# Household Needs Priority and Risky Investments

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## Research question

❑ Why do not most of typical households and some rich participate in risky investments?

## Extensions on Merton (1969) budget constraint

❑ We follow CRRA utility, but extend the budget constraints.

➢ Consumption is for luxury goods consumption,

➢ Households choose luxury consumption before investment.

## Budget constraint in our study

❑ Household allocate resources to satisfy daily life cash outflows in three categories: basic, psychological, and self-actualization needs.

➢ Basic needs are food, shelter, and security.

➢ Psychological needs are to signal its superior social status. luxury goods consumption satisfy psychological needs.

➢ Investments could fit in household's self-actualization needs.

❑ Three needs are in a hierarchy of order, as in Maslow (1970).

➢ Labor incomes cover cash outflows for basic needs.

➢ Households borrow to maintain luxury goods consumption and expose debt payment dues (DPD).

➢ Household investment returns to service DPD.

❑ Households may or may not earmark a cash reserve from wealth.

➢ A cash reserve is to keep existing lifestyle cash outflows when households expose cash flow shocks.

## Two households: Self-disciplined vs. self-indulgence

● **Self-disciplined** $Household_1$ prioritizes financial safety.

  ❶ Set $Reserve_1 > 0$, so $Wealth_1 - Reserve_1 = iWealth_1$;

  ❷ take temperate lifestyle ($DPD_1$) s.t. $(iWealth_1 - Treasury_1) \times \overline{Ret}_{fund} = DPD_1 + Growth_1$, with $Growth_1 > 0$.

● **Self-indulgence** $Household_2$ prioritizes psychological needs.

  ❶ Set luxury lifestyle ($DPD_2$) as $(Wealth_2) \times \overline{Ret}_{fund} = DPD_2$.

  ❷ $Reserve_2 = 0$, $Treasury_2 = 0$, and $Growth_2 = 0$.

● $Household_2$ will drop out of investment on any additional cash outflow $(Wealth_2) \times \overline{Ret}_{fund} < DPD_2 + \epsilon$.

## Proposition

❑ Cash reserve is necessary to engage long-term risky investments. Or dropout happens on below-average returns.

➢ Proof at page 14-15.

## Typical households and some rich don't participate in risky investments because

❑ They naturally allocate resources to satisfy luxury goods consumption before considering investments.

❑ Lack of cash reserves, households have to withdraw investments when investment returns are lower than their tolerance level.

## Self-disciplined households invest in risky assets in equilibrium as in Merton (1969)

● **Self-disciplined** $Household_1$ with $Reserve_1 > 0$

● A low return ($Ret_{t,low} < \overline{Ret}$) causes cash outflow shortages $(iWealth_1 - Treasury_1) \times Ret_{t,low} < DPD_1$.

● However, a cash reserve replenishes cash outflow gap.

  ● $(iWealth_1 - Treasury_1) \times Ret_{t,low} + Reserve_1 > DPD_1$.

● $Household_1$ can practice mean-variance optimization in equilibrium and holds risky assets $\alpha(P, t)$ as in (Merton 1969).

  ● $\alpha(P, t) = \frac{\mu - r_f}{\sigma^2 \gamma}$.

## Testable insight

● Two investors share the same wealth ($Wealth_1 = Wealth_2$).

● $Investor_1$ sets higher reserve ($Reserve_1^H > Reserve_2^L$),

  ● so $investor_1$ lives a lifestyle of lower DPD ($DPD_1^L < DPD_2^H$).

● When the investment returns are above the mean level, both investors keep their engagements.

● On the arrival of a certain low return, there must be

  ❶ $iWealth_1^L \times Ret_{t,low} + Reserve_1^H > DPD_1^L$;

  ❷ $iWealth_2^H \times Ret_{t,low} + Reserve_2^L < DPD_2^H$.

● $Investor_1$ can keep its investment but $investor_2$ has to withdraw.

## Two-player game design

**Player 1:** Fixed income mutual funds choose high or low-risk assets.
**Player 2:** Investors with high or low tolerance on low returns.
Player 2 make decision **after** player 1's decisions are public information

## Flow differences when fund returns vary

● Black (Str tol, Wk tol) inflows; Red (Wk tol) outflows.

● Fund flows when fund returns are **above** tolerance levels.

|               |          | High risk funds | Low risk funds |
|---------------|----------|-----------------|----------------|
| Maj investors | Existing | Str tol         | Wk tol         |
|               | New      | Str tol         | Wk tol         |
| Min investors | Existing | Wk tol          | Str tol        |
|               | New      | Wk tol          | Str tol        |

● Fund returns are **lower** than the tolerance of (Wk tol) investors.

|               |          | High risk funds | Low risk funds |
|---------------|----------|-----------------|----------------|
| Maj investors | Existing | Str tol         | Wk tol         |
|               | New      | Str tol         | Wk tol         |
| Min investors | Existing | Wk tol          | Str tol        |
|               | New      | Wk tol          | Str tol        |

**SIUSTGF**: Short/intermediate-term US Treasury and government funds. Benchmark risk exposure to (1) Treasury (2) Agency bonds**.
**SICFIF**: Short/intermediate-term US corporate fixed income funds. Benchmark risk exposure to (1) Treasury, (2) Agency bonds, (3) Corporate bonds, and (4) Securitized bonds.

## Empirical results

❑ T5 and T6: Fund flows across risk categories in 1992-2015 and 2003-2015 are significant.

➢ Why did fund flow disappear in 1992-2002?

➢ We split funds to institutional class and retail investor class.

❑ T7-1: When SIUSTGF took more credit risk than suggested by the benchmark in 1992-2002, cross-category flow differences were insignificant for institutional or retail investors.

❑ T7-2: When SIUSTGF follow benchmark in 2003-2015, cross-category flow differences were insignificant for institutional investors because of higher reserve. The flow differences were significant for retail investors because some of them have low reserves.

❑ T7-3: retail investors rather than their advisors make decisions.

❑ T8: Cross-category flow difference is significant when past returns are consistently low, captured by interaction term.

❑ T9: Cross-category flow difference is significant when funds delivered left tail returns, captured by interaction term.

❑ T10: Fund return performance contribution analysis.