Effects of Integrated Risk Management on Mean and Variance of Cost Efficiency of Property/Liability Insurance Industry

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Abstract

This paper uses the property-liability insurance companies as a research sample to investigate the relation between the enhancement of cost efficiency and the usage of reinsurance and financial derivatives as risk management tools. The stochastic frontier approach is applied to consider not only the mean of cost efficiency, but also its variance. The sample includes both organizational forms of insurers, namely, stock and mutual insurers. Empirical results show that the use of financial derivatives to manage investment risks contributes to the enhancement of the mean of the cost efficiency, while the use of reinsurance to manage underwriting risks does not. That is, the more a firm uses derivatives to hedge, the higher is the cost efficiency. On the other hand, while both mechanisms of risk management do not show their influences on the volatility of cost (in)efficiency, the ratio surplus to regulatory required risk-based capital (RBC) is a factor driving the variance of cost (in)efficiency of insurance firms.