UNIVERSITY OF TECHNOLOGY SYDNEY

DOCTORAL THESIS

Pricing Pension, Life Insurance and Investment Products

Author:
Jin SUN

Supervisor:
Prof. Eckhard PLATEN

Co-Supervisors:
Prof. Pavel SHEVCHENKO
Prof. Erik SCHLOEGL

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Contents

Declaration of Authorship

I, Jin SUN, declare that this thesis titled, "Pricing Pension, Life Insurance and Investment Products" and the work presented in it are my own. I confirm that:

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Abstract

Faculty of Science

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Pricing Pension, Life Insurance and Investment Products

by Jin SUN

This thesis considers the pricing of pension, life insurance and investment products under a general framework. In particular, this thesis considers the pricing under the risk-neutral framework, the benchmark framework and the utility framework. This thesis demonstrates how long term contracts can be less expensively produced with higher returns on investments under the benchmark framework than under the risk-neutral framework. This thesis works under the minimal market model, a parsimonious model for well diversified equity market indexes that incorporates the well documented mean reversion of equity returns and the leverage effect. This thesis uses historical equity returns data for out-of-sample backtests to demonstrate the effective hedging of long-term financial and insurance contracts.

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