Document généré le 3 jan. 2025 00:59

Assurances

Assurances

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Volume 61, numéro 4, 1994

URI : https://id.erudit.org/iderudit/1104974ar
DOI : https://doi.org/10.7202/1104974ar

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Éditeur(s)

HEC Montréal

ISSN

0004-6027 (imprimé)
2817-3465 (numérique)

Découvrir la revue

Citer ce document

Vénard, B. (1994). Micro-Economic Approach to Risk-Management. *Assurances*, *61*(4), 617–630. https://doi.org/10.7202/1104974ar

Résumé de l'article

La théorie des coûts de transaction de Williamson est une tentative d'explication économique des phénomènes d'intégration/externalisation des firmes. Une application de cette théorie à l'assurance peut permettre d'obtenir une perspective d'analyse intéressante sur l'intégration/externalisation par une compagnie d'assurance de la fonction risk-management. La question à laquelle répond la théorie de Williamson est alors la suivante : « Quand une compagnie d'assurance doit-elle intégrer l'analyse des risques en son sein, et à l'inverse quand doit-elle l'externaliser auprès d'un intermédiaire spécialisé : la firme de risk-management ?

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Micro-Economic Approach to Risk-Management

by

Bertrand Vénard*

La théorie des coûts de transaction de Williamson est une tentative d'explication économique des phénomènes d'intégration/externalisation des firmes. Une application de cette théorie à l'assurance peut permettre d'obtenir une perspective d'analyse intéressante sur l'intégration/externalisation par une compagnie d'assurance de la fonction risk-management. La question à laquelle répond la théorie de Williamson est alors la suivante: « Quand une compagnie d'assurance doit-elle intégrer l'analyse des risques en son sein, et à l'inverse quand doit-elle l'externaliser auprès d'un intermédiaire spécialisé : la firme de risk-management ?

An essential question for scientists is to understand the strategy of integration/externalization (COASE, 1952, 1960, 1972). A great deal of research has been carried out to explain how firms choose between these two possibilities (ALCHIAN, CRAWFORD, KLEIN, 1978) (ARROW, 1969, 1971) (FAMA, JENSEN, 1983) (WILL1AMSON, 1975, 1979, 1983, 1990), ... One application area of this research is the integration/externalization decision of the risk management: is the firm going to manage risks by itself or ask an agent/intermediary to manage the risks for it? Here risk management is defined as the activity of identification, measurement and economic control of risks which threaten

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organizational assets and revenues (BANNISTER, BAWCUTT, 1981).

On one side, the question is to establish by which criteria a firm decides to externalize the risk management. The answer is to determine the performance criteria of each intermediary in charge of risk management, which will then allow a firm to choose the best risk management structure.

In this case, economists try to justify the strategy of integration /externalization using two basic models.

In the first model, intermediaries fulfill cost minimization by managing risks for a firm which we will call the principal.

The second model explains risk manager presence by utility maximization. We will take in this article the term risk manager (or agent, or intermediary) in a restrictive sense as being an economic agent in charge of risk management for a firm, yet without being an employee of this firm. This risk manager can be an exclusive agent, a broker, a risk management firm. It is worth noting that in reality only large firms can equip themselves with an integrated service of risk management, and as a result the majority of firms appeal to exterior intervening parties to carry out risk management (KAUF, 1982).

Assuming the correct choice criteria are known, the problem is then to reach the required performance level. In this case, the approach is behaviorist; the purpose of the analysis is to explain the behavior of the risk managers. This perspective is complementary to the economic analysis.

The integration of these two approaches has been made by researchers. An example of this is the transaction cost model which was developed by O.E. Williamson (1975, 1979, 1983, 1987, 1990).

Using the transaction cost theory, the purpose of this paper is to advance the understanding of interorganizational relations by focusing explicitly upon the risk management task. To do so,

the demonstration will use a survey about risk management in the non life insurance market.

After a short presentation of the transaction cost theory, the demonstration will focus the analysis on the linkage between risk management strategy and three parameters of the transaction cost theory: the type of transaction, the cost, and the context of the transaction.

The transaction cost theory

The strength of Williamson's work stems from recent developments in micro-economics, which, through the transaction cost theory, has made a large part of micro-economics directly applicable to the concerns of the main-line organization theorist (OUCHI, 1977). The goal of Williamson in his theory is to approach the problem of knowing why a firm does not do everything by itself, but uses the market to perform tasks. His work tries to explain the origins and the functions of the different firms and markets (JOFFRE, KOENIG, 1985). This approach enables understanding of integration/externalization strategies. Whether transactions are organized within a firm (hierarchically) or between autonomous firms (across a market) is thus a variable decision. Which mode is adopted depends on the transaction cost of each activity. The transaction is defined as the basic unit of organizational analysis (an idea of COMMONS). A transaction occurs when goods or services are transferred across a technologically separable interface (WILLIAMSON, 1987). The central purpose of economic organization is to harmonize exchange relations.

Arbitration between externalization and integration of a transaction is chosen following the principle of transaction cost minimization, as a function of carried out transaction characteristics.

The primordial parameters of the analysis are:

- the type of transaction,
- the transaction cost,

- the context of the transaction.

The type of the transaction is the first parameter. Transaction cost economics maintains that there are rational economic reasons for organizing some transactions one way or another. The principal dimensions are the asset specificity, the uncertainty, and the frequency.

The cost of the transaction is the second parameter. Arrow has defined transaction costs as the "costs of running the economic system" (1969). Transaction costs are the equivalent of friction in physical systems (WILLIAMSON, 1987).

The context of the transaction is the last parameter. The study of the economic organization turns critically onto the context of the transaction. This refers to two behavioral assumptions. What cognitive competencies and what self-interest seeking propensities are ascribed to the human agents involved in the exchange? Transaction cost economics assumes that human agents are subject to bounded rationality, whence behavior is "intently rational, but only limited so" (SIMON, 1961) (CYERT, MARCH, 197O), and are given to opportunism.

HUMAN FACTORS		ENVIRONMENTAL FACTORS
Bounded rationality		Uncertainty/Complexity
	Information Impactedness	
Opportunism		Small numbers

The organizational failures framework in "Markets and Hierarchies", Williamson, 1975, p.40.

The fundamental idea is that in a competitive situation, "the market works well", the firm externalizes the transaction at an inferior cost.

On the other hand, if malfunctioning occurs, integration can be justified by an inferior internal cost. Malfunctioning corresponds to the existence of opportunist behavior, limited rationality, asymmetrical information, uncertainty, the

complexity of the transaction the absence of several operators in the market (see the table above).

Moreover, if rationality is not too "limited" uncertainty is weak, information circulates freely, a large number of operators are present within the market, ... a firm has recourse to other businesses to achieve specific transactions.

On the other hand, a firm achieves a transaction by itself, if certain described parameters are unfavorable.

The Type of transaction

The question we pose, is which risk characteristics have an influence on the strategy of risk management integration/externalization.

The type of transaction is defined by Williamson by three elements:

- the uncertainty;
- the frequency;
- the specificity (the need of lasting investments as support to the transaction).

Williamson made the hypothesis that the more a transaction is uncertain, the more the firm will have an interest to integrate the transaction.

This uncertainty results from the difficulty in estimating correctly the two fundamental variables in risk theory (an important aspect of the theory of probabilities): the frequency and amplitude of risks. A difficulty of forecasting probability of the ensuing risk profitability originates from the uncertain character of the frequency and the amplitude of the risk.

Four situations emerge from frequency and amplitude variables:

	Weak Frequency	Strong Frequency
Small Amplitude	Case 1	Case 2
Large Amplitude	Case 3	Case 4

In the first instance, the risk amplitude is strong (case three and four of the table). At first sight, the principal (the firm which is subject to the occurrence of the risk) is divided between two options:

- incurred risks by the principal push the firm to call an exterior specialist to manage its risks;
- the importance of risks push it to control the management of effected risks. If a claim occurs with a strong amplitude, a consequence could be to reassess the viability even of the firm.

In reality, the principal does not necessarily proceed in the complete integration of the risk management. The principal can choose an intermediary to do it.

Likewise by externalizing risk management, the principal puts into place strict control procedures for the risk manager. At presidence, the principal does not let the risk manager do the risk evaluation completely alone and intervenes in the risk evaluation process. On the other hand, the principal intervenes in the surveillance of risk evolution.

For this type of risk, it is indispensable to initiate an inquiry into the precise analysis of the risk: site visits, some interviews with employees, evaluation of the situation and some modification perspectives, the establishment of preventative measures, ... This type of risk requires a particular surveillance.

As the principal does not wish to completely externalize the risk management, he sometimes puts into operation a surveillance team of technical inspectors, which one can find identical in the heart of the risk management firm. The principal in no way delegates all the risk identification, measure, and control over its risk manager, who must be supported by the specialist salaries.

In the second instance, Williamson justifies integration/externalization strategies in the working of the repetetivity of the transaction.

If the risk has a strong frequency (case two and four: with a frequent risk, the actions concerning the risk (identification, measure, control) are also frequent), should the firm integrate the risk management? In fact, it is impossible to give a correct answer to this question according to the fact that the frequency can be analyzed alone, but with the uncertainty and the specificity.

The repetetivity of an uncertain and/or specific risk is a prompting factor for the decision of integration.

On the other hand, if the transaction is standard, that is to say frequent, certain, not specific, it can be externalized. An example is the management of the health insurance contract of the employees (case two of the table). The firm leaves to its risk manager the attention of managing this standard risk, at this time its frequency of occurrence is one of the strongest out of all the insurance products.

In the third instance, Williamson introduced as a parameter the specificity of the transaction, the need of investment particularly for its accomplishment.

A global approach towards the specific idea of investment seems necessary according to Williamson. The specific investments are risk management supports. In this respect, it seems to us pertinent to think that these investments are necessary management frames for conducting risk management.

The support can have the forms of:

- concrete objects such as computers, tarification instruments, ...
- abstract objects such as concepts, decision aids, ... risk evaluation procedures, rules of prevention, ...
- human investments: inspectors have to control the risk for the firm (they can be employees) or for the risk manager.

The risk management support can have a multiplicity of forms.

The cost of the transaction

As illustrated by the preceding diagram, the integration/externalization strategy of risk management fluctuates because of the numerous and ever-changing integration/externalization decision criteria. Thus, a given firm can find itself at a moment liable to different decision possibilities following the risk characteristics that it wishes to manage. The result of this situation variety is often to see the risk manager as not having a global view of risks concerning the principal: some risks are managed directly by the principal, others by the intervention of the risk manager. This limitation of risk manager field intervention (let us note again that we have taken this term in the restrictive sense of an economic agent not employed by the principal in charge of risk management) can imply a risk of under-optimization that includes every partial analysis of a problem (JOFFRE, KOENIG, 1984).

On the one hand, the principal can not employ the risk manager when for certain risks he is required to minimize costs as his main objective. On the other hand, the risk manager tries to justify his global intervention according to the same principal.

In fact, risk management has become in recent years a more elaborate allowance that few firms have been able to integrate without trouble into their cost increases.

On the other hand, risk managers have established themselves upon a series of decision aid instruments, of which the redemption is only payable on several interventions: statistical analysis of losses, financial impact studies, preventative programmes, ...

However, these instruments have been achieved thanks to multiple interventions in different contexts. The risk manager thus has a trump card face to face with the principal since there is asymmetrical information between them? For example, the risk manager is established on an actuary basis of data allowing some risk evaluations for firms of the same sector. The principal possesses only an imperfect data knowledge on the probability of

occurrence, the total amounts of claims, ... some other businesses notably those of the competition.

Another example, is that the risk manager possesses some information on the actuary relation between claims, security teams, the total amount of expenses, compensating cost procedures (MAYERS, SMITH, 1981). Finally, the majority of clients have difficulty in achieving a true programme of risk management which requires particular expertise knowledge.

The context of the transaction

The context of the transaction is fundamental for training of cost to exchange. Williamson estimate that the cost of the transaction is linked to the degree of confidence between commercial partners who themselves depend upon two essential principles of individual behavior: the limited rationality and opportunism (JOFFRE, 1987).

Limited rationality can be described as a cognitive limit of economic agents more in terms of the comprehension of problems, than their resolution (SIMON, 1957) (CYERT, MARCH, 1970). Limited rationality implies the simplification of decision problems, in fact of individual difficulties in accumulating information, and organizing it at the end of its treatment. The risk manager insures in this limited rationality framework, an aid to the comprehension of problems and their resolution. The rationality of the principal concerning the risk and its management is limited. Conversely, the risk manager has a better expertise in the identification, measure, and mastering of risks. The risk manager thus limits the costs resulting from limited rationality.

Opportunism can be described as personal interest research. This can be eventually attributed to the lack of rule observation in economic games and in the honesty of transactions at the point of infringing the rules which are in force. The principal is not required at all to make an objective in the evaluation of some of its risks. It is not completely neutral face to face in the occurrence of certain risks. The hazard moral evaluation is

difficult to achieve by the firm itself. The external look of the risk manager allows a better insight into the indifference face to face with a claim, or the risk of seeing employees doing nothing to limit an eventual claim, ... Thus, in spite of the theory of mutualisation (SKOGH, 1989), the moral hazard is presented as a complication, in the theory of transaction costs, the moral hazard is the « raison d'être » of risk management. In fact, the risk is susceptible to highlighting (thanks to his external look, and to his multiple experiences) the discriminating variables which allow identification of inauspicious behavioral possibilities before and after risk occurrence.

Conclusion

The contribution of the transaction costs theory in risk management is important in that it gives an interesting perspective to the principal/risk manager relationship.

Firstly, the type of transaction (in the occurrence of risk management) implies a mode of distribution of risk management between the principal and its risk manager. We have seen, that a given firm can in fact have at the same moment different strategies according to uncertainty, repetetivity, and transaction specification. We have thus shown the co-existence of a multiplicity of risk management forms.

Secondly, the cost of the transaction explains integration/externalization strategies of risk management. Risk management justifies its intervention by asymmetrical information in relation to the principal, asymmetrical follow-ups of his technical expertise, of his numerous interventions, ...

Thirdly, the context of the transaction is an important element in understanding why costs occur. On the one hand, the risk manager limits the resulting costs of limited rationality thanks to his expertise in identifying them, the measure and the controlling of risks. On the other hand, the risk manager has an external view on behavior which allows a better understanding of the extent of risks resulting from opportunism.

To anticipate risks, to limit their occurrence thanks to preventative measures and to contain their effects thanks to insurance subscriptions are at the present moment objectives largely achieved by firms.

The present goal of firms is to optimize risk management as a classic management act. In fact risk management amalgamates two different aspects: one is the most fair possible anticipation of necessary and sufficient resources to support the occurrence of risks, the other is to control risks, either by eliminating or diminishing them as much as possible. The final objective of risk management is to thus optimize the allocation of business resources.

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