

Optimal Life Cycle Asset Allocation: Some Open Questions

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- Challenge: how can technology be harnessed towards offering scientific advice to billions of households interested in making appropriate saving and portfolio choices?
- One example: Financial Engines (founded by William Sharpe):
<https://corp.financialengines.com/>

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- Computing power affects all approaches (data-driven or methods of solving models)

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- Could be combined with positive approaches: if defaults are pervasive (empirical finding), then how should one design the optimal default? Is that possible in a world with changing paradigms and/or structural parameters?

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- CRRA utility is special case of this model, can accommodate long run risk.

Myopic portfolio choice

Under different assumptions, as long as stock returns are i.i.d. and household has power utility, share of wealth in stocks is a constant fraction of financial wealth

$$\alpha = \frac{Er_{t+1} - r_f}{\gamma\sigma^2}$$

- With equity premium at 4%, and standard deviation at 20%, then with $\gamma = 2$, invest 50% of financial wealth in equities
- No horizon effects, no age effects, no time effects, no household characteristics (children, marital status, housing status), no pensions, labor income or taxation effects
- Moreover, everyone should participate in the stock market.
- But then why do so few holds stocks? (Mankiw and Zeldes (1991), Haliassos and Bertaut (1995))

- Constant share of wealth in stocks is not right: the rule of thumb (eg Vanguard), is

$$\alpha = 100 - age$$

- Popular lifestyle funds

How does one recover popular advice?

- Solve realistic life cycle model with undiversifiable labor income risk
- How should household view labor income? Key is the correlation between stock returns and permanent labor income shocks (Heaton and Lucas (EJ 2000), Haliassos and Michaelides (IER, 2003), Cocco, Gomes and Maenhout (CGM, RFS, 2005))
- Idiosyncratic risk an order of magnitude greater than aggregate shocks in labor income regressions (Abowd and Card (1989), Deaton (1991), Pischke (1995))
- Therefore, correlation between idiosyncratic labor income shocks and aggregate stock market weak

How does one recover popular advice?

- To the extent that households are invested through mutual funds/diversified investments, (Polkovnichenko (2005) for cases when they are not), then pensions/labor income act as an implicit risk free asset and therefore "stocks are for the young" (Jagganathan and Kocherlakota, 1996)
- CGM show effect and illustrate how popular advice should be made conditional on household characteristics: risk aversion, labor income uncertainty (Guiso, Jappelli and Terlizzese, AER 1996), pensions (Bagliano, Fugazza and Nicodano (2014))
- Cocco (2005) emphasizes housing, while Chetty and Szeidl (QJE, 2007) the role of consumption commitments
- Key insight: wealth determines portfolio rule. Therefore, saving and portfolio choice are inextricably linked

Limited Participation

- But model predicts everyone should really be invested in the stock market: why don't they?
- Fixed costs of participation can keep less wealthy households out of the stock market (Haliassos and Michaelides (2003), Gomes and Michaelides (2005), Alan (2006))
- Trusting the stock market (Guiso, Sapienza and Zingales, 2008)
- Rare events? Hard to typically reconcile both participation and balanced portfolios typically

Is popular financial advice optimal?

- Based on above baseline logic, adjusting for appropriate risk aversion and consumption commitments, lifestyle funds look consistent with scientific advice
- But tomorrow will present a model where this is not the case: why?
- Stock market predictability with a persistent factor
- Then either totally in or totally out of the stock market depending on factor realization: because factor is persistent, this behavior persists for a long period of time and does not look like lifestyle investing
- Equivalently, households approaching retirement in 2008-2009 should not have followed the lifestyle advice and exited the stock market
- Interesting area for future research: incorporating market timing, model uncertainty and learning in these frameworks (Pastor and Veronesi, 2009)

How should inflation/deflation affect portfolios?

- Everything is real up to this point
- How should nominal assets affect models?
- How can demand for money be generated?
- How should inflation be modelled?
- Is there money illusion in the data? For which groups of households is it more relevant?

- Use of improved data
- Measuring financial product complexity
- Financial literacy
- Other financial products (Life insurance, health insurance and annuities)
- Positive implications: Behavioral economics, bounded rationality, different preference specifications
- Understanding the supply side better
- Understanding household finance implications for asset pricing and policy (monetary, fiscal and regulation)

- Administrative: Swedish data, Campbell, Calvet and Sodini (JPE, 2007),
- Norwegian data: Fagereng, Gottlieb and Guiso (2013): maybe lifestyle predictions not bad in the data
- Bonaparte, Korniotis, Kumar (2014): Dutch data on correlations between labor income and stock returns
- Piketty and Saez on wealth and income distributions
- This trend will continue and can provide further insights

Lusardi and Mitchell (2007): Planning, financial literacy and household wealth

Pilot programs in some countries: Italy

How best to implement these programs?

Is this the solution to financial planning?

Or do other behavioral biases need to be addressed?

- Annuities: Low voluntary annuity market participation as a puzzle, some recent work offers some evidence that is consistent with intuition (Inkmann, Lopes and Michaelides (2011)) and empirical evidence. Still, hard to get households to commit to buying annuities voluntarily, even though it is also hard to have all elements of outside wealth when analyzing the data
- Life and health Insurance: demand for these products is under-analysed relative to their market size

- What should the right preference model be?
- Is the household the same as the individual?
- If not, how should intra-household bargaining and preferences be modelled?
- Both a normative and a positive perspective needed
- Love (2010), Hong and Rios-Rull (2012) but further work needed
- To extent that this is important, also has macro/aggregate implications

- Institutional frameworks affecting public-private provision of these products and that might affect individual choices
- Should certain metrics be produced by insurance companies? For instance, recent paper by Koijen, Van Nieuwerburgh and Yogo (2015)

- Pricing of life insurance products and annuities might be important over the cycle: Kojien and Yogo (2015)
- Can the household finance models (selective summary above) be combined with supply side?
- Are there macro-prudential implications from this line of work? (Remember AIG?)

Financial Product Complexity

- Vallee and Celelier (2014): Measuring financial complexity, why does it exist and what are the implications for crisis management?
- Vallee (2013): Coko bonds and how they helped European banks as a capital buffer
- But are they prone to mis-selling? Spain, Cyprus cases.
- Caveat Emptor or regulator involved?

Understanding general equilibrium implications

- Wide open area
- Partly because of heterogeneity and problem in tackling this complexity
- But QE exists and is still happening: can the household finance literature be connected to QE?

- Better data and better computing power can be used to better understand household financial decisions
- Both normative and positive components
- Both structural and less structural approaches
- Both rational versus behavioral approaches
- Can be connected to general equilibrium and regulation in the future