The Managerial Role of Actuarial Professionals on Insurer's Risk-Taking

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ABSTRACT

The actuarial professional bodies have taken initiatives to equip members with the skill sets of enterprise risk management for decades. Yet, whether actuaries are involved in managerial decisions and how they contribute to the risk-taking decisions have not been documented. Existing literature does not study actuaries' managerial role but focuses on their classic auditing role in insurance operation such as loss reserving related to external monitor quality and managerial discretion (see, for instance, Kelly, Kleffner and Li 2012; Gaver and Patersonm, 2001; Grace and Leverty, 2012).

We investigate the managerial role of actuarial professionals on firm-level risk takings in the US property-casualty insurance companies. Our paper contributes in several ways. First, this paper provides the first evidence that the presence of top executives with actuarial qualification, such as CEO with FCAS and CRO with FIA, is associated with firms' risk level in the US PC insurers. Second, we establish the causality between the presence of executive officers with actuarial qualification and the risk taking level of a company. While our study is related to Liebenberg and Hoyt (2003) in that they investigate the relationship between CRO appointment and firm's risk profile, this current study primarily focuses on actuarial professionals. Third, we identify the characteristics of insurance companies that tend have actuarial professionals in top executives' positions. Overall, our paper helps understanding recent contribution of actuarial professionals to firm-level risk taking decisions.

Our primary purpose is to test the following two hypotheses:

- Hypothesis 1: The presence of executive officers with actuarial qualification is associated with insurer's risk levels.
- Hypothesis 2: The presence of executive officers with actuarial qualification affects insurer's risk levels.

To test the hypotheses for the US property and casualty insurance companies, we use the National Association of Insurance Commissioners (NAIC) database for years 2007 to 2011 and Capital IQ. The NAIC financial statement contains a list of executive officers with their title since 2007, and this allows us to identify the presence of actuarial executives, such as Chief Actuary among top executives. However, when highly ranked officers such as CEO, CFO, or/and CRO are actuarial professionals, the titles do not indicate actuarial qualification. Therefore, we supplement the NAIC data with Capital IQ by hand-collecting information on actuarial qualification of these highly ranked officers.

We identify a list of risk measures which are expected to reflect the influence of actuarial executives. Among risk measures suggested by existing literature, we investigate leverage ratio, premium growth, income smoothing, cash ratio, reinsurance assumed and reinsurance ceded, risk based capital (RBC) ratio, Z-score, solvency ratio, and reserve errors.

The models that we employ in this study include the ordinary least square regression (OLS) as the preliminary runs to establish the statistical significance of the presence of actuarial and other risk-related positions in top executives' positions in affecting the risk level of the sample companies. We go further to pursue the causal relationship of the independent variable and the dependent variables, by using 2 Stage Least Square Regression (2SLS).

Our preliminary regression results suggest that the presence of actuarial professionals in top executives is associated with lower cash ratio, higher reinsurance assumed, and higher reinsurance ceded in an insurance company, but we do not observe similar results for chief risk officers (CRO) and other risk-related positions. We also identify firm characteristics that tend to be associated with the presence and the change of actuarial professionals in top executives' positions.

We have been working on establishing the robustness of the results by using alternative estimation methods such as GMM. We would expect similar results we obtained from the preliminary regressions.

References

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