’ policyholders. In contrast, the mechanism of hostile takeover in stocks relieves contradiction between managers and owners of the stocks. Managers in stocks have to create profits to dividends, so they have pressure to increase performance. Theoretically viewed, stock companies will increase efficiency, in order to please their shareholders and avoid hostile takeover.

Mayers & Smith (1981 and 1988) stated that, as a result of the trade-off among different agency problems (owner-manager conflicts in mutuals and owner-policyholder conflicts in stocks), a market segment among mutuals and stocks should be expected.

*Competition between mutual and stock firms suggests that for common lines of insurance there would be little difference in the types of insurance coverage offered and in the net premiums. Thus, we do not think that the major differences in mutuals and stocks will involve differences in contracts within a given line of insurance but, rather, in which lines of insurance particular ownership structures will dominate.*<sup>5</sup>

They further suggested that mutuals should be more prevalent in lines of insurance where management exercises little discretion in setting rates. In other words, mutuals are more careful on controlling management.<sup>6</sup> Besides, (1) mutuals should be more concentrated than stock insurance companies in terms of the number of lines of insurance that they offer; (2) mutuals should have more geographically concentrated operations than stocks (Mayers

& Smith, 1981). These hypotheses are empirically tested in the research conducted by Mayers & Smith (1988). The main reason is of course that the cost of controlling management in mutuals is higher than in stocks. Concentration on lines of business and on operations' areas gives better control of managerial discretion.

It is worthwhile to mention that although most of mutuals are small companies, a modern mutual company may not follow the two conditions. In other words, some mature mutuals have tried to increase their lines of insurance business similar to their stock counterpart and some look for international business as well. The key issue here is not about to follow the two conditions, but about to have a better control of managerial discretion; When new technologies have made the world small, geographical concentration may be no longer important. Whether the two conditions are important depends on whether the owner-manager conflicts can be controlled well. Here we have an example from Folksam in Sweden. They once tried to enlarge their business, but after suffering considerable losses, they have switched to a limited number of insurance branches and withdrawn from all their foreign markets.

Besides, mutual insurers also attempt to minimize owner-manager conflicts from other ways. For instance, O'Sullivan & Diacon (1999) examined the internal governance characteristics among companies in the UK, and found that mutual insurers attempt to minimize owner-manager conflicts by strengthening mechanisms of internal control, e.g., to employ non-executive directors for monitoring.

To sum up, mutuals look for ways to ease the owner-manager conflicts in their management. They for example issue insurance where management exercises little discretion in setting rates, or try to have their insurance business concentrated and so on. They attempt to

give full scope to advance their advantages so that they can be competitive with the stocks in the market.

### **Event Correlation**

The mutual form and the stock form are also different on their contracts' property. In this respect, we often see different concepts of contracts: combined and non-combined contracts, participating and non-participating contracts, random premium and constant premium contracts, decomposed risk transfer and simple risk transfer contracts and so on. Despite the difference, those definitions and corresponding discussions have close connections with each other.

A *combined contract* combines individual's different hedging decisions together but *non-combined contract* separate them. Since mutuals have their policyholders as the owners, a mutual contract can be viewed simply as a combined contract or tried product, in which an individual's investment (as owner) and insuring (as policyholder) decisions are made together, while an insurance contract separates them (D'Arcy, 1999).

A typical mutual contract corresponds not only to a combined contract, but to participating, random premium and decomposed risk transfer contracts as well. We therefore denote them as *the first-group contracts*. In contrast, we denote the others (non-combined, non-participating, constant premium and simple risk transfer contracts), as *the second-group contracts*. We thus see a connection between the different concepts.

*Participating contracts* result in a situation in which policyholders share aggregate risk with their insurer, while *non-participating contracts* do not (the firm owners bear all such risk). Because policyholders in a mutual organization are also owners, any surpluses or losses of the mutual, by definition, belong to the policyholders. So a pre-paid premium should have been adjusted afterwards accord-

ing to the mutual's final performance on its investment activities and underwriting activities. A typical mutual contract is a participating contract. On the contrary, policyholders and owners are different individuals in a stock insurance company as the policyholders pay fixed premiums to the stock in order to transfer their risks to the company. Therefore any positive or negative surplus belongs to the shareholders of the company and is not used to adjust the policyholders' payments. Thus, a typical insurance contract is a non-participating contract.

In using this concept of participating and non-participating contracts, Smith and Stutzer (1990) showed, both theoretically and empirically, that low-risk insurance buyers signal their type by purchasing participating contracts in mutual companies, while high-risk insurance buyers prefer insurance contracts with fixed premiums obtainable in stock insurance companies. Concerning moral hazard, Smith & Stutzer (1995) argued that policyholders in mutuals commit often to risk reduction and the control of moral hazard. Thus Smith & Stutzer (1990 and 1995) are consistent to the argument that mutual cooperatives are formed in order to decrease distortion due to asymmetric information as we have explained in the introduction.

Doherty (1991) used the concept of random premium and constant premium contracts in his analysis. According to Doherty, when ultimate cost of insurance is unknown with certainty at the time when a contract is underwritten, the contract is called as *random premium contract*. A *constant premium contract* means otherwise. A typical mutual contract is a random premium contract.

*In markets where the insurer does have a comparative advantage in bearing risk (e.g. where insured events have a low correlation or when the insurer can use its tax shields more effectively than the insured), there will*

*be an active market in conventional, constant premium, insurance contracts. If risk is not easily diversified in the insurance pool, the market will favor random premium contracts.*<sup>7</sup>

In other words, the mutual form can mitigate effects of event correlation and of information correlation. Doherty (1991) insisted that it is because the random premium contract can deal with event correlation better than the mutual and the mutual-like forms<sup>8</sup> started to emerge in markets plagued by problem of correlation, e.g. medical malpractice and pollution liability insurance markets under 1980s. Doherty further described the mutuals' advantage on dealing with event correlation in his following study jointed with Dionne. Doherty & Dionne (1993) defined a *decomposed risk transfer (DRT)* and a *simple risk transfer (SRT) contracts*. The DRT decomposes risk between idiosyncratic and non-idiosyncratic while the SRT is a conventional transfer of risk. They showed that the DRT form leads to more active trade in insurance markets with correlated exposures. Moreover, it dominates the simple transfer. Although it is not necessary that a mutual type of organization sells the DRT contract, a typical insurance contract is the SRT contract. Furthermore, the mutual form does assemble the DRT contract. Thus, according to Doherty (1991) and Doherty & Dionne (1993), the mutual organizational mode is a good option when event correlations are dealt with.

According to Doherty (1991) and Doherty & Dionne (1993), the random premium and the DRT contracts are, more efficient than the constant premium and the SRT contracts. The non-participating and the non-combined contracts are more constricted than participating and combined contracts, respectively. If we use the previously stated definitions of the first- and the second-group contracts, we may find that the first-group contracts are more

efficient risk-sharing arrangements than the second-group contracts. They do not limit policyholders to a traditional transfer of a considered risk, but give them freedom to choose if they want to share other risks with an insurance company. When the policyholders choose to share other risks with a company, they may even choose a degree in which they share the other risks. The degree can be anything between 0% and 100%. Because of this, the first-group contracts are attracting the market. To create different kinds of the first-group and its likes is recognized as an innovation to traditional insurance products. Both mutuals and stocks are trying to make the innovation. More recent papers on the innovation of insurance products include the articles by Mahul (2001) and Doherty and Schlesinger (2002).

As a simple illustration on an innovation to traditional insurance products, we give an example of combined contract. Again we take farmers' decision making as the example. Suppose we have a group of farmers who want to have a stable revenue from a specific crop. The revenue is equal to the product of the crop's price and its output. Obviously the farmers can buy a crop insurance to protect themselves against a decrease in the crop's output. The farmers can also take a position in a futures market to protect themselves from getting a decrease in the crop's price. But most of the farmers hesitate to hedge on commodity futures markets by themselves. They often get an agency to help them.

If there exists a (combined) contract, which considers both changes on the crop's output and price and can protect the farmers from a decrease in their revenues, then the contract will be certainly attractive to some of the farmers. This is because to have a company help them to hedge the price risk in the futures market and at the same time to buy a typical non-combined insurance contract in another (insurance) company, the farmers usually need

to pay a higher transaction cost in total. In addition, when making a decision on buying a combined contract, the farmers simultaneously consider different hedging instruments, which would be better off than if they consider different hedging instruments separately. Essay V in Wu (2002) looked at this kind of combined contract and concluded a difference of a farmer's decision-making on combined and separate contracts.

Revenue insurance can be thought as an innovation of a traditional crop insurance. Empirical fact shows that available crop revenue insurances are attractive to farmers in some of insurance markets (Makki and Somwaru, 2001).

The risks on changes of the crop's output are usually correlated. Besides, the crop's price and its output are also correlated. As a result, the farmers' risks on changes of their revenues are correlated. Correlations between the risks suggest the use of the mutual form on issuing both the crop and the revenue insurances.

It is worth emphasizing, however, that taking the forms of the mutual and the mutual-like is not the only way of dealing with event correlation. As we have mentioned, traditional insurance products are being innovated towards more advanced risk management instruments in both mutuals and stocks. We see in practice that stock companies also issue the participating contract and other first-group contracts. In other words, the mutuals' capacity of dealing with event correlation is not unique to the mutual form. The stock form has also tried to deal with event correlation by innovating traditional insurance products. How should we regard this aspect of both mutuals and stocks (not only mutuals) issuing the first-group contracts to deal with event correlation? We will make more comments on the question in Section 5.



#### **4. The Chinese agricultural insurance market**

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In this section, we analyze the Chinese agricultural insurance market and suggest that the use of mutuals can be a feasible mean to develop the insurance industry in a less developed market.

The agricultural insurance in China hardly exists. There have been only two insurance companies selling few kinds of agricultural insurance for some years.<sup>9</sup> They earn nothing but loss by selling the insurance and they therefore shrink their selling year by year. It is not a question whether China needs to establish and develop its agricultural insurance market, but rather how this should be done. Discussions on the issue mainly focus on taking the form of commercial insurance with a governmental intervention. The mutual form has been totally ignored. Based on the theoretical arguments above, we suggest that mutuals should be an alternative to the Chinese agricultural insurance market.

One major reason for the slow development of the Chinese agricultural insurance market lies that viewed from the demand side, most of farmers who are engaged in agricultural production are poor and less educated. With a limited amount of resources, they are subject to heavy financial burdens of agricultural taxes and other compulsory fees.<sup>10</sup> Besides, they do not well understand insurance. It is difficult to convince them to pay a premium in advance for an unknown event. When the agricultural insurance is voluntary and they have freedom to choose to buy or not to buy the insurance, most of the farmers choose the latter, especially if the insurance is priced highly. For many years the farmers have been relying on governmental relief in disaster years.

From the supply side point of view, the government subsidizes the agricultural insurance no more than a tax deduction and therefore, the insurance is nearly a pure commer-

cial insurance. Besides, because there does not exist a good data set for the agricultural risks, the agricultural risks have in a high degree a property of uncertainty.<sup>11</sup> Actuaries cannot price the agricultural risks properly. Administrative costs of the agricultural insurance are high. A profit-promoted company does not want to sell the insurance when it only produces low or even negative profits.<sup>12</sup>

Too high price obstructs farmers in buying the agricultural insurance and too low profit (and even negative return) obstructs companies in selling the insurance. Hence, imbalance on both the demand and the supply sides causes the poor development of the Chinese agricultural insurance market.

To develop the market, governmental intervention is of course necessary and important. We think that the intervention should take place not only at a financial level but maybe more importantly at an administrative level as well. To this, we mean that the government should first subsidize agricultural insurance financially. At the same time, the government's administrative structure should to a larger extent be used in order to promote the development of the branch.

Whether and how the government should play its role on the development of the agricultural insurance is not the focus of this paper. Instead, the concern is whether the mutual form can be an alternative for the Chinese agricultural insurance market. There are several reasons for the argument.

We previously stated that one reason of the poor development of the agricultural insurance is the uncertainty of agricultural risks. This affects the development of the insurance from both the demand and the supply sides. The argument of the risk-sharing theory that the mutual form can be an alternative when we have less information on a considered risk fits well to the situation. To get a proportional relationship among farmers' risks on crop outputs is much easier than to estimate the

distributions of the risks *per se*. Relying on the district administrations, the governments have possibility to support founding of a mutual sharing society. A problem of asymmetric information is also easier to be eased in a district mutual society than in a framework of commercial insurance. This promotes the use of the mutual form as a mean to develop the Chinese agricultural insurance market.

In addition, agricultural risks are usually correlated at a local level. The correlation among individuals' risks can be eased in two dimensions. The first is to use the government's administrative structure to reinforce cooperation among different districts in order to decrease effect of correlated risks. For instance, an agricultural risk in north China may be independent from one in the south. The second concerns the argument that mutuals have advantage on dealing with event correlation, which promotes the use of the mutual form.

Finally, in their empirical study, Mayers & Smith (1988) presented that stock companies appear to dominate in all lines of insurance except one, farm owners multiple peril, where mutuals dominate.<sup>13</sup> This empirical observation also supports the argument that the mutual form can be used to develop the Chinese agricultural insurance.

After a mutual society is set up, experiences will gradually be accumulated, as well as accurate prices can be calculated on reliable sources. In order to develop primary mutual society into more advanced cooperatives, we should pay attention to the mutual's characteristics and take advantages of the mutual form. Mutuals' capacity of issuing the first-group contracts should at this point be paid attention to. A mutual society can issue, e.g., crop revenue insurance at its later stages on moving towards an advanced firm.

It is also important to show policyholders their rights on mutuals and to help policyholders to influence the managers' behaviors. In-

surance authority should of course play an important part in monitoring management. At the same time, to reinforce the government's intervention in the management can confine the managers from cheating the policyholders. The government also has another aim to supervise the emerging market; to increase the public confidence in a new service (Hägg, 1998). This is crucial to gain sustained growth in the agricultural insurance sector.

Mutuals' managers can also encourage policyholders to understand their rights. They could for example advertise their products by presenting this advantage of being owners of the companies at the time of buying the companies' insurance products. The problem is whether a relatively mature mutual has any motivation in letting their policyholders understand their rights, which seems not to be in favor of the managers. A motivation can be that by attracting potential policyholders, the mutuals would enlarge their pools and raise capital.

Besides, as we have mentioned in section 3, mutuals should in their management look for ways to control the owner-manager conflicts. It is worth saying that although concentration on lines of business and on operation areas may not be important to a modern mutual company, it is still important to a primary mutual organization.

Another worth-mentioned point is that, as shown by mutuals cooperatives in several countries, the close connections to labor union have decreased transaction costs, for instance through low cost for acquiring policyholders and fewer incentives to moral hazard. These factors are other comparative advantages of mutuals in an advanced economy, but can also be explored in transitional economics.

To sum up, as a policy recommendation to develop the Chinese agricultural insurance market, we propose that founding of a primary mutual sharing society through govern-

mental intervention could be an option. However, to set up a well functional society is a long-term work. It can be started as a primary one and then be developed towards an advanced one. More mechanisms should be taken into account in different stages of the development. Wu (2004) analyzes the Chinese market in a greater detail and proposes more ideas on the development, for instance, to develop semi-compulsory insurance policy and to introduce individual account into payment system.

The argument is significant because it first proposes a way of developing the Chinese agricultural insurance market by developing the mutual form. Besides, it points out that the mutual form is not dated. There are opportunities and phases in a period of economic transformation in which the mutual form has advantages and can still be considered a well functionally organizational mode.

## **5. Conclusions**

Where and how do mutuals find their future? The theory of market segment indicates that mutuals should dominate over some lines of insurance e.g., the lines where management exercises little discretion in setting rates, according to Mayers & Smith (1981 and 1988). Thus, to find their future, mutuals must first find right circumstances to conduct business. In other words, mutuals should be developed in lines of insurance where mutuals have competitive advantages.

When new risks, unknown risks and uncertain risks are dealt with – according to the risk sharing theory – mutuals should have comparative advantages. Moreover, mutuals' capacity on dealing with uncertainty is unique and can still not be substituted by stocks.

Mutuals' capacity of dealing with event correlation can neither be ignored. In other words, when correlated risks are dealt with,

the mutual form should at least be considered. However, the mutual form's capacity of dealing with event correlation is not unique to the mutual form. There are other mechanisms that event correlation can be coped with, e.g., stock companies issue the first-group contracts. Because of this, if we further look at mutuals' disadvantage that they, unlike stocks, make relatively little use of the capital market, we may think that stocks are superior to mutuals.<sup>14</sup> Is that completely true?

Well, dealing with event correlation is not unique to the mutual form. When both mutuals and stocks can issue the first-group contracts at the same extent, the mutual's capacity of dealing with event correlation cannot explain the use of the mutual form alone. However, the mutual form has other unique characteristics, such as its capacity on dealing with uncertainty. When other arguments promote the use of the mutual form, or when a company has already taken the mutual form, management should explore the advantages of the ownership structure, including its capacity on dealing with event correlation.

In terms of the Chinese agricultural insurance market, the mutual form should be suggested as an alternative. After a pre-mature mutual society is set up, we should pay attention to the mutuals' characteristics in order to have them function well. An important thing is to take advantages of mutuals' ownership and to ease the owner-manager (principle-agent) conflicts.

Our conclusion is that the mutual form should still have its position in the insurance industry, especially in a less developed insurance market. The mutual's success in shaping the mature markets in, for instance, western Europe and US, cannot simply be ignored. However, whether joint-stock companies are a more functional organizational mode with higher efficiency than mutuals in advanced economies is a completely different topic that needs further researches in the future.

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## Notes

<sup>1</sup> O'Sullivan (1998, p.159).

<sup>2</sup> The independence is imposed in the article, because it is imposed by Skogh (1999), Wu (2002) and Skogh and Wu (2003). However, by intuition, it is not a necessary condition on the risk-sharing theory presented in below. In other

words, depending on how risks are dependent with each other, the theory might still stand up under certain conditions.

- <sup>3</sup> Murgai et al. (2002) modeled the mutual insurance in the same way as Skogh and Wu (2003), and they paid attentions on the role of transaction costs. They found that due to the transaction costs, optimal number of policyholders in a mutual sharing society is limited.
- <sup>4</sup> As both mutuals and stocks issue participating contract (defined later) in practice, business accounting and dividend distribution are related issues to policyholders in both mutuals and stocks.
- <sup>5</sup> Mayers & Smith (1981, p.427).
- <sup>6</sup> The hypothesis of the market segment is also supported by Cummins et.al. (1997).
- <sup>7</sup> Doherty (1991, p.244).
- <sup>8</sup> The mutual-like forms include e.g. reciprocal insurance firms and group captive insurance firms.
- <sup>9</sup> Another two companies get licenses to issue agricultural insurance in China in 2004. They are Shanghai An-xin agricultural insurance company and Groupama insurance.
- <sup>10</sup> Farmers in China are heavily loaded with different kinds of fees, which partially explains why most people in poverty are farmers. The Chinese government is dealing with the problem by decreasing agricultural tax and taking off some of unreasonable fees through administrative measures. For example, China recently announces that farmers across the nation will be freed from the burden of paying agricultural tax within three years, two years ahead of schedule.
- <sup>11</sup> The uncertainty of the agricultural risk may not only be because of the lack of data set, but it can also be because of other things, e.g., in a relatively unstable legal environment, unpredictable legal decisions can change liability levels which increase the uncertainty as well.
- <sup>12</sup> According to China statistical yearbook, a loss ratio of the agricultural insurance is 77 per cent in 1999, but an average loss ratio of other lines of insurance is 36% at the same period.
- <sup>13</sup> Mayers & Smith (1988) commented that with a better sample it is possible to see additional lines of insurance dominated by mutuals.
- <sup>14</sup> The institutional confinement limits mutuals' capacity to raise capital, which is claimed to be one of the key reasons that some of mutual cooperatives demutualize (Viswanathan and Cummins, 2003).