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# Portfolio choice and equilibrium in capital markets with safety-first investors

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## Abstract

This paper develops optimal portfolio choice and market equilibrium when investors behave according to a generalized lexicographic safety-first rule. We show that the mutual fund separation property holds for the optimal portfolio choice of a risk-averse safety-first investor. We also derive an explicit valuation formula for the equilibrium value of assets. The valuation formula reduces to the well-known two-parameter capital asset pricing model (CAPM) when investors approximate the tail of the portfolio distribution using Tchebychev's inequality or when the assets have normal or stable Paretian distributions. This shows the robustness of the CAPM to safety-first investors under traditional distributional assumptions. In addition, we indicate how additional information about the portfolio distribution can be incorporated to the safety-first valuation formula to obtain alternative empirically testable models.

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2023, Journal of International Financial Markets, Institutions and Money

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>
> …More closely related, Chabi-Yo et al. (2018) use the classic tail dependence coefficient of Sibuya (1960) as a proxy for the systematic tail risk and show that it earns a substantial risk premium. van Oordt and Zhou (2016) rely on a clear and intuitive asset pricing model derived from the theory of Arzac and Bawa (1977) and propose a new systematic tail risk measure, the tail beta. They show that this measure is associated with future stock returns.…

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> …Therefore, for defaultable bonds, the trading discount caused by downside risks should not be ignored. A large body of literature exists (Roy, 1952; Baumol, 1963; Levy and Sarnatk, 1972; Arzac and Bawa, 1977) on safety-first investors who minimize the chance of loss. They indicate that the safety principle plays a crucial role in the decision-making process.…

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