

Financial Innovation in Portfolio Administration & Long-Term Saving Vehicles

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Household Lifecycle Finance: Retirement Pension Goal and Means for Achieving It

Targeted income: inflation-protected income for life adequate to maintain standard of living enjoyed in latter part of work life

Ways to improve the probability of achieving targeted income:

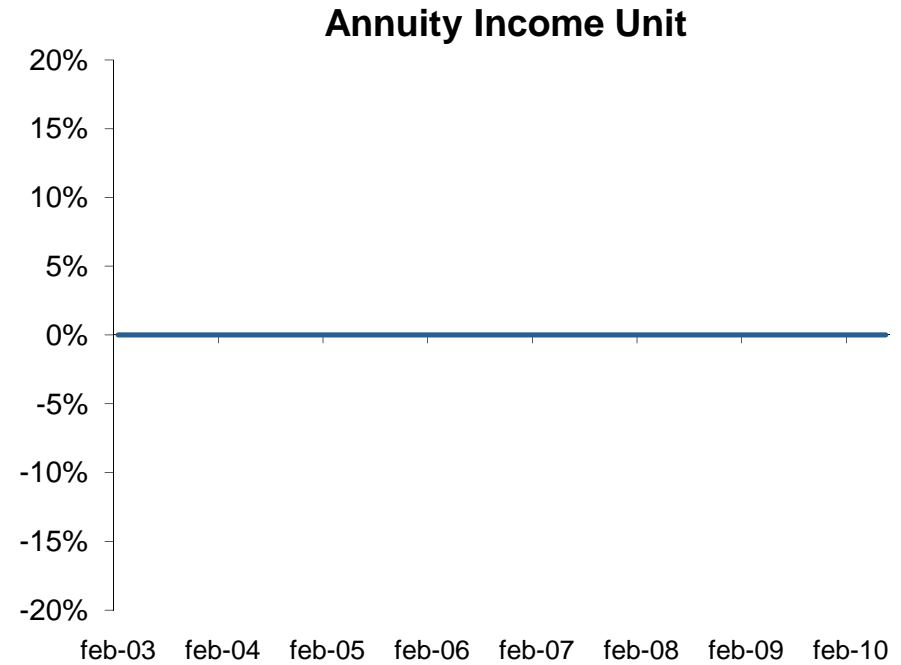
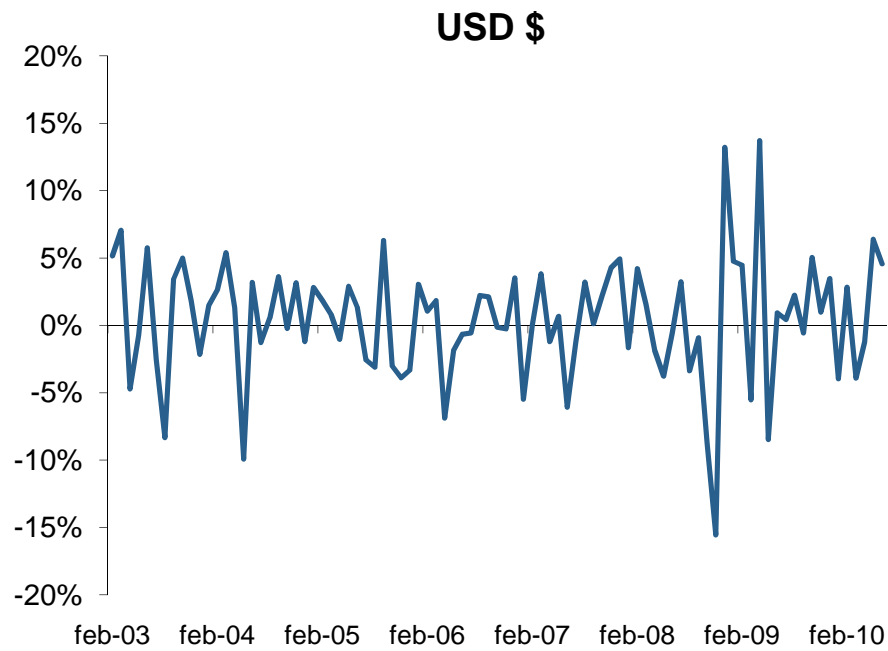
- Efficient and effective use of all available assets and low cost of investment services
- Meaningful choices for the worker:
 - Increase contribution rate (save more)
 - Increase retirement age (work longer)
 - Increase risk of investments

Investment Strategies to Optimize Achieving the Goal

- Measure the risk and return tradeoff in terms of retirement income and not portfolio value
- Portfolio offerings should hedge the risks of inflation, longevity and real-interest rate changes.
- Use robust, scalable investment strategies that will be effective even without active participant involvement.
- Engage the worker in the process with feedback on how likely he is to achieve his targeted level of retirement income, including an automatic alert if that likelihood falls below a threshold, and provide meaningful choices for the worker to improve the likelihood of achieving his target goal, with easy implementation.
- Provide payout vehicles that offer inflation-protected income for life with flexibility for emergency cash needs and bequests

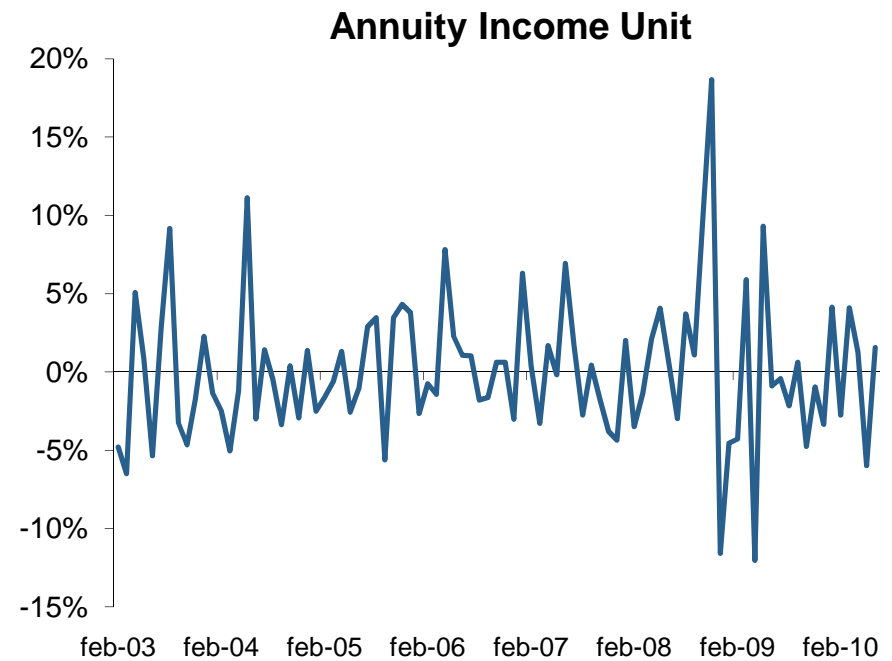
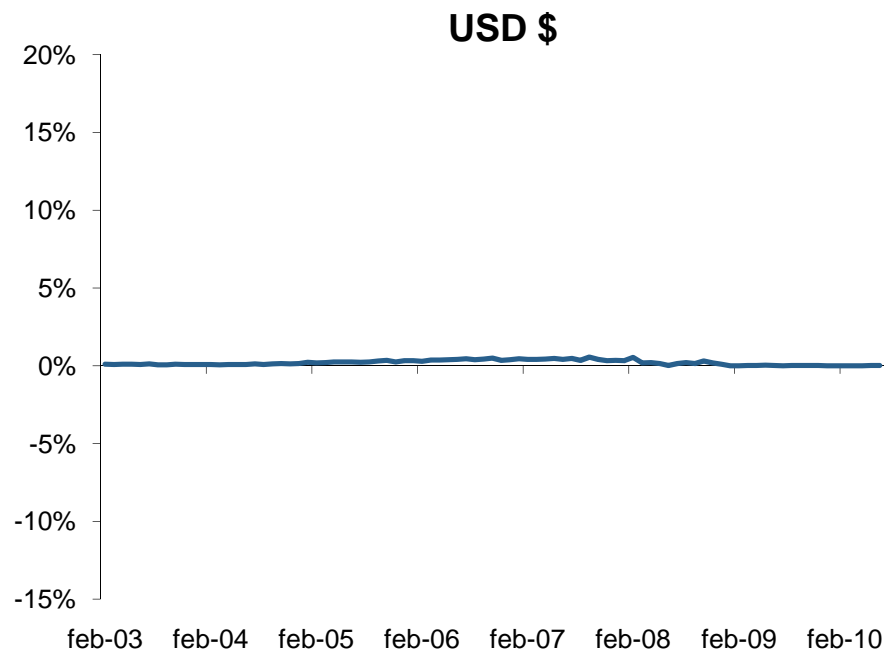
Measuring Risk: Annuity Income Unit Monthly Returns

High risk in value terms, low risk in income terms

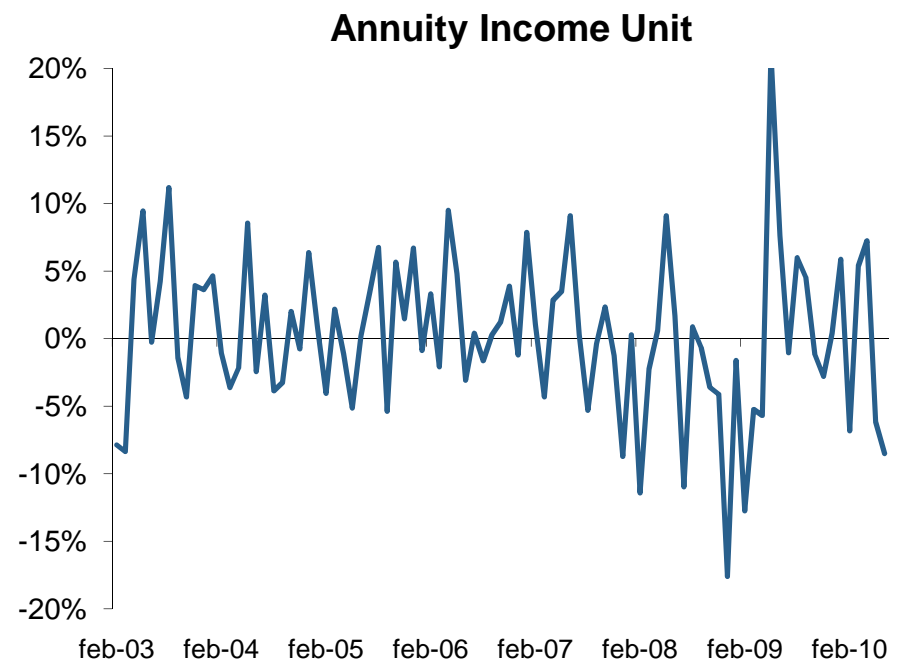
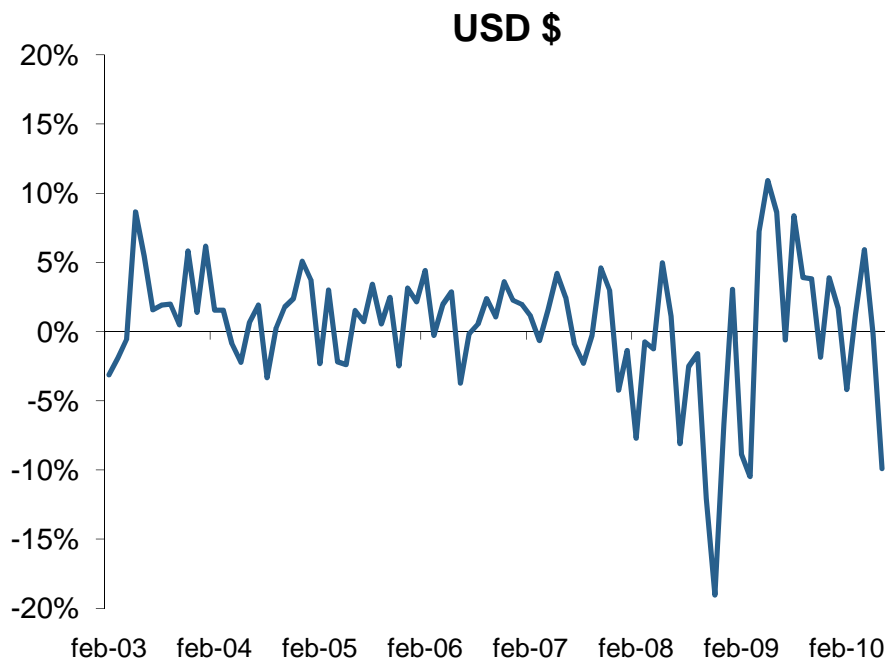


Measuring Risk: T-Bills Monthly Returns

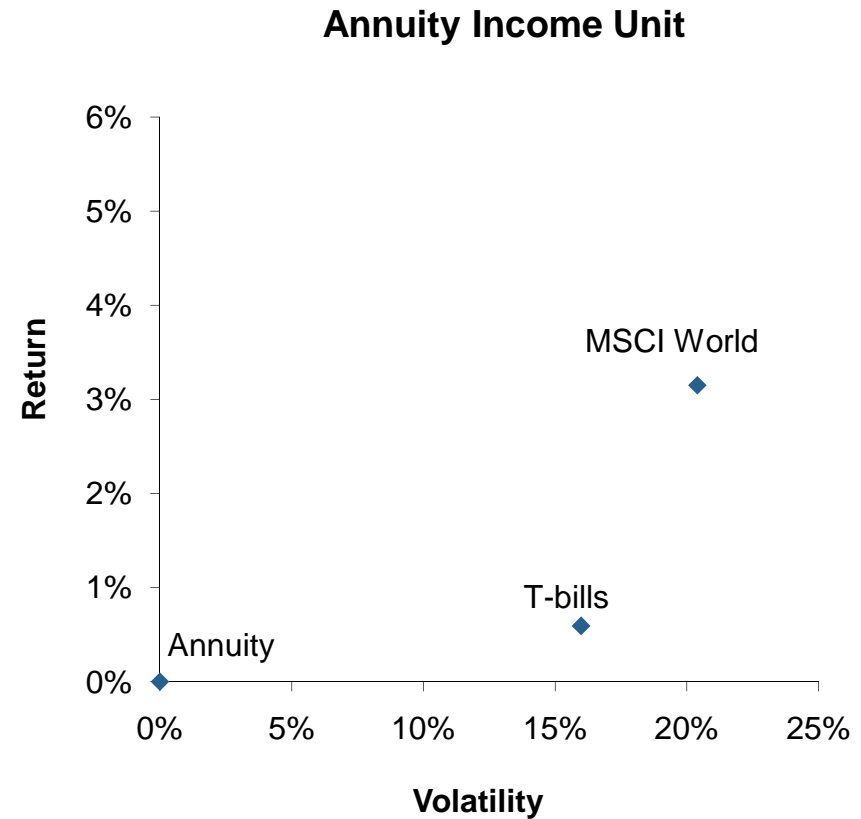
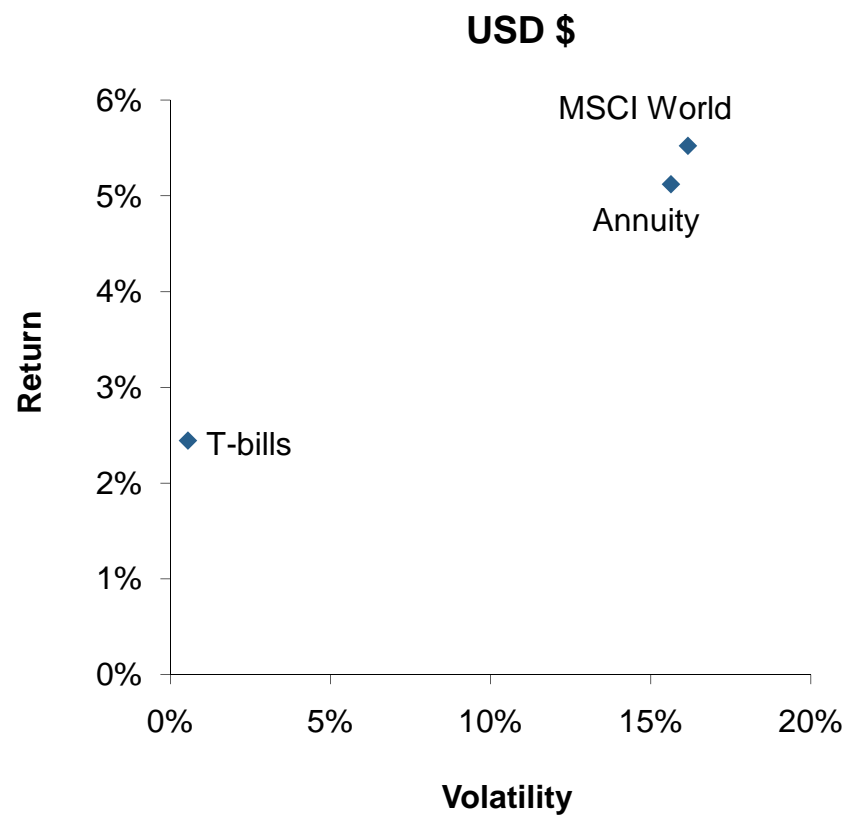
Stable-value returns do not meet stable-income goals



Measuring Risk: MSCI World Monthly Returns



Managing Risk/Return Tradeoff Value versus Income



Accumulation Phase: Managing Longevity, Inflation and Real-Interest Rate Risk

Inflation Risk Hedge

- UVR-linked bonds
- US \$ and other country TIPS
- Inflation swaps, UVR-mortgage

Longevity Risk Hedge

- Longevity bonds: yield = Expected-Realized Mortality
- Longevity swaps
- Reversible deferred annuity

Interest-rate Hedge

- UVR-linked bonds
- Interest rate futures and swaps

Government role as Issuer

Insuring Against Longevity, Inflation, and Interest Risk in Retirement: Annuities

Deaccumulation Benefits

- Insure individual longevity: “cannot outlive one’s assets”
- Protects standard of living against inflation
- Protects income against interest-rate changes
- Provides a larger income through mortality credit
- Simple to use

Deaccumulation Costs

- High cost of fees
- Inflexible to unanticipated needs for liquidity
- May reduce bequests
- Credit risk

Potential Government Role

- Issue Minimum-wage-indexed bonds
- Issue UVR life annuities

“Paying for Old Age,” H. Hu and T. Odean, NYTimes, Feb. 25, 2011

Annuity Payout: Effects of Fees, Interest Rates & Age

Accumulation \$100,000

Interest Rate	Fee	Annuity Age 62	Annuity Age 65
4%	0	\$ 6,810	\$ 7,360
4%	8%+.65%pa	5,870	6,380
2%	0	5,450	5,990
2%	8%+.65%pa	4,650	5,150

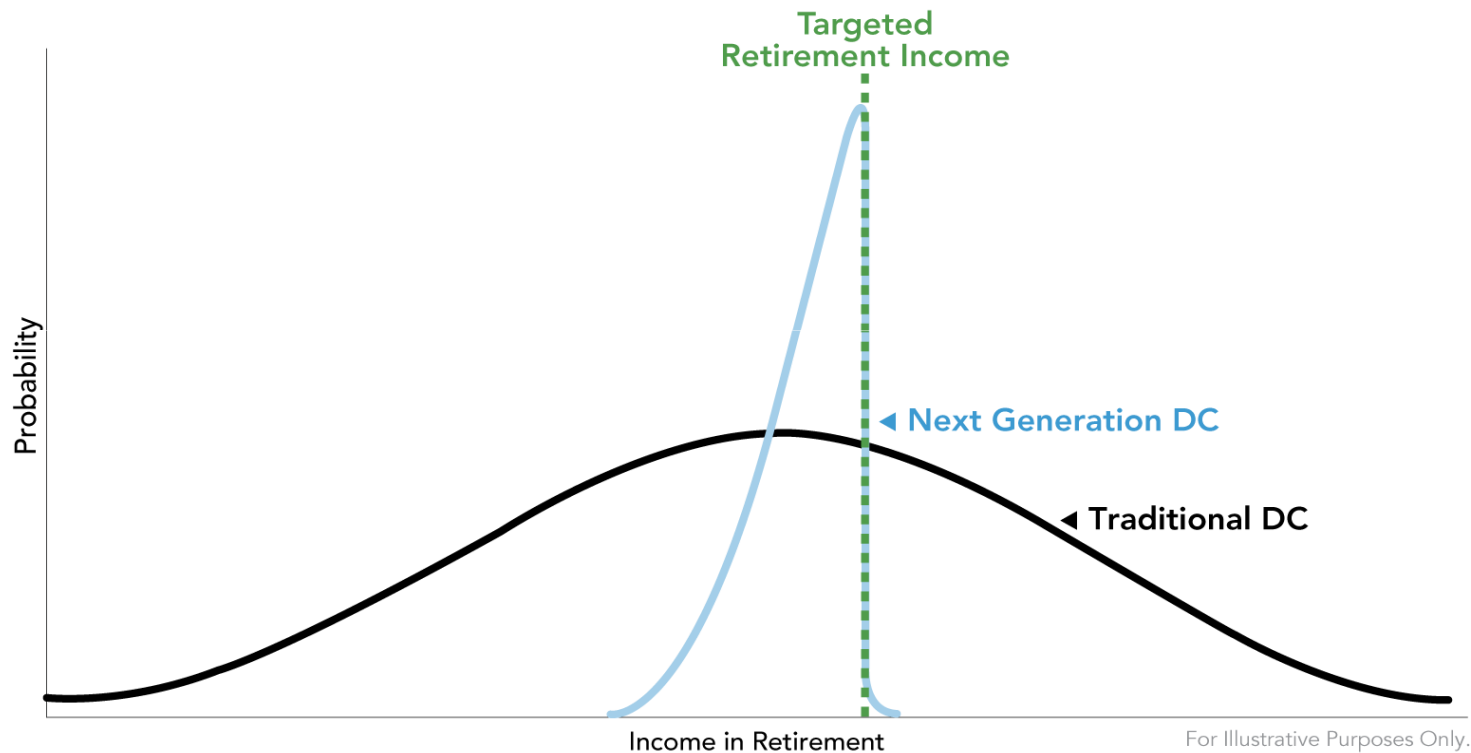
Payout Alternative to Immediate Annuity

Accumulation \$100,000 Age 62

Interest Rate	20-Year Fee	33-Year Payout	Life Payout	Life Payout	Life Payout	Life Payout
						Cost at 82
4%	0	\$7,360	\$5,510	\$6,220	\$6,220	\$15,485
4%	15%	7,360	5,510	6,079	6,079	17,386
2%	0	6,120	4,169	4,960	4,960	18,939
2%	15%	6,120	4,169	4,822	4,822	21,167

Life Payout = 20-Year Payout + Annuity at 82

Managing Outcomes: Dynamic Portfolio Strategies Focused on Achieving the Desired Retirement Income Goal



- “Give up” upside to improve chances of achieving the goal.
- Maintain robust control of downside risk.

Improving Success through Engaging the Individual: Providing Feedback and Meaningful Choices

Personalize Your Plan

[Watch a video on how to adjust your settings \(1:10\)](#)

Move the sliders to change your settings. The meter at right shows the effect the changes will have on the likelihood that you'll reach your Desired Income target.

Desired Income
€ 6,500 / month
[Learn More](#)

Minimum Income
€ 2,800 / month
[Learn More](#)

Voluntary Contribution
€ 500 / pay period
[Learn More](#)

Retirement Age
67 years
[Learn More](#)

[Reset to Original Settings](#)





Likelihood of Reaching Desired Income Target
[Learn More](#)

SAVE THESE SETTINGS

You will have the opportunity to review these settings before recording them.

[Additional Options](#)

Future Enhancements

- Integration to include other retirement-dedicated assets
- House: pre-paid consumption and retirement-funding asset
- Bequest and asset-use efficiency: reverse mortgage
- Product efficiency: long-term care and life annuity
- Age, means, and interest-rate-dependent employer contribution rates to reduce duration mismatch risk
- Standard of living risk: consumption-linked income units
- Tail-insurance on longevity: >85 life annuities