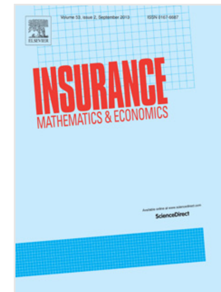
Accepted Manuscript



Optimal risk and liquidity management with costly refinancing opportunities

Andrea Barth, Santiago Moreno–Bromberg

PII: S0167-6687(14)00054-7
DOI: http://dx.doi.org/10.1016/j.insmatheco.2014.05.001
Reference: INSUMA 1939

To appear in: *Insurance: Mathematics and Economics*

Received date: April 2014
Revised date: May 2014
Accepted date: 5 May 2014

Please cite this article as: Barth, A., Moreno–Bromberg, S., Optimal risk and liquidity management with costly refinancing opportunities. *Insurance: Mathematics and Economics* (2014), http://dx.doi.org/10.1016/j.insmatheco.2014.05.001

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Manuscript
Click here to view linked References

ACCEPTED MANUSCRIPT

OPTIMAL RISK AND LIQUIDITY MANAGEMENT WITH COSTLY REFINANCING OPPORTUNITIES

ANDREA BARTH AND SANTIAGO MORENO–BROMBERG

Abstract. In this paper we study risk and liquidity management decisions within an insurance firm. Risk management corresponds to decisions regarding proportional reinsurance, whereas liquidity management has two components: Distribution of dividends and costly equity issuance. Contingent on whether proportional or fixed costs of reinvestment are considered, singular stochastic control or stochastic impulse control techniques are used to seek strategies that maximize firm value. We find that, in a proportional–costs setting, the optimal strategies are always mixed in terms of risk management and refinancing. In contrast, when fixed issuance costs are too high relative to the firm's profitability, optimal management does not involve refinancing. We provide analytical specifications of the optimal strategies, as well as a qualitative analysis of the interaction between refinancing and risk management.

1. Introduction

The aim of this work is to study the optimal decisions of an insurance firm's manager in terms of liquidity management and risk exposure. With respect to the latter, the manager continuously chooses the proportion of claims that are to be reinsured. This determines how risky/profitable the firm is at each date. Liquidity management entails dividend distribution in bonanza times and injections of fresh cash when required.

Risk management plays an essential role in the daily operations of an insurance firm and has a stark influence on firm value. It is therefore not surprising that this aspect of the firm's management has been extensively studied. Liquidity management, and more importantly, how it feeds back to optimal risk management is also crucial. In good times, it provides shareholders with returns on their investment, whereas in bad times it may lend a necessary lifeline to the firm. Indeed, distressed equity issuances are not rare. Jostarndt reports in [11] that in Germany, between 1996 and 2004, 123 out of 267 financially–troubled corporations issued new equity. Franks & Sanzhar document in [5] that distressed equity issuances were a significant proportion of total seasoned issuances in the United Kingdom from 1989 to 1998. In our model, the firm requires a positive level of cash reserves to fund its day–to–day operations. Should said level become non–positive, the firm must be either liquidated or recapitalized, which is interpreted

2000 *Mathematics Subject Classification.* 91G10; 91G50; 91G80.

Key words and phrases. Liquidity management, risk exposure, singular stochastic control, stochastic impulse control.

We are grateful to Mete Soner and Jean–Charles Rochet for their comments and advice. We would like to thank Nataliya Klimenko for the fruitful discussions and her many valuable suggestions as well as the anonymous reviewer for the thorough reading of our manuscript. The research leading to these results has received funding from the ERC (grant agreements AdG 247277 and 249415-RMAC) from NCCR FinRisk (project "Banking and Regulation") and from the Swiss Finance Institute (project "Systemic Risk and Dynamic Contract Theory"), and it is gratefully acknowledged .

Download English Version:

https://daneshyari.com/en/article/5076625

Download Persian Version:

https://daneshyari.com/article/5076625

Daneshyari.com