Tontine Investment Funds

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Tontine Financial Products

• Ongoing research on tontine financial products with Dr. Michael J. Sabin
Tontines

- Investment vehicles that combine features of an annuity & a lottery
- Investors pool their money
  - Each year they are alive, members receive investment income
  - As members die, their shares are forfeited to the surviving members (“mortality gains”)
- Unless the fund is divided earlier, the entire fund goes to the last survivor
Example 1

• On the TV show, M*A*S*H, Colonel Sherman T. Potter, as the last survivor of his World War I unit, got to open the bottle of French cognac that he and his buddies bought – and share it with his Korean War compatriots
Example 2

Steve and Mark are camping when a bear suddenly comes out and growls. Steve starts putting on his tennis shoes. Mark says, “What are you doing? You can’t outrun a bear!”

Steve says, “I don’t have to outrun the bear—I just have to outrun you!”*

A Simple Zero Coupon Bond

• Imagine 1000 65-year-old retirees
  – Each contributes $1000 to a fund that buys a $1,000,000 10-year zero coupon bond with a 5% yield to maturity (5% interest)

• At maturity, bond would pay $1,628,895
  – Which would be split equally among the 1000 original investors or their heirs
  – Each gets ~ $1629.
Example 3: A Simple Tontine Investment Bond

• Instead divide the $1,628,895 but only among the **survivors**

• Suppose that only **800** survive to age 75
  – 800 winners (survivors) each gets ~ $2036
    • $407 more!
    • Translates to a **7.37%** yield to maturity
      – 47% higher yield to maturity

  – 200 losers (decedents) each loses $1000
    • But for obvious reasons, they don’t care!
Would You Take That 10-year Bet?

• People rarely buy lifetime annuities
  – Instead people invest in stocks and bonds
    • E.g., create a “laddered bond” portfolio
      – Buy 10 bonds worth $10,000 each, laddered so that one bond matured in each of the next 10 years

• With a tontine investment bond, an investor could take on mortality risk but only over the relatively short term of the bond
  – i.e., for 10 years
  – vs. for life (with a lifetime annuity)
Tontine Investment Funds:

• Could work with any kind of investment
• Could invest in a family of mutual funds
  – E.g., College Retirement Equities Fund (CREF) operates 8 investment funds including stocks, bonds, money market & social choice
  – You could move among those funds, but you could not withdraw anything for 10 years
    • And you lose it all if you die before 10 years
• Again, would you take that bet?
How Would Tontine Investment Funds Work in the Real World?

- How would variations in the rate of return on the underlying investments affect the expected rate of return?
- How would the actual mortality experience of investors affect their rate of return?
- Can the fund be fair to investors with different ages, genders & investment levels?
- What are the technical problems?
About the Authors

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