Evolution, finance, and the population genetics of relative wealth

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Abstract

Attempts to use evolutionary ideas in finance have often neglected mathematical population genetics. Population genetics provides a natural approach to certain problems in finance that involve the relative wealth that accrues to competing investment strategies. In our model, competing investment strategies differ only in their allocation to a risky asset versus a riskless asset. Here we use results from the population genetics of natural selection to find the investment strategy that maximizes the expected increase in relative wealth. Though we focus on single-period analysis, some of our key findings are reminiscent of those from the growth optimal portfolio literature, e.g., the Kelly criterion.

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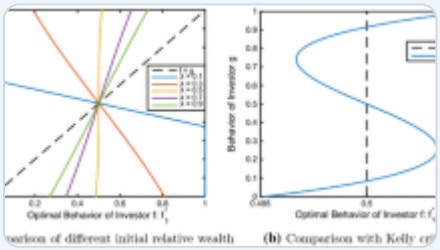

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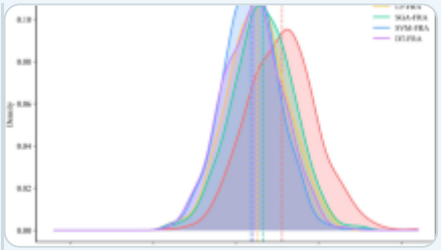

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