

Diversification vs. Insolvency Put: A model for insurance companies

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Abstract

In this model we argue that setting up an insurance subsidiary may be more efficient for an insurance conglomerate, in the sense that it will allow the parent to retain some of the surplus in case the losses exceed the premiums. This is possible because of the limited liability clause wherein an insurance company can handover the assets to the regulator and can walk away from its book of business. Furthermore, the theoretical model leads to an empirical prediction that for certain lines, firms with higher uncertainty of losses are more likely to write that line in a subsidiary structure. This model tends to explain why companies like All State set up insurance subsidiaries like All State Florida.

The choice of subsidiary structure is a perennial concern for financial institutions. For example, bank holding companies are concerned whether they should make all loans out of its commercial bank subsidiary or separate some into a finance company subsidiary, whether investment banks should pursue venture capital or equity finance on its own or through its subsidiary, and whether an insurance company should retain all of the risks under one company or set up different subsidiaries for different lines of business. Similar concerns also apply to whether operations in different regions or financial services sector should be combined in a unitary structure or separate subsidiaries. Regulation does affect these choices, but that simply means that even regulators realize that a subsidiary structure is an important tool for controlling incentives and performance.

In this paper we argue that it may be more efficient for an insurance company to split its operations into low and high risk business and set up subsidiaries for the same. As is shown in the paper, this shall enable the company to retain some of the producers surplus, which is not possible were it to write both lines under one big conglomerate. The argument revolves around the fact that insurance companies have limited liability, so in case it is not able to pay for all its losses, it can hand over the assets to the regulator and declare insolvency.

We begin by assuming that there are no insolvency costs. For expositional purposes, we also assume that all losses are paid by the premiums collected. And that paid in capital plays no role in running the operations of the insurance company except that it is there to satisfy the regulatory requirements.

The model below is an adaptation of Kahn and Winton (2001). There are three significant points of departure though. One, their model focuses on the assets of a financial institution and the assets differ in terms of their riskiness. This may not be applicable to an insurance company. Asset holdings of insurance companies are similar and are tightly regulated. On the other hand, liabilities of an insurance company differ vastly in their riskiness. This analysis, thus, focuses on the liability structure of the insurance companies. Two, their analysis is based on risk neutral investors that give money to the financial institution for investing. The implicit assumption is that the FI can do more efficient investing than the individuals themselves. On the other hand, we know for an insurance company that policyholders are risk averse otherwise they would not purchase insurance. Three, they model explicitly the investment opportunities set and base their analysis in terms of this set. In this model, we forego that route and instead make use of probabilities. This is standard in insurance literature where probability of good state of the world vs. bad state of the world is of paramount concern. Four, we draw upon a diverse field of literature, most notably the management science literature (see Nerkar and Paruchuri (2005) and Paruchuri et al (2006) for a complete review)).

References:

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