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Correspondence between Lifetime Minimum Wealth and Utility of Consumption

We establish when the two problems of minimizing a decreasing function of lifetime minimum wealth and of maximizing utility of lifetime consumption result in the same optimal investment strategy. To this end, we equate the two investment strategies and show that if the individual consumes at the same rate in both problems—the consumption rate is a control in the problem of maximizing utility—then the investment strategies are equal only when the consumption function is linear in wealth. It then follows that the corresponding investment strategy is also linear in wealth and the implied utility function exhibits hyperbolic absolute risk aversion.

This is joint work with Erhan Bayraktar.