A Six-Component Integrated Approach to Addressing the Retirement Funding Challenge

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What is a Good Retirement Goal?

"An inflation-protected income for life that allows you to sustain the standard of living you enjoyed in the latter part of your working life."

Reality Check: Only Four Ways to Improve the Probability of a Good Retirement

1. **Save More for Retirement**
   Lower lifetime consumption level

2. **Work Longer Before Retiring**
   More saving and shorter retirement period to fund

3. **Take More Investment Risk**
   Prepare "Plan B" for the consequences if that risk is realized

4. **Improve Income Benefits From Accumulated Retirement Assets**
   Annuities and equity-extraction from the house improve benefits without changing saving behavior

Six Feasible Components of an Integrated Approach to Funding Retirement

1. **Pillar 0/I Social Security/DB employer pension plan**

   Highest expected return for risk; cost efficient

2. **Pillar II DC**

   Make it as easy to use as DB – with a comprehensive default offering

   Include robust-design tool for engaged members to tailor income outcomes (without requiring financial knowledge/literacy)

   Provide a smooth transition from accumulation to pay-down phase, customized at retirement

3. **Pillar III provide for uncovered workers and expand opportunity for personal saving for retirement**

   Creation of a new "pension bond" (aka SeLFIES) for purchase by either those not covered by any pension plan or those who want to supplement their benefits beyond their pension plan; requires no financial knowledge and low cost to use

Six Feasible Components of an Integrated Approach to Funding Retirement (continued)

4. Provide more benefits from assets at retirement

Efficient deployment of those assets to enhance benefits without increasing risk

Reverse mortgage (home pension) and annuities can do so materially, without changing people saving behavior

5. Work longer, in a systematically organized, retirement-friendly structure

Contract-employees and organized public and private-sector specialized jobs designed to use the comparative advantages of seniors, with minimal new training required

To provide both needed cash flow and smoothly taper the work experience

6. Restructure the retirement system as a broader lifecycle crisis-coverage system

For personal and systemic crisis throughout the lifecycle as well as retirement funding

An organized conduit to get financial resources to individuals quickly and efficiently during crisis

Pillar II DC: Key Retirement Income Principle

Most individuals have no way to relate an account balance to a retirement standard of living

$1,000,000
Account Balance

For illustrative purposes only

Pillar II DC: Key Retirement Income Principle

Most individuals DO understand a stream of income in terms of current purchasing power in assessing a standard of living in retirement

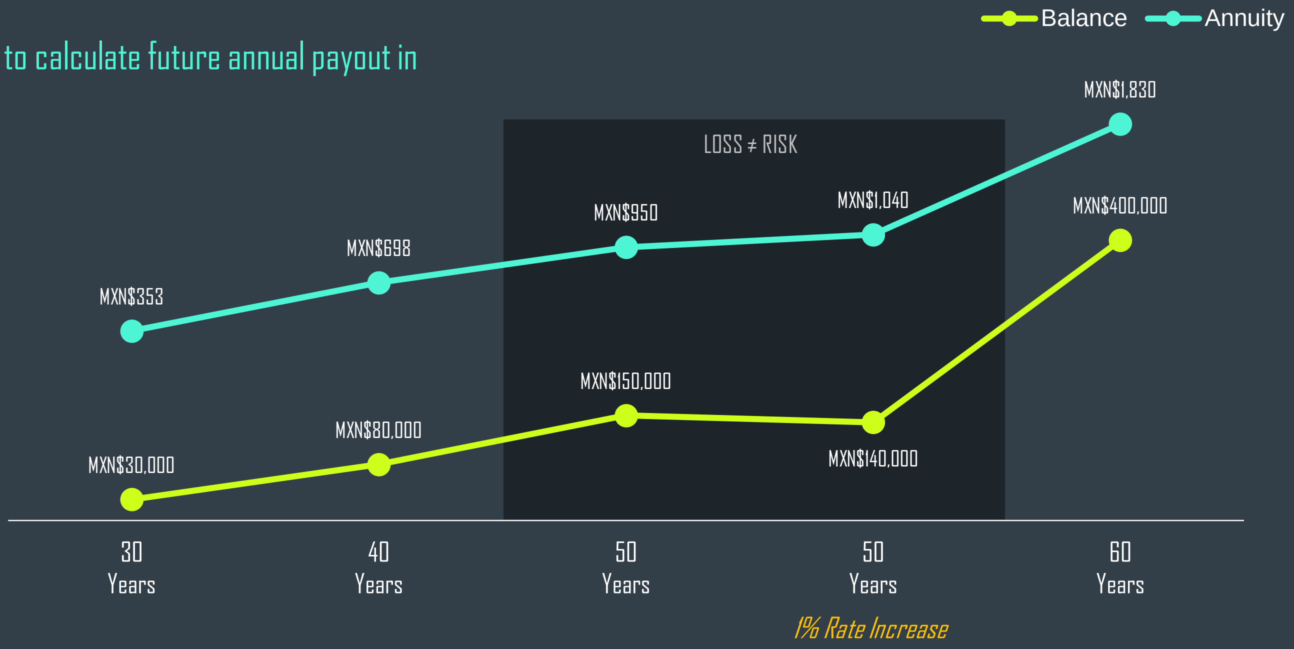
$55,000
Real Income
70% salary replacement rate

YEAR **1**	YEAR **2**	YEAR **3**	YEAR **4**	YEAR **5**
YEAR **6**	YEAR **7**	YEAR **8**	YEAR **9**	YEAR **10**
YEAR **11**	YEAR **12**	YEAR **13**	YEAR **14**	YEAR **15**
YEAR **16**	YEAR **17**	YEAR **18**	YEAR **19**	YEAR **20**
YEAR **21**	YEAR **22**	YEAR **23**	YEAR **24**	YEAR(S) **25…**

For illustrative purposes only

Pillar II DC: 2019 U.S. SECURE Act & Mexico CONSAR Pension Reform Require: Show Retirement Income Payout from DC Plan Balance

Current market bond yields should be used to calculate future annual payout in current 2020 $



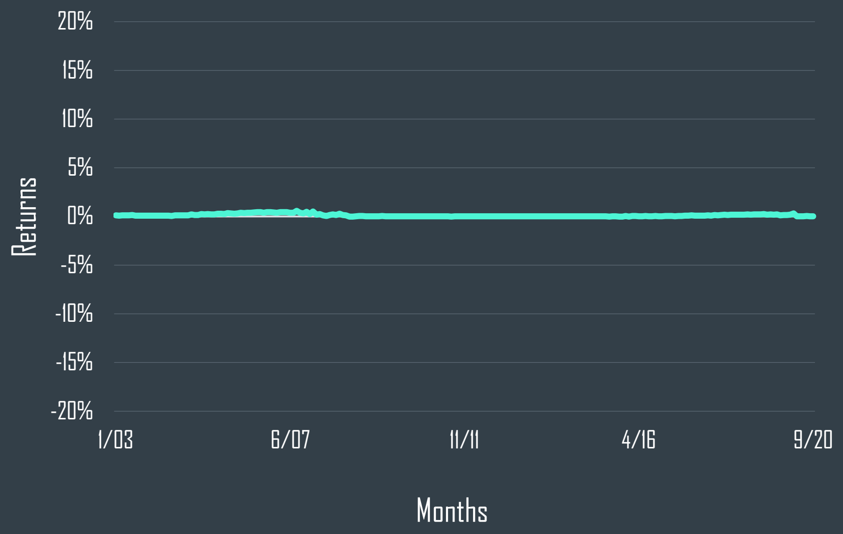
To learn more, read Commentary: 5 Ways to Make the SECURE Act Meet Participants' Needs, *Pensions & Investments*, 21 August 2020 https://www.pionline.com/industry-voices/commentary-5-ways-make-secure-act-meet-participants-needs

The cost of the retirement liability is the present value of 25 equal, inflation-indexed payments starting at age 60. Payments are discounted using the Mexican real yield curve. Udibonos yields were sourced from Bloomberg on 08/31/2020. Example illustrates a 50-year old plan participant with a balance of 150,000 pesos, could purchase an inflation protected annuity for 25 years representing MXN$949 monthly pesos

Wealth Goal vs Retirement Income Goal

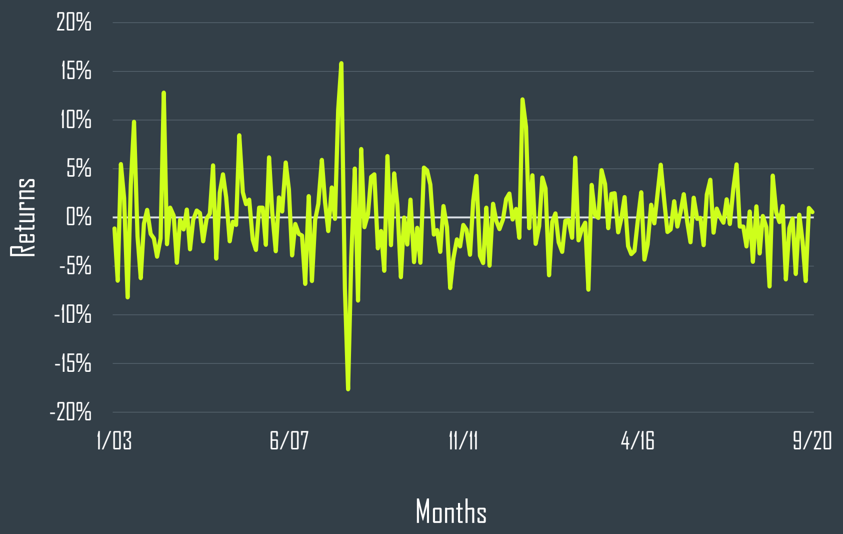
The correct risk-free assets is critical given the goal. If you do not measure risk correctly, you cannot manage risk correctly

3-Month US T-BILL
(USD)



The volatility of US T-bills is **minimum risk** when looking at it as an **asset value**

3-month US T-BILL
(Funded-ratio Units)



But it is **high risk** measured in **retirement income** (funded-ratio units)

Income returns are calculated as the month-over-month percent difference of 25 years of $1 cash flows, deferred for 10 years when currently holding 3-month T-bills. Computed using the U.S. TIPS yield curve.

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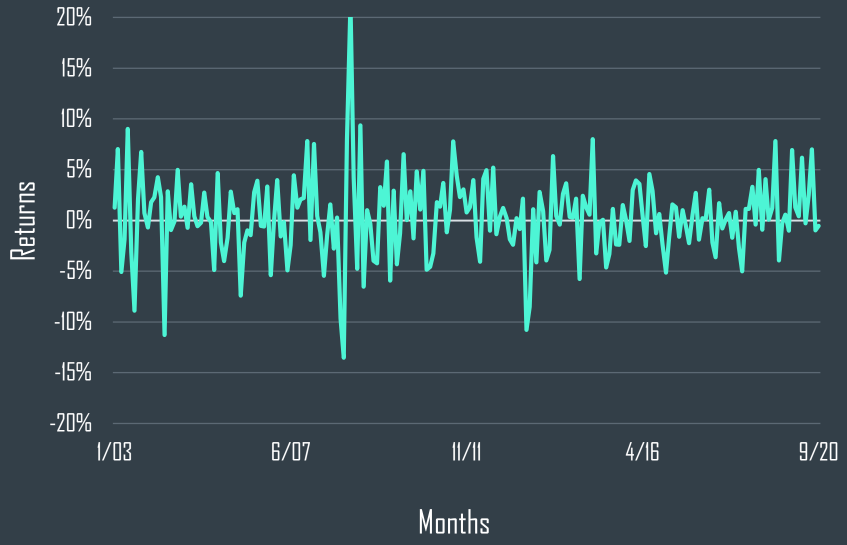
Retirement Income Goal Needs Different Risk Measure

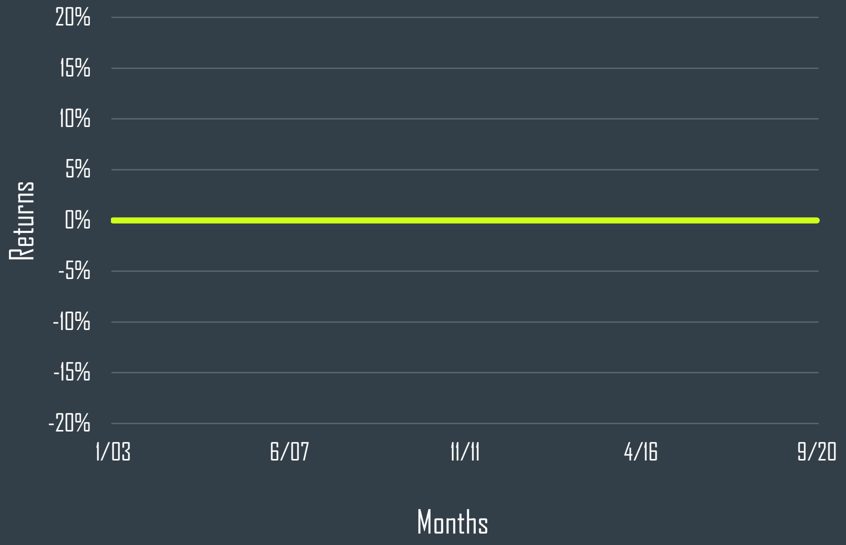
Using the correct risk free asset is critical. If you do not measure risk correctly, you cannot manage risk correctly

Life Income Hedge Asset
(USD)



The volatility of life-income hedge price is **high risk** when measured in terms of **asset value**

Life Income Hedge Asset
(Funded-ratio Units)



The volatility of life-income hedge price is **minimum risk** when measured in terms of **income**

Asset value returns are calculated as the month-over-month percent difference in the current cost of 25 years of future $1 cash flows, deferred for 10 years. Current cost computed by discounting future cash flows using the U.S. TIPS yield curve.

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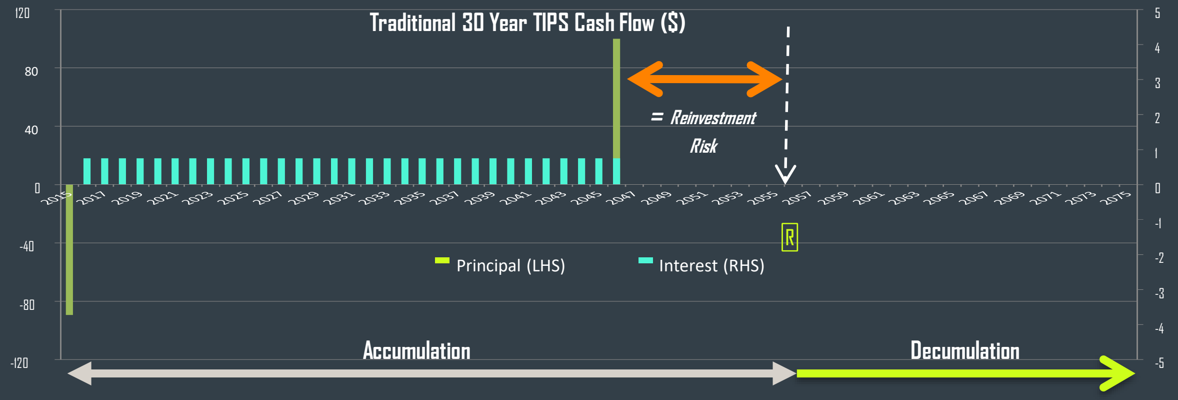
Pillar III (Uncovered Workers): SeLFIES---"Pension" Bond

Cash Flows of 2058 SeLFIES

Match Pension Payouts –
No Additional
Decisions/Transactions and No
Reinvestment Risk

Cash Flows of 30-Year TIPS

61 Additional Decisions/
Transactions and Considerable
Reinvestment Risk



To learn more, read: A Six-Component Integrated Approach to Addressing the Retirement Funding Challenge
with Arun Muralidhar, Journal of Investment Management, Vol. 18, No.4 (2020), pp. 1-27.

Key Instruments to Maximize Retirement Income Benefits from Retiree's Assets—Life Annuity and Reverse Mortgage

Immediate and Deferred Annuities

Larger payout for same assets as long as you live… the "mortality dividend"

"Tail" insurance on longevity, payouts deferred to > age 85

In return, you give up assets at death when they are no longer needed

Reverse mortgage can provide funding for retirement late in the lifecycle

House is principal source of personal saving and typically largest asset at retirement

Both a pre-paid specialized annuity and a general retirement funding asset

No repayments while retiree is living in house; non-recourse to retiree or estate

Obvious choice for those with no bequest motive; can work well with beneficiaries if explained properly

Both annuity and reverse-mortgage markets will require innovations in designs and market distribution for high efficiency and effectiveness

How the Annuity and Reverse Mortgage Can Achieve a Good Retirement:

(50th Percentile Income Example Age 65)

$50,000 Income | Retirement Goal $36,000 (72% replace) | $165,000 DC Assets | $300,000 house
Inflation-protected bond interest rate = 1.50% and life annuity inflation-protected rate = 5.40%

Security $18,978 + bond interest DC $2,475 = **$21,453 benefit (60% of goal)**

Social Security $18,978 + Annuity purchase DC $8,910 = **$27,888 benefit (77% of goal)**

Reverse mortgage principal = $162,000 (54%) Annuity income purchase= **$162,000 x 0.054 = $8,748**

Social Security $18,978 + Annuity purchase DC+RM $17,658 = **$36,636 benefit (100%)**

Benefit: Social Security 52% Annuity DC 24% Annuity Reverse Mortgage 24%

Apply a Smooth Transition to Post-Accumulation, Flexible Spend-Down Strategies Customized to Fit Individual Needs

1	2	3	4
Guaranteed Income for life	**Conservative draw-down (minimum-risk income)**	**Desired income growth goal**	**Longevity insurance**
Life annuity Social Security DB employer pension	Not guaranteed No longevity protection Provides liquidity Room for non-spouse bequests	Targeted increase in income starts at specified future date in retirement Invest in risk asset	Deferred life annuity—purchase at retirement and payments start at age 85

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