The 2nd European Colloquia

29th November 2007

Uncertainties in the Life Cycle and how They Should be Addressed

Joseph Stiglitz

Nobel Laureate 2001

PIONEER Investments®

Uncertainties in retirement savings/portfolio decisions

- Individual’s savings for retirement one of most important problems
  - Determines well being during significant fraction of lifetime
  - Individuals do not have a second chance

But individuals have little foundation on which to base their decisions

- Unlike consumption of ordinary goods, do not have repeated experiences
- Won’t be able to judge appropriateness of decisions until end of life
- Can’t rely on experiences of previous cohort
  - choices facing individuals today and the consequences are markedly different from those of previous generations
  - Changing life expectancy
  - Changing public programs
  - Changing income levels
  - Changing financial markets

Individual’s savings decisions

- One of most complicated facing an individual.
- At a technical level, they involve intertemporal optimization with risk

Inadequacies of standard theory

Important limitations:

- Ignores human capital
- Housing
- Family structure
- Entrepreneurship
- Inadequate treatment of capital market imperfections
- Inadequate treatment of risk

Human Capital

- Individual's most important asset
- Non-tradable
- Risks cannot be diversified, insured
- Implies that standard CAPM model is inappropriate
  - Even under special assumptions (mean-variance) different individuals will want to have different risk portfolios
  - Need to tailor portfolios to customers
    - Unlike standard CAPM model, where everyone buys same "risky" portfolio, and simply changes weight (relative to safe asset)

- value changes over time
- degree of uncertainty changes over time
  - Early in an individual's career limited information about life prospects
  - At retirement age no uncertainty about its value
- If human capital risk is diminishing over time, then perhaps individuals should be willing to undertake more financial capital risk
  - fraction of wealth invested in equities should increase as individuals get older?
  - Marked contrast with standard wisdom
- Retirement investment should also take into account industry or firm specific risks

Standard Models Ignore Non-financial Assets

- Housing is the most important asset other than human capital
- distinctive risk characteristics
  - the price of housing is likely correlated with what individuals may have to spend in the future for housing
  - housing provides good insurance against price variations
  - individuals should hold more housing than a simple portfolio model would have predicted

Housing

- problems with the rental market other important reason for holding more housing
  - moral hazard
  - partially related, in some countries, to legal protections for renters
  - Giving rise to distinct advantages to home ownership
- no equity market in housing; housing finance almost always comes in the form of debt
  - Implications for demand for housing stock

- housing demand is likely affected by factors like family size, that are of little relevance to other aspects of portfolio allocation
  - inevitably housing will need to be treated quite differently from other assets
- Fact that individuals may own more housing than an optimal portfolio allocation has important implications for other aspects of portfolio allocation
  - E.g. in looking at “inflation risk” to be dealt with in financial assets, should take out housing component of CPI

Family structure

- Different family structures have different implications for risks
- Two earner households without children are better able to absorb risks –risk diversification
- Two earner households with children face more risks
- single earner households with two members may be less able to absorb risks

Entrepreneur

- Often perceive investments in their small businesses as yielding high returns
- credit constrained
- High returns offset the benefits of diversification
- undiversified nature of their wealth has to be taken into account in designing retirement investment strategy

Further uncertainties

- No longer standard retirement age
  - Also partial retirement
- Implying uncertainty about age of decumulation
  - In contrast with standard (Modigliani) life cycle model
- Imperfect capital/Insurance markets
  - Limiting borrowing against collateral
  - Some assets may be more easily used as collateral
  - Individuals may have to draw upon own wealth

IMPLICATION:

- Individuals may need more liquidity than they otherwise would have
- Individuals may need to have higher quality portfolio (collateralizable assets) than they otherwise would have had

Still further uncertainties…

- Different future scenarios
  - Change in equity premium
  - Change in public pension programs, public health insurance, other public programs
  - Family structure (marriage, divorce, college education)
  - Change in wages, risks of unemplolyment
  - Changes in other macro-variables
  - Change in housing prices

Implications of complexity of problem

- Beyond ability of most individuals to “solve” optimal savings/investment problem
- Difficulties in judging appropriateness of advice
- Making individuals prey to wrong advice
  - Some simply “fashionable” rules of thumb, not based on correct analytic framework
  - Some “sociologically” reasonable: by company stock to show commitment to firm, but wrong from retirement perspective
  - Some clearly exploitive
  - Evidence of bad advice, bad allocations

- individuals will not really know whether the advice that has been proffered is good or not until it is too late
  - Difficult to learn from their own experience
  - Difficult even to to learn from others’ experience
  - Because individuals will not know whether advice is good until too late, and only after a long time, difficult for reputation mechanism to work well

Problem compounded by perverse incentives

- asset managers and distributors (and those that work for them) often seem to have incentive to increase their profits by exploiting investor ignorance and living (mildly) off reputation

Limited Information

- Gives rise to enormous potential for conflicts of interest
- Repeated problems in U.S. markets
  - S & L debacle in 80s
  - Scandals of the 90s
  - Subprime mortgage problems of 2007
- With fall-out well beyond those directly involved in transactions
- Suggesting need for stronger regulation

Sub-prime crisis

- Should have realized the deep problems facing American economy
  - Growth for past 5 years has been highly dependent on real estate
  - Large numbers of individuals had taken out mortgages in excess of 80% of value of property, with “teaser” rates involving negative amortization for first 2-3 years
    - In expectation of continuing low interest rates and perpetually rising housing prices
    - So they could refinance their mortgages
    - Not sustainable in the long run

That Which is Not Sustainable Will Not Be Sustained…

- Only issue was when bubble would break
- And when it broke, how deep and long the resulting real estate crisis would be
- And what would be the form of government intervention
- The bubble has now broken

The Double-Edged Sword of Securitization

- Risks spread around the world
  - France, Australia, others affected directly
  - Many more affected indirectly as a result of change in risk premium (Indonesia)
  - More people affected, but impact on US reduced
  - Evidence of problems of imperfect information
- Diversification does not solve systemic problems
- Three key problems of securitization
  - New problems of agency
  - New problems of lack of transparency
  - New difficulties of renegotiation
  - All of these problems have been manifested in recent crisis

- Securitization great for diversification
  - But created new scope of asymmetries of information (agency problems)
    - Originators of mortgages different from those who bear risk
    - Misalignment of incentives
- Banks do a better job at ascertaining creditworthiness, monitoring, enforcement
  - Security markets often free-ride on information provided by banks
  - Resolve agency issues in issuing, renegotiation
    - Contrast Latin American crisis with East Asia crisis

Complex securities

- Lack of transparency
  - Hid bad assets
- Contributed to credit crunch
  - Also made task of unraveling problem more difficult
- Critical question
  - Were they really creating products tailored to needs of customers
    - Sliced and diced risks
    - But then repackaged
    - Refinements—but first order risks not adequately dealt with
  - Or were they maximizing their own revenues

- Regulations and laws limiting abuses, conflicts of interested need to be viewed as pro-business
  - will help restore confidence by market participants in the markets
  - Benefits of well-designed regulations much less than the costs
    - Disclosure regulations
    - Regulations restricting scope for conflicts of interests

- Incentives at the individual and organizational level exacerbate the problem
  - grading on the curve enhances incentives to conform to norms
- Problems compounded by fact that most financial firms only focus on managing small part of asset base
  - Typically even lacking information for overall wealth management
- Some firms seem “exploitive”
  - High transactions costs (sometimes hidden)
  - Starting multiple funds, knowing that simply by the throw of the dice, some will do better than average over, say, a three year period
  - Then promoting the successful funds

In the face of these complexities and information imperfections

- Individuals often rely on norms, what others do
- Key questions:
  - How do these norms get established
  - How appropriate are they
- Key role of defaults
  - Difficult to reconcile with standard models of rational behavior

Key policy questions

- How should defaults be set?
  - More broadly, what is appropriate framework for advice
  - Especially in light of results in behavioral economics
    - Even when given a choice, if one choice is singled out as a default, individuals systematically pick that choice
    - consistent with the observation made earlier that individuals often base their behavior on what they view as norms.
    - what are appropriate norms for one group may not be for others
- What should be appropriate regulatory framework

Basic Framework for Retirement Asset Management

- Identify key “characteristics”, ”types” based on easily observable characteristics
  - Family status
  - Housing ownership
  - Employment status

Low status households (Clusters 1 to 4)

numerosness

Low Status: most households with wealth below € 275,000		
complex family structure	CLUSTER 2 12,51% Over 45, married, with children, very low education Good earning capacity, but high expenses and very low saving ability. Moderate income streams (some households with more than one earner), but low accumulated wealth. Low financial knowledge, low participation to financial markets, the most ask advice High risk aversion, high replacement rate.	CLUSTER 4 15,89% Under 45, married with 1-2 children, high level education Moderate earning capacity, and saving ability. Many are sustaining extraordinary expenses Some financial wealth accumulated. Almost 1/3 own a business, many have a mortgage Only a half with relevant financial investments, the most ask advice but a good number of do-it-yourself investors Medium/low risk aversion, many insurance owners
simple family structure	CLUSTER 1 12,18% Old (over 55), mostly alone, retired, low level Pensioners with very low saving ability. Living alone or in households with low income streams, who set aside a moderate amount of financial wealth, some of which has been inherited. Low financial knowledge, the most who have financial investments ask advice for their investments. High risk aversion, high replacement rate, the most are averse to debts.	CLUSTER 3 13,15% Under 45, single, high level education Moderate/low earning capacity and low saving ability Low financial wealth accumulated; some non homeowners and some paying mortgages Low risk aversion, many do-it-yourself investors, but low partecipation to financial markets Over 1/3 are insurance owners, 50% are worried for the future when retired
	Low Human Capital	High Human Capital

High status households (Clusters 5 to 8)

High Status: most households with wealth above € 215,000		
complex family structure	*CLUSTER 6* *11,84%* **Old, married, with children, retired, very low education** *Good earning capacity (despite many are retired), very high saving ability* *Substantial wealth accumulated. Many own a business* *Good fin. knowledge, a few have multiple bank relations, the most have financial investments and ask advice* *Medium/high risk aversion, but substantial participation to financial markets*	*CLUSTER 8* *11,26%* **Middle aged, married with children, high level education** *Very good earning capacity, moderate saving ability due to high expenses* *Substantial wealth accumulated/inherited. Over 2/3 own a business, many have a mortgage* *Good fin. knowledge, some multiple bank rel., the most have fin investments and ask advice* *Medium/low risk aversion, low replacement rate, many insurance and pension fund owners*
simple family structure	*CLUSTER 5* *11,86%* **Old, mostly married, no children, retired, low level** *Pensioners with high saving ability* *Still good earning capacity with substantial accumulated/inherited wealth* *Good fin. knowledge, a few have multiple bank relations, the most have financial investments and ask advice* *Medium/high risk aversion, but substantial participation to financial markets. High replacement rate*	*CLUSTER 7* *11,31%* **Under 55, single, high level education** *Good earning capacity, high saving ability* *Substantial wealth accumulated. Almost 2/3 own a business* *Good fin. knowledge, multiple bank relations, the most have financial investments, 1/3 are do-it-yourself* *Low replacement rate, many insurance owners*
	Low Human Capital	High Human Capital

Choice

- Important to give individuals choice
  - information asymmetries—individuals have more information about themselves than anyone else
  - individuals value the right to choose
- Designing choice within each prototype
  - Within each prototype there may still be large differences, e.g. in their willingness to take risks
    - Individuals may have perceptions about their willingness to take risks
    - Can be tested against other aspects of their behavior

Key challenge is to frame set of choices and defaults

- Average willingness to take risk as default
  More or less willing than average
- Alternative approach
  - provide “dials
    - With default setting
  - With information about provided about the distribution of choices, e.g. 50% choose the benchmark, 30% chose a higher fraction, 20% a lower fraction, 10% choose a number below xx,

Testing reasonableness of approaches

- the “testing” of the reasonableness of the prototypes can be done by simulation using representative utility functions which reflect commonly observed degrees of risk aversion
  - seeing how, given observed risk characteristics of human, financial, and housing capital, lead to different patterns of savings and portfolio allocation for different prototypes over time
  - Comparing with what is actually observed
    - do those who have invested more in housing or those with riskier human capital systematically invest more or less of their financial assets in equity?
  - Importance of getting better data on actual patterns of savings and investment

Regulators need to address new challenges

- Improving the quality of information
  - Counterbalancing the information gaps induced by massive securitization
- Improving the quality of information requirements
  - Disclosure requirements
  - What information “advisors” must have to provide advice
  - Ensuring that they have at least a risk based framework
- Balancing simplicity with meeting individual needs

- Identifying sources of conflicts of interests, and imposing restrictions, or at the minimum requiring disclosure
- Identifying guidelines for “unacceptable” practices, norms
  - High transactions costs
  - Starting multiple mutual funds
  - Deceptive advertising practices
  - Excessive investment in company stock
  - Insufficient diversification

But while regulations can do something about the worst abuses

- They can do little about fundamental problem - advice which is inappropriate
  - especially when certain precepts come to be well accepted
  - firms have an incentive to play into conventional wisdom or common prejudices
    - . If the conventional wisdom is that individuals as they grow old should hold a larger fraction of their portfolio in bonds, then a firm that caters to that belief is likely to do better—at least in the short run—than one that runs counter to that wisdom

Asset Managers and Distributors

- must meet the challenge of supporting households in complex choices
- Strategy for Developing Retirement Products
  - First identify the major ways in which individuals differ from each other that are relevant to the investment/savings decisions
    - (a) home ownership;
    - (b) entrepreneurship;
    - (c) family structure;
    - (d) age;
    - (e) occupation and other factors related to the ‘riskiness’ of human capital.

Strategy for Developing Retirement Products

- Second, form a set of key “prototypes
  - the smallest number that still captures a large fraction of the variability across individuals
  - We have identified earlier several of the critical factors that are likely to be important in determining prototypes
  - Empirical evidence on savings and portfolio behavior of different groups would verify that these are indeed important determinants of behavior.

Strategy for Developing Retirement Products

- Third, designing choice within each prototype
  - Within each prototype there may still be large differences, e.g. in their willingness to take risks
    - Individuals may have perceptions about their willingness to take risks
    - Can be tested against other aspects of their behavior
  - Key challenge is to frame set of choices and defaults
    - Average willingness to take risk as default
    - More or less willing than average

- minimum number of such products which effectively ‘spans’ the range of desired combinations
  - In the traditional mean variance model, ‘dialing up’ simply means choosing the fraction of financial wealth invested in the ‘market’ portfolio of equities, and the asset manager simply provides two funds, the fund with the minimum variance, and the fund representing the ‘market.
  - Simulation exercises can be conducted to identify how close to the ‘efficient’ frontier one can go, given a range of prototypes, with say 5 or 6 well chosen funds.
  - May want to provide products which automatically “age” in ways which are appropriate for individuals of different prototypes (e.g. change fraction of assets in equities)

It can be good business to behave responsibly

- Doing well by doing good
- Individuals can understand what is wrong with some of the maxims that have become standard fare in the field if those errors are well and simply explained
- Especially so when there are other responsible intermediaries between the worker and the asset manager/distributor (firm, union)
  - introduces another level in the agency relationships

Conclusions

- Individuals today face a formidable task in making savings and investment decisions for retirement
- There is an alternative framework that will help them make better, more informed decisions
  - And still allow choice
  - There is a growing support for these alternatives

Conclusions

- Asset managers and distributors need to develop products and ways of providing advice and guidance that help individuals make better choices
- And regulators will have to find betters ways of regulating
  - But even with best of regulations, there will be problems
  - At macro-level, systemic
  - And at individual level
- Both for individuals to know how to better manage their retirement wealth, for asset managers and distributors as well as regulators to do a better job in doing what they should be doing, there is a need for more research, both empirical and theoretical

The 2nd European Colloquia Vienna 2007