

## **Progress Report**

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**Aug 2019**

In the first half of this academic year, I was focusing on the first draft of the joint paper with my supervisor Professor Bart Lambrecht. The title of the paper is Financial Policies and Internal Governance with Heterogeneous Risk Preferences. In this paper, we develop a dynamic, open horizon model of firm's investment, financing and payout policies when the decisions are governed by a group with heterogeneous risk aversions. Despite the prevalence of group decisions in finance, the effects and implications generated by this dynamic mechanism are still under-researched. This paper tries to make contribution to this issue by deriving the Pareto optimal firm policies when the decisions are determined by a group with heterogeneous risk preferences, and by examining how these policies differ from those in the single decision maker case. We find that the optimal investment policy is a time-varying weighted average of investors' optimal policies and converges to the policy of the least (most) risk averse investor in booms (busts), reconciling the diversification of opinions hypothesis and the group shift hypothesis. The most (least) risk averse investor has a strictly concave (convex) claim on the firm's net worth. For intermediate risk preferences investors' claim is S-shaped, resembling preferred stock. We also find that there exists a unique set of utility weights for which all investors are indifferent between operating independently or as part of a group, with which we obtain a group irrelevance result. The paper is now available on SSRN.

We have presented this paper at various academic seminars and conferences (Leeds University Business School (Feb, 2019), Essex Business School (Mar, 2019), CERF seminar (March, 2019) and CERF Cavalcade (Jun, 2019)). The paper received the prize for the best PhD student paper at the 23<sup>rd</sup> Annual International Real Options Conference in London (Jun, 2019). Moreover, the paper has been accepted to the SFA Conference that will take place in the upcoming November in Orlando.

In the second half of the academic year, I have been trying to narrow down the idea for the job market paper. The first idea that I have been working on is corporate policies with illiquid assets for group with heterogeneous agents, where I try to examine the diversification effects led by expanding investment opportunity set under a group setting. The second idea focuses on possible ways that group decision making or partnership can create value, as we obtain a group irrelevance result under perfect market assumption in the joint work with Professor Bart Lambrecht. I am trying to relax the assumption by introducing imperfect information and learnings in the model. More work and study has to be done.

## **Project Outputs**

Title: Financial Policies and Internal Governance with Heterogeneous Risk Preferences

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Abstract: We consider a group of investors with heterogeneous risk preferences that determines a firm's investment policy, and each investor's compensation function. The optimal investment policy is a time-varying weighted average of investors' optimal policies and converges to the policy of the least (most) risk averse investor in booms (busts), reconciling the diversification of opinions hypothesis and the group shift hypothesis. The most (least) risk averse investor has a strictly concave (convex) claim on the firm's net worth. For intermediate risk preferences investors' claim is S-shaped, resembling preferred stock. We derive investors' utility weights absent wealth distribution and under social optimization.

SSRN: Chen, Shiqi and Lambrecht, Bart, Financial Policies and Internal Governance with Heterogeneous Risk Preferences (January 23, 2019). Available at SSRN: <https://ssrn.com/abstract=3351802> or <http://dx.doi.org/10.2139/ssrn.3351802>

Seminar Presentation: Leeds Business School (Feb 2019), Essex University Business School (Feb 2019), CERF research lunch seminar (March 2019), CERF Cavalcade (Jun, 2019), the 23<sup>rd</sup> Annual International Real Options Conference (London, Jun 2019, best PhD student paper award)