GRS and the Crossroads of Actuarial Science and Employee Benefits

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Careers in Math

- Data Analyst
- Education
- Statistician
- Non Math Related Field
- ACTUARY
What is an Actuary

Mathematician who:
- Evaluating the likelihood of future events using analytical and financial skills
- Perform calculations and projections which are the backbone of the Pension and Insurance Industries
- Assigns a price to future risk
- Designing creative ways to reduce the likelihood of undesirable events
The Perks of an Actuary

- High salary
- Professional prestige
- Quality work environment
- Challenging projects
- Low stress (Sometimes)
Persona of an Actuary

- Characteristics
  - Passion of problem solving
  - Enjoy being intellectually challenged
  - Good communicator

- Necessary Skills
  - Reasoning ability
  - Analytical skills
  - Verbal and written communication
  - Time management
Employers of Actuaries

- Insurance Companies
  - Medical
  - Life
  - Property and Casualty
- Benefit Consulting Companies
- Public Accounting Firms
- Government Agencies
  - Internal Revenue Service
  - Pension Benefit Guarantee Corporation (PBGC)
Gabriel, Roeder, Smith & Company
GRS and Public Retirement Systems

- National firm whose primary focus is the public sector
  - Started in 1938 – and still work with our first client
  - Serve 600+ public employee systems (Pension and OPEB)
  - Over 120 associates
  - Frequent speakers and active participants in public sector meetings and task forces

- GRS is headquartered in Southfield, Michigan and has offices in Colorado, Florida, Illinois, Minnesota, and Texas.

GRS is the Premier Firm in the Public Sector Consulting Business
A National Perspective

States where GRS currently provides retained consulting services to statewide systems

States where GRS has provided actuarial and benefits consulting services
The GRS Approach

- We work to preserve defined benefit (DB) plans
  - Defined contribution (DC) plans have an important role, but . . . . .
  - DB plans pay the right amount, to the right persons, beginning at the right time, for the right length of time, and do so at the right price
  - DB plans are worth preserving, with long-term sustainability

- We balance competing objectives
  - Financials – actuarially sound; costs that are affordable and stable; risk awareness
  - Benefits – adequate and competitive for retaining, recruiting, and for a respectable retirement income

- We are proactive
  - Ideas and trends
  - Examples later

- We listen; and we communicate (in jargon-free plain English)
Recent Headlines

- Detroit City Workers Worried About Pensions Amid Budget Cuts
- Moody’s: Pension liability’s greater role in ratings could lead to downgrades
- Moody’s Says New York’s Pension Contribution Deferment Plan Has Long-Term Risks
- Grand Jury Blasts San Mateo County for Failing to Rein in Soaring Pension Costs
- Total assets of major public pensions systems reach highest level since 2007 peak
- California County Administrator’s Pension Will Be $423,644 a Year for Life
- Wyoming CIO on leave pending SEC insider-trading charges
- Puerto Rico Governor Approves Pension Reform
Industry Challenges

- **Corporate Retirement Plans**
  - Plan liabilities are based on future plan obligations discounted back to present time based on corporate bond rates
    - Extremely low interest rates = Extremely high liabilities!
  - Publicly traded companies struggle with volatile pension liabilities on their balance sheet
  - Employees value 401k over more valuation pension plan

- **Public Employee Retirement Plans**
  - Plan liabilities discounted back based on long-term portfolio returns (generally 7.5% to 8.0%)
  - More transparency to citizens and media
    - Given the large number of plan members and dollars, can always find issue
  - Level of benefits perceived to be too high
    - Almost all contribute themselves and many not in Social Security
Pension Plan Valuation Process

- Membership Data
- Financial Information
- Benefit Provisions

Financial Condition
- Annual Cost
- Risk Exposure
Various Projection Techniques

Example use of Stochastic Projections

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<th>2013</th>
<th>2017</th>
<th>2021</th>
<th>2025</th>
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<td>20%</td>
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- **Assumptions**
  - Projected liabilities based on a plan with similar characteristics as Client XYZ
  - Assumes employer contributions equal to 16.50% of covered payroll in all years
  - Investment returns based 2010 capital market assumptions and Client XYZ 2009 target asset allocation
Closing Thoughts

- Your mathematics background will provide you an edge in the workforce
- Choose a career that involves something you are passionate about
- Continue learning and developing your skills