

# PRIVATE ANNUITIES IN THE U.S.: SHARING THE RISKS

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World Bank Contractual Savings Conference

April 2-4, 2008

Washington, DC



C41112

# OVERVIEW

The U.S. in the 20<sup>th</sup> century

The TIAA-CREF system

- TIAA in 1918
- CREF in 1952

History and structure

Failures, successes and challenges

Building annuity markets



# IN THE BEGINNING

A world without pensions

- Primacy of family support

Undeveloped financial markets

- How to make long-term commitments?

No regulatory regime

- And no data!



# ASSET MANAGEMENT WITH GUARANTEES

Managing assets subject to a constraint

- Payout guarantees
- Liquidity guarantees
- Mortality guarantees

In theory and in practice

The credit rating agencies

What the regulators think



## TIAA STARTED IN 1918

Teachers Insurance Annuity Association

Professors did not have pensions

Original focus higher education and research

Accumulation and payout rates set at 4

- Interest rates consistently higher than 4% in past decades



## TROUBLE FOR TIAA

Interest rates fall below 4% in 1934

And stay below 4% for many years!!!

Longevity rises and rises

Capital call for TIAA



## TIAA THINKS ANEW

The response:

- Accumulation: 3% guarantee plus additional amounts
- Payout: 2 ½% guarantee plus additional amounts
- Mortality projected 30-60 years ahead

TIAA annuities become participating annuities



# CREF

## College Retirement Equities Fund

- CREF Stock began in 1952

World's first variable annuity

Asset allocation and investment strategy

Determining the payout

- Assumed Interest Rate (AIR) 4%
- Features total participation





# ANNUITY GUARANTEE TYPES

Rate of return guarantees:

- Accumulation and/or payout

Liquidity guarantees:

- Introduces significant optionality

Mortality guarantees:

- Versus participating structure

\*Guarantees are subject to the claims paying ability of TIAA or CREF.



# RATE OF RETURN GUARANTEES

Role of regulators in setting guaranteed minimums

Duration of guarantees

Guarantees as constraints:

- Asset selection
- Asset allocation



# LIQUIDITY GUARANTEES

TIAA liquidity constraints:

- During the accumulation phase
- During the payout phase

Asset allocation implications: search for illiquidity

Cashable guarantees:

- Know your deltas and your gammas
- Dynamic hedging issues



# MORTALITY GUARANTEES

What people think of when they think of annuities

Duration of liability cash flows

Money's worth of an annuity:

- Mutual versus stock companies
- Credit rating agencies

Participating annuities.

- TIAA-CREF participants' remarkable longevity



# LONGEVITY

What do we know?

In 1840 life expectancy was 45 for Swedish women.

In 2000 life expectancy was 85 for Japanese women.

Over a period of 160 years...

Life expectancy increased 2.5 years every ten years for 160 years!



## LONGEVITY AROUND THE WORLD

A century ago: Female life expectancy in Sweden was 60

Female life expectancy in Japan was ~ 37

Female life expectancy in Chile was barely 30

As of 2000:

- Japan 85
- Sweden +80
- Chile ~ 77



## PROJECTING LONGEVITY

Will the pattern of 160 years continue?

If not, why not?

As countries develop life expectancy approaches record levels.

- The trajectory (e.g. Chile) is really fast!

Recent improvements are at older ages.

Men remain the weaker sex.



# ASSET SELECTION

Guarantees influence (dictate?) asset selection.

Need predictable cash flows

- Sets upper bound for equities

Guarantees and duration influence liquidity demand

Liquidity constraints imply ability to exploit illiquidity premium.

Regulators set risk based capital requirements.





## CONCLUDING THOUGHTS

The asset management problem: The need for consistent cash flows.

Projecting longevity: How quickly will your population approach records?

Annuities can fit into a “default” model.

- But can lots of added features fit in too?

Are government mandates necessary?



## FINAL WORDS

Annuity structure a good design for delivering lifetime income.

- Providers must get fundamentals right!

People want flexibility, but also simplicity.

Annuities are complicated, period.

Adding guaranteed features increases complexity and cost.



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