

Retirement Shares Plan

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Retirement Shares Plan

- A Variable Annuity Plan
- Sponsor sets default investment fund
- Participant may elect more conservative investment fund
- Provides lifetime income
- Relatively stable cost for plan sponsor

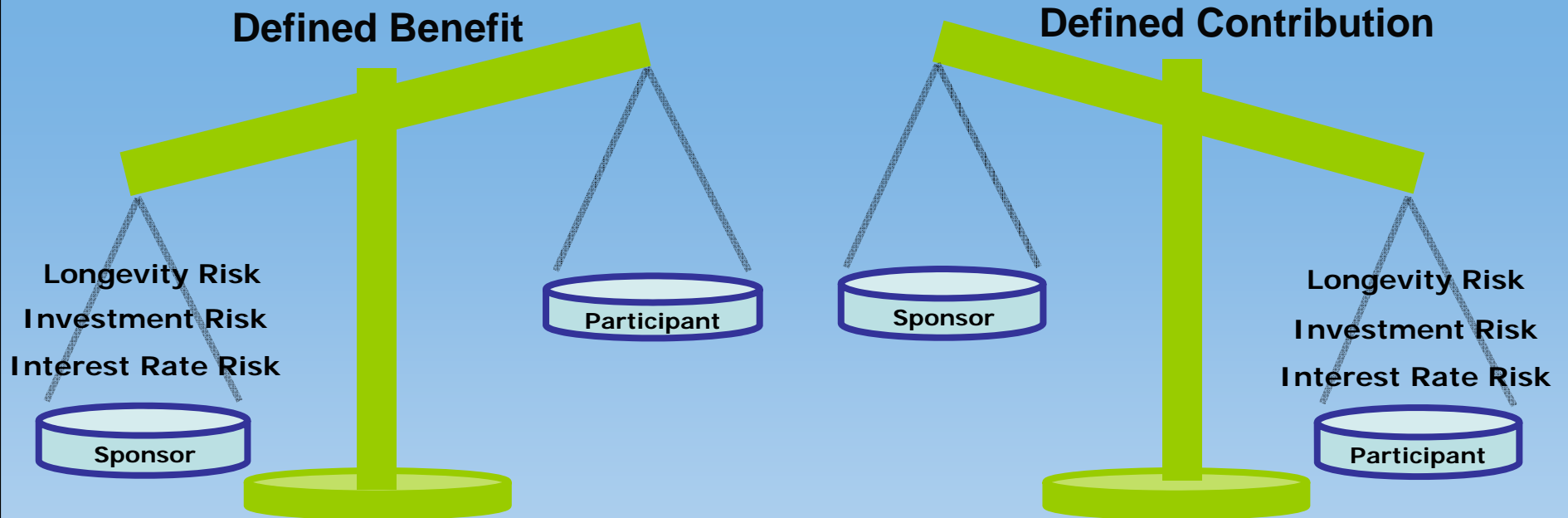


Variable Annuity Plan

- Variable Annuity Plan adjusts the benefit every year to offset any investment gains or losses
- Demographic gains and losses can create unfunded liability or surplus, but are generally much smaller than investment gain/loss or interest rate gain/loss
- Plan is funded based on Assumed Interest Rate (Hurdle Rate or Share Interest Rate - SIR) defined by plan document
- Reserve at hurdle rate is a perfect reference asset – liability not subject to changes in discount rates



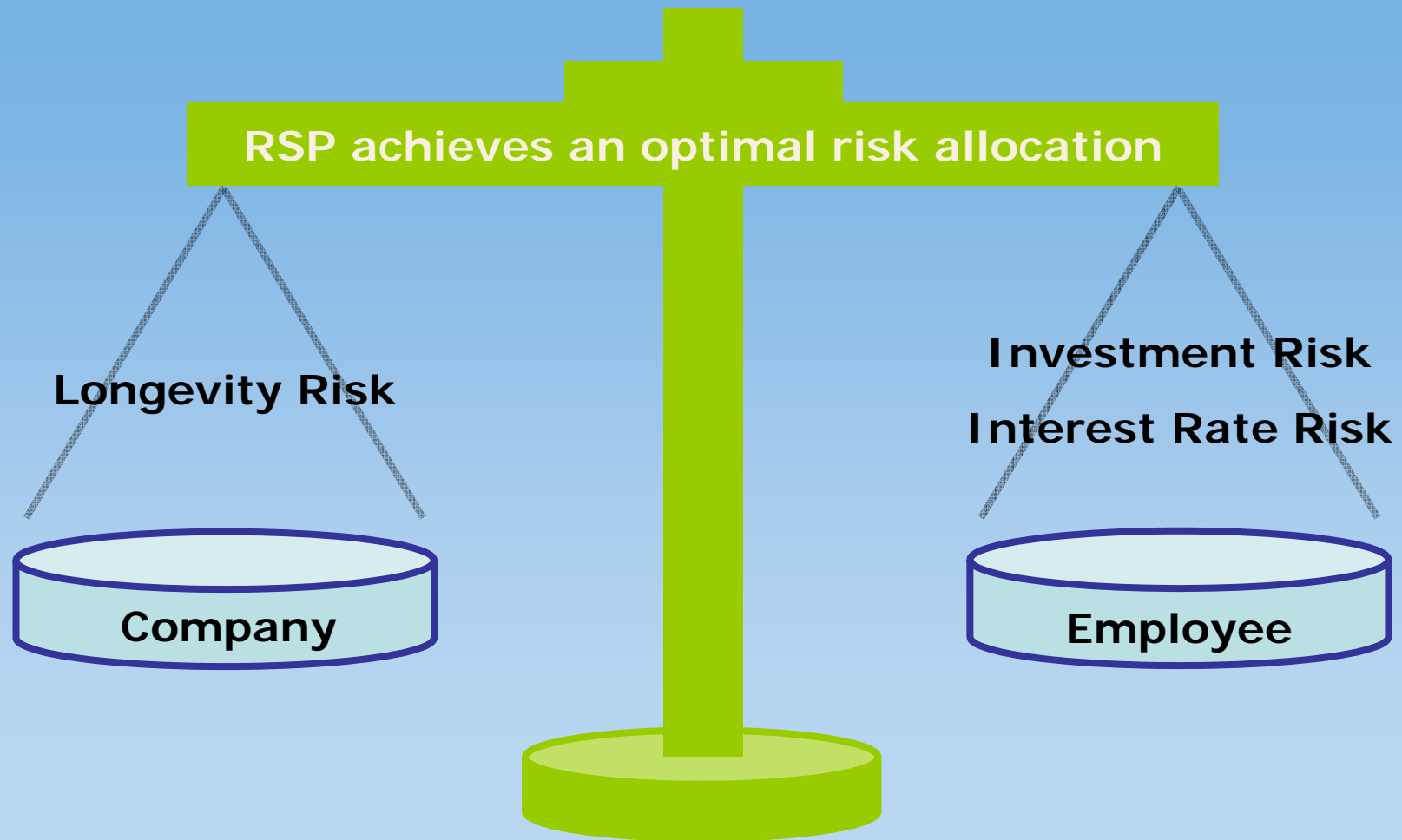
Risk Allocation in Retirement Plans



Effects on the employee are different than on the plan sponsor



Retirement Shares Plan Optimal Risk Allocation



Retirement Shares Plan

- Career accumulation plan
- Retirement Shares are credited to participant based on eligible pay at year-end purchase price of the shares
- Shares accumulate throughout an employee's career
 - each year employee participates in the plan, more benefit credits are earned that are converted to "retirement shares" at the end of the year
- At NRD employee receives an annual retirement income based on number of "retirement shares" accumulated
- Annual income in retirement for each share is the share value at the end of the previous year



Retirement Shares Plan

What is a Retirement Share?

- A Retirement Share is simply the mechanism used to accomplish the transfer of investment gains and losses to the participant's benefit
- Retirement Share is the participant's right to:
 - Lifetime income beginning at normal retirement age equal to the share value each year
 - A portion of the gains/losses of investments underlying the shares



Retirement Shares Plan Share Value Determination

- Initial Share Value can be any value
- Share value fluctuates annually based on the annual actual return of the pension fund (for the previous year) relative to an assumed return called the Share Interest Rate (SIR)
 - If assets earn more than the SIR, share values are increased
 - If assets earn less than the SIR, share values are decreased
 - For example, if SIR is 5% and assets earn 8% (or 2%), share values increase (or decrease) 3%
- RSP is equivalent to the plan sponsor funding a fixed annuity determined at an interest rate equal to the SIR
 - Investment experience above or below the share interest rate is passed through to the participant through a change in the share value



Conflict in Variable Benefit Plan

- Young participants want to see growth in benefit values, temporary volatility is of no concern
- Retired participants usually want stability of current income
- Trustees are fiduciaries, investing assets on behalf of all participants
- But participants have conflicting interests
- What are fiduciaries to do?

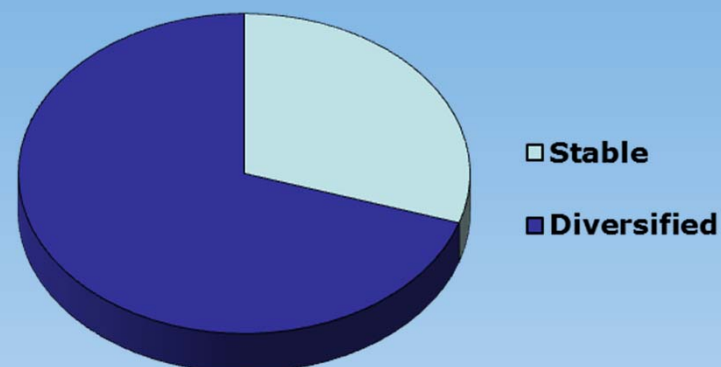


Retirement Shares Plan Investments

Each share class represents a sub-account of the pension trust

- **Stable Shares:** High-quality short-to-intermediate term fixed income securities.
- **Diversified Shares:** Generally, an actively managed fund where plan sponsor selects the investment managers and asset allocation. Less risky than Equity Shares and higher potential return than Stable Shares.

Pension fund allocation



- **Other variations are possible:**
 - More/less classes of shares
 - Different classes of shares (e.g. Lifecycle shares)



Retirement Shares Plan

Other Design Issues

- Adjustments for early retirement or optional forms of payment can be made by adjusting the number of shares
 - Similar to adjustments made to traditional plan benefits for these items
 - Can subsidize early retirement, if desired



Comparison to Final Average Pay Plan

FAP Benefit Formula = 1% of Final Average Pay for each year of service

RSP Benefit Formula = 1% of Annual Pay, Share Interest Rate = 4%

Average pay increases over career = 3%

Retire at 65 with 30 years Service

Benefit expressed as Percent of Final Average Pay

Average Investment Return	FAP Benefit	RSP Benefit
5%	30%	24.3%
6%	30%	27.7%
7%	30%	31.8%
8%	30%	36.7%

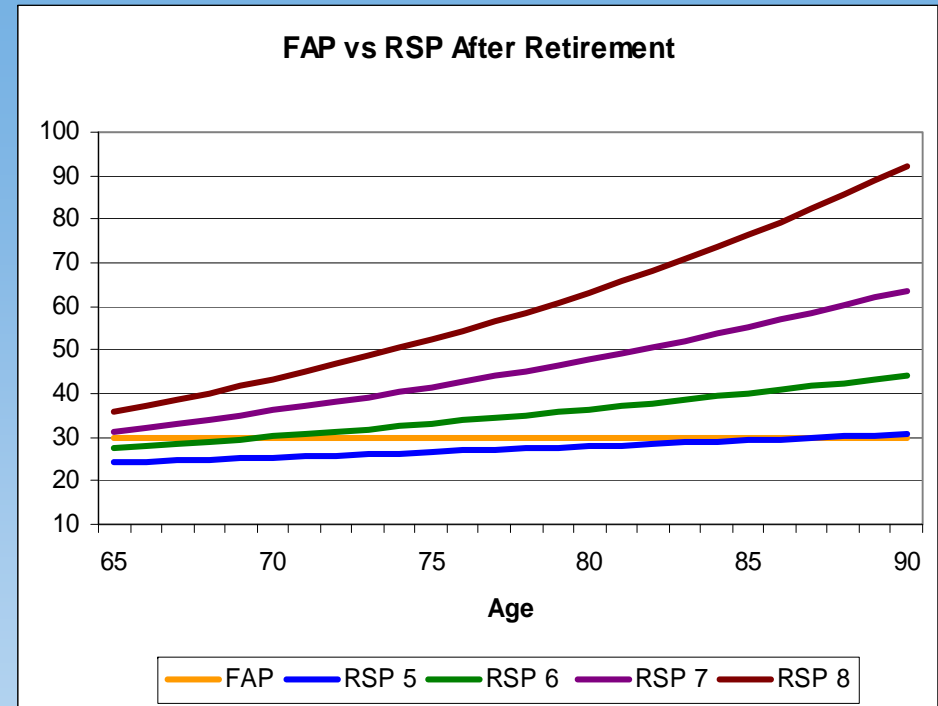


Retirement Shares Plan Potential Inflation Protection

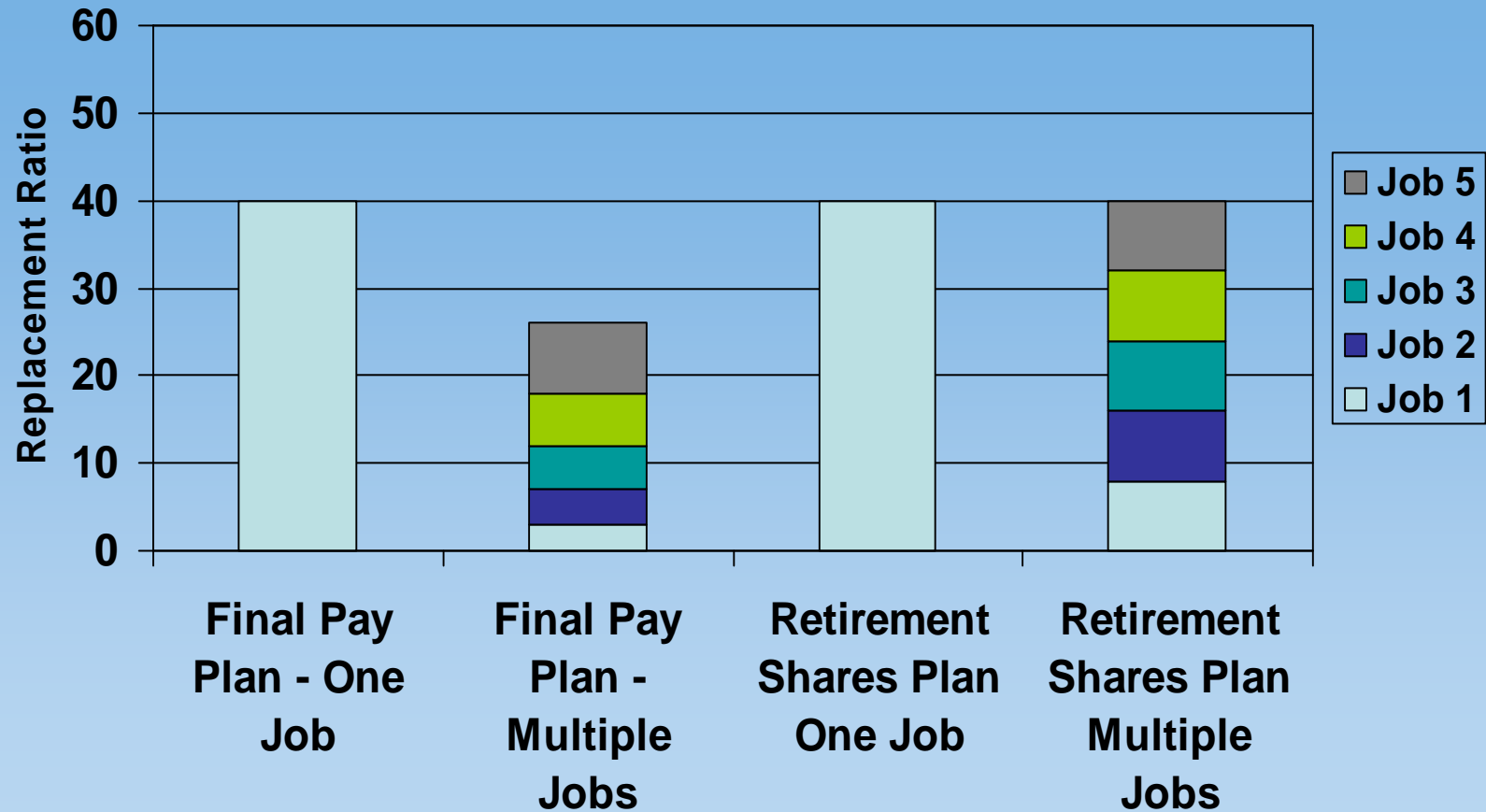
The relative size of the initial benefit depends on relationships of SIR, actual return and salary scale.

After retirement, the RSP benefit will increase if actual returns exceed SIR.

Actual results will be more volatile than this example.



Retirement Shares Plan Portability



Retirement Shares Plan Share Interest Rate

- SIR is a critical component of plan design
 - Higher rate lowers plan costs, but increases the likelihood that participants' benefits will decrease
 - Lower rate increases plan costs, but increases the likelihood that participants' benefits will increase
- Legal and participant communication considerations
 - SIR should be at least 3%
 - SIR of 5% or greater avoids requirements of “statutory hybrid plans”
 - May consider setting the SIR at (or above) a reasonable risk-free rate of return



Retirement Shares Plan

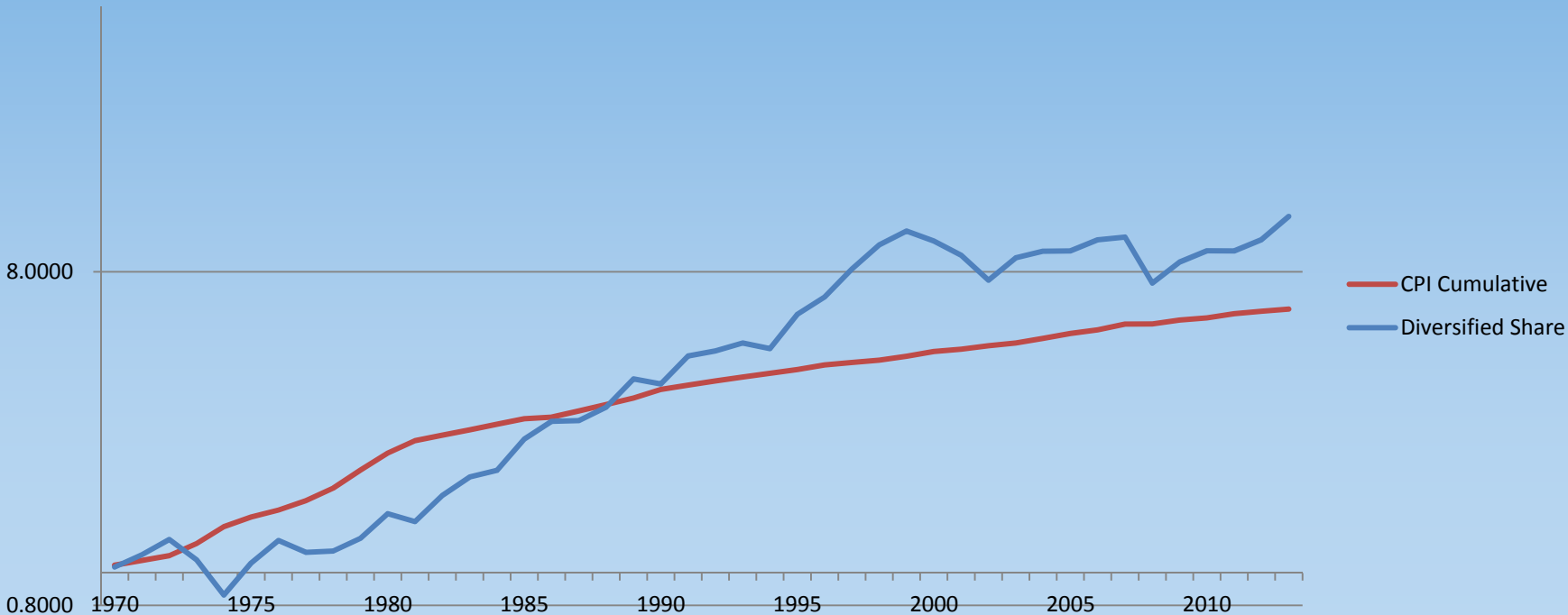
Critics say retirees cannot deal with investment risk. Let's look at real data.

- Diversified shares based on 70% S&P 500, 30% Barclays Aggregate
- Stable shares based on 100% Barclays Aggregate
- Share Interest Rate 4%



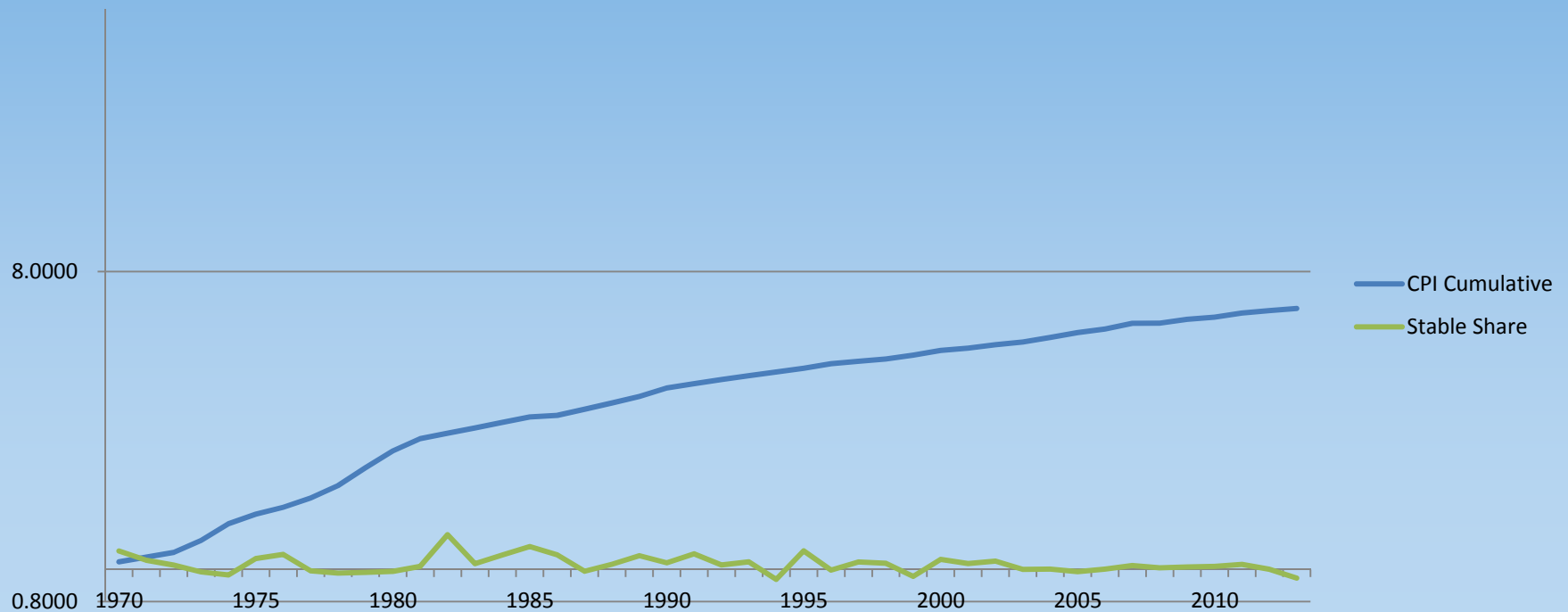
Growth of Diversified Shares

Diversified Share vs. CPI
4 Percent Hurdle Rate
1970 - 2013
Logarithmic Scale



Stability of Stable Shares

Stable Share vs. CPI
4 Percent Hurdle Rate
1970 - 2013
Logrithmic Scale



Retirement Shares Plan

Retirees can deal with investment risk

- Those who need stability can elect stable shares but will likely lose purchasing power as they do with traditional pensions
- Those who can deal with volatility may experience long term growth and sustained purchasing power
- Forgoing the guarantee of a fixed benefit can provide increasing income in retirement

