

中文摘要

本文於確定提撥退休金制度下，探討基金經理人如何決定最適資產策略規避薪資所得及通貨膨脹之不確定風險，求得期末財富效用期望值極大化。本研究首先擴展 Battocchio 與 Menoncin (2004) 所建構之資產模型，我們不僅探討來自市場之風險，同時考量薪資所得、通貨膨脹與費用率之不確定性，研究其對最適資產配置行為的影響，建構隨機控制模型，以動態規劃方法求解 *Hamiltonian* 方程式，研究結果顯示，我們可利用五項共同基金分離定理來描述投資人之最適投資決策：短期市場基金、狀態變數避險基金、薪資所得避險基金、通貨膨脹避險基金與現金部位。數值結果顯示，股票持有部位中通貨膨脹避險基金佔有最大的成份，債券持有部位中通貨膨脹避險基金與狀態變數避險基金佔有最大的成份。

關鍵字：確定提撥、薪資的不確定性、通貨膨脹、隨機控制、動態規劃



Abstract

In this study, we investigate the portfolio selection problem in order to hedge the labor income and inflation uncertainties for defined contribution (DC) pension schemes. First, we extend the previous work of Battocchio and Menoncin (2004) that allowed the state variables (i.e., the risks from the financial market) and a set of stochastic processes to describe the inflation, labor income and expense uncertainties. A five-fund separation theorem is derived to characterize the optimal investment strategy for DC pension plans to hedge the labor income and the inflation risks. Second, by solving the Hamiltonian equation in the three-asset framework, we show that the optimal portfolio consists of five components: the myopic market portfolio, the hedge portfolio for the state variables, the hedge portfolio for the inflation risk, the hedge portfolio for the labor income uncertainty and the riskless asset. Then we explicitly solve the optimal portfolio problem. Finally, the numerical results indicate that the inflation hedge portfolio comprises the overwhelming proportion of stock holdings in the optimal portfolios. In addition, the inflation hedge portfolio and the state variable hedge portfolio constitute the overwhelming proportions of bond holdings.

Keywords: defined contribution; salary uncertainty; inflation; stochastic control; dynamic programming.