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On Pareto Efficiency in Asset Markets*

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Abstract

In this study, we consider Pareto efficiency in financial markets. In welfare economics, it is sufficient to consider competitive equilibrium to assure Pareto efficiency. This study, however, focuses on describing the utility possibility frontier, which explicitly shows Pareto efficiency for financial markets. To this end, we use the time-additive utility (functional) with the mean-variance utility. In deriving the utility possibility frontier, we obtain an asset pricing formula dependent on an agent's utility. We provide a characteristic of this formula to ensure Pareto efficiency. Moreover, our study generalizes the payoff function of the asset. This enables us to analyze various financial transactions. As an application of our framework, we consider a simple insurance contract with default. We then show that the likelihood of default makes the market Pareto inefficient or deteriorates social welfare. Moreover, we demonstrate that the introduction of collateral improves social welfare.

JEL Classification: G10, G12, G13
Keywords: Pareto efficiency, utility possibility frontier, default risk

1 Introduction

In this study, we consider Pareto efficiency in financial markets. Pareto efficiency is a criterion in microeconomics, showing optimality in exchanges of goods, services, and financial assets. We say an exchange is Pareto efficient if an agent cannot increase her/his welfare without decreasing the welfare of others. Previous studies have demonstrated how the regulations in financial transactions and financial instruments (including products) improve Pareto efficiency in the incomplete (financial) markets (Acharya and Bisin 2014, Brennan and Cao 1996, Geanakoplos 1997, Lioui and Poncet 2005, and Taddei 2007). The default in financial transaction is the most typical example of the incomplete market. For example, Geanakoplos (1997) shows that the introduction of collateral improves Pareto efficiency in the market. Acharya and Bisin (2014) and Taddei (2007) also consider collateralization in analyzing Pareto efficiency.

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