# Comments on Jaffee, Kunreuther and Michel-Kerjan "The Development of Long-Term Insurance"

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May 8, 2008

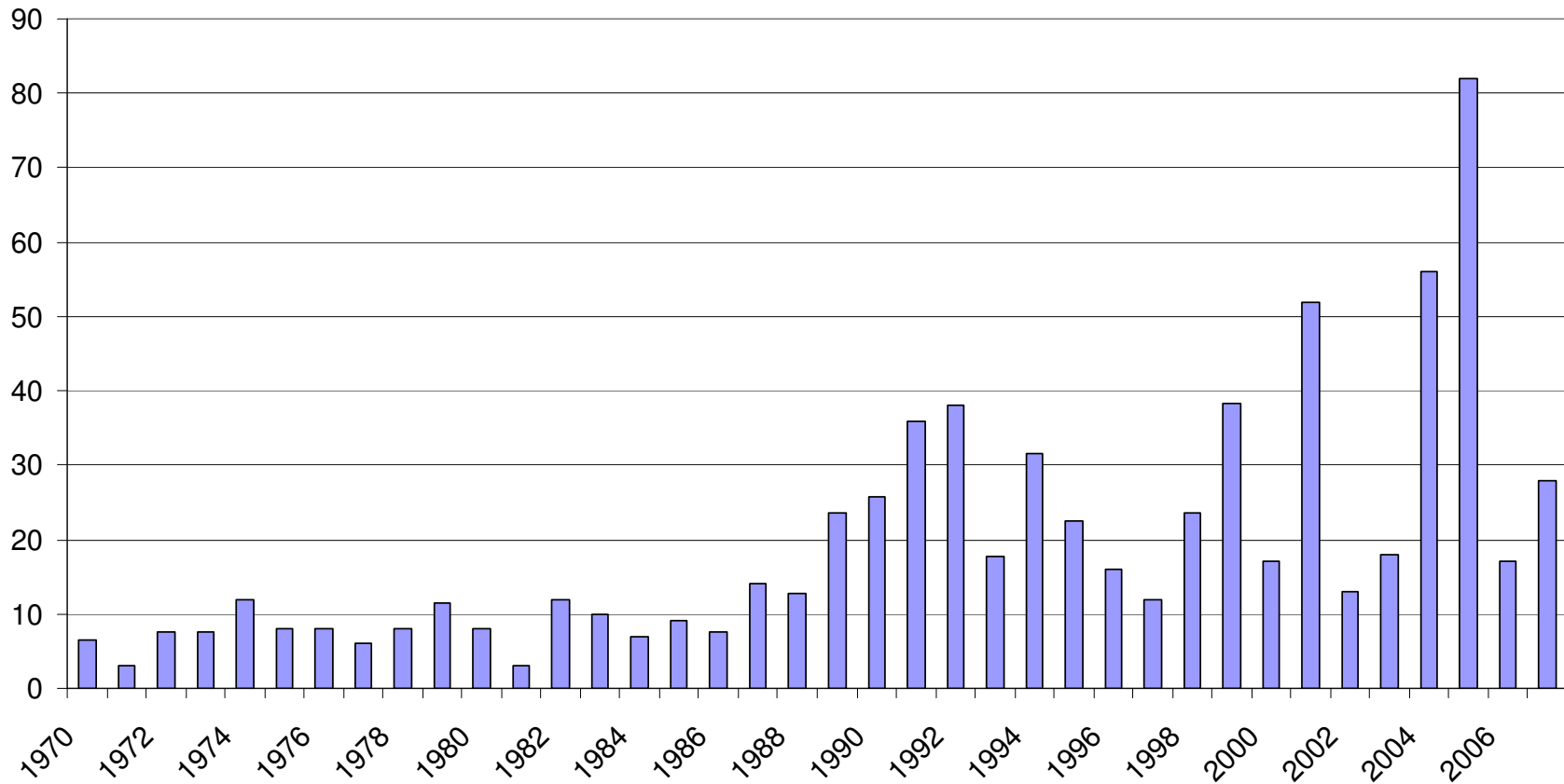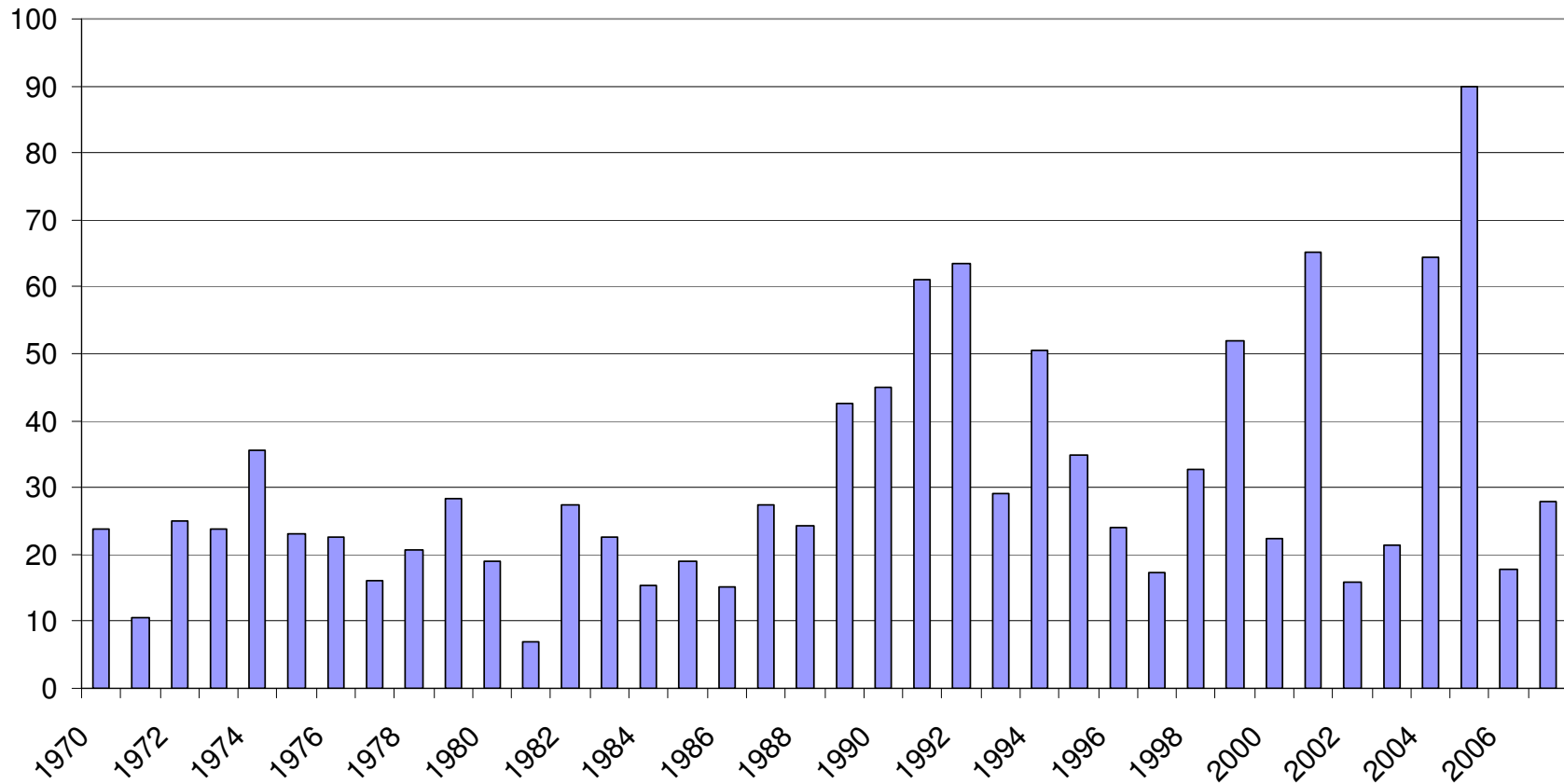# Figure 2, Catastrophe Insured Losses (Wharton, Swiss Re, IFI)

# Figure 2 Scaled by IMF World GDP

# Regression 1970-2007 of Scaled Losses on Time

- R squared = 0.43
- T statistic on slope = 5.2
- P value = $8.7*10^{-6}$
- Nobs = 38

# Regression 1970-2007 of Log Scaled Losses on Time

- R squared = 0.19
- T statistic on slope = 2.91
- P value = 0.006
- Nobs = 38

# Table 1 Ranked Top 20 Hurricane Scenarios (Scaled for Inflation, Population, and Wealth)1900-2005
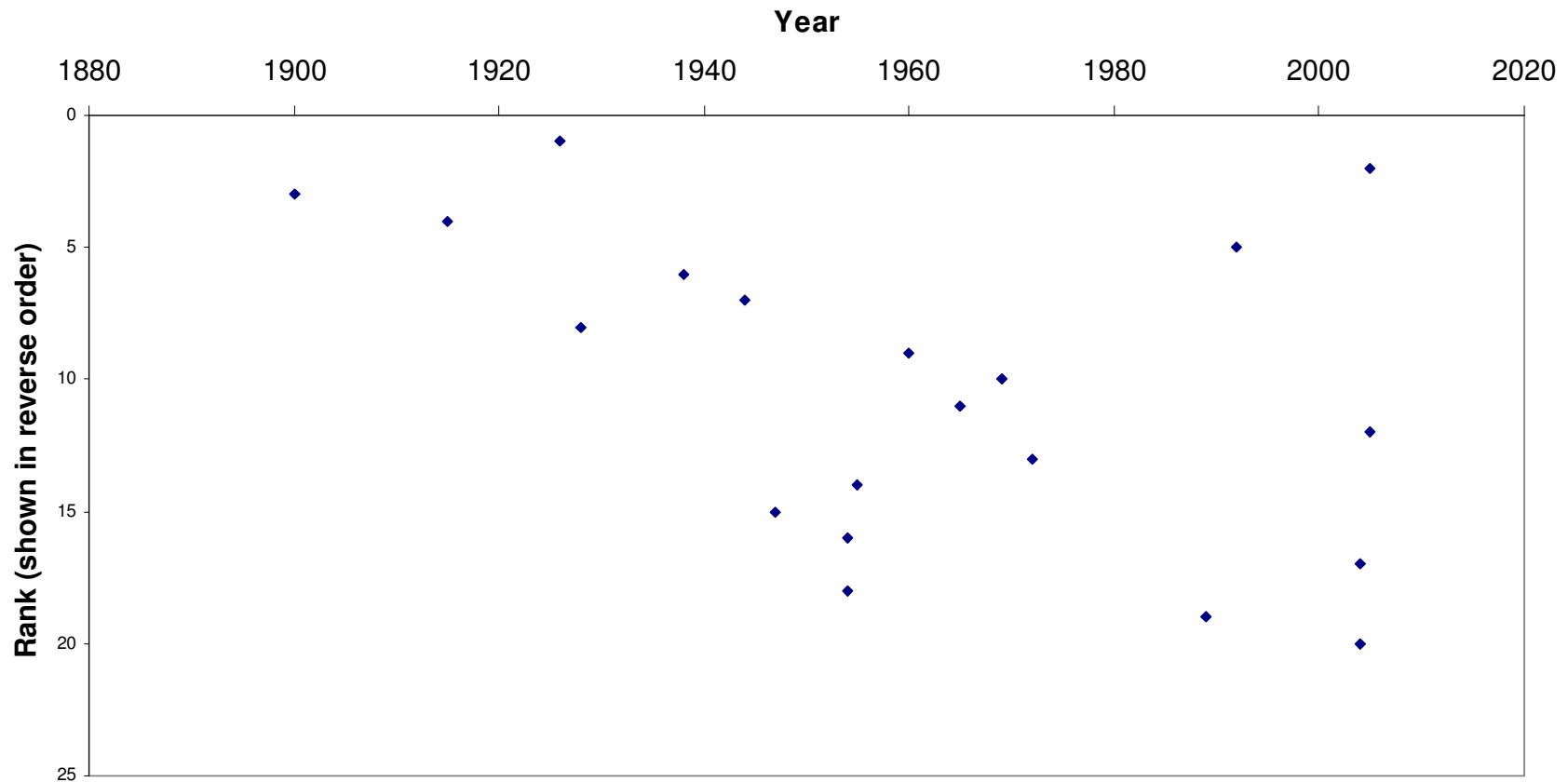
# Table 1 Rank Regressed on Year

- R squared = 0.21
- T statistic on slope = 2.2
- P value = 0.04
- Nobs = 20
- Significant, but with the "wrong" sign, indicating that hurricanes are causing *less* damage

# Reasons for Increase in Losses

- Increased development in hazard-prone areas
  - But, will this continue? Shoreline is already populated
- Climate change and hurricanes
- Uncertainty about future is essential to insurance

- Myanmar Cyclone

# Reasons to Suspect Fewer Losses

- Technological progress
- More apartment dwellers, fewer single-family homes?
- Indian Ocean Early Warning System
- Filling out of interior of countries
- Long-term insurance could cause fewer losses, hence insurance

# Regulatory Barriers to LTI

- Rates are kept down, apparently no provision for higher rates for longer-term contracts

- 50 state insurers. (Paulson "Blueprint" calls for National insurance charter)

# Comparison: Mortgage Innovation

- Long-term mortgage brought in by HOLC in 1933, FHA 1934
- Ginny Mae futures
- Long-term mortgage almost absent outside US, Denmark
- Canada, complacency despite problems of early 1980s

# Risk Exposure Indexes

- What is described here is more a forecast than an index

- Global warming is only one of the risks, and even that is very hard to measure

- Do we need markets instead of indexes?

- Mexican CAT bond is only 3 years

# Pensions and the Risk of Outliving One's Wealth

- Life annuities are an excellent old idea, rarely embraced by the public

- Wishful thinking bias, mental framing

- Public pension funds

- Private annuities

- Problem: annuity providers have to manage aggregate longevity risk

U.S. Life Expectancy, 1900-2001
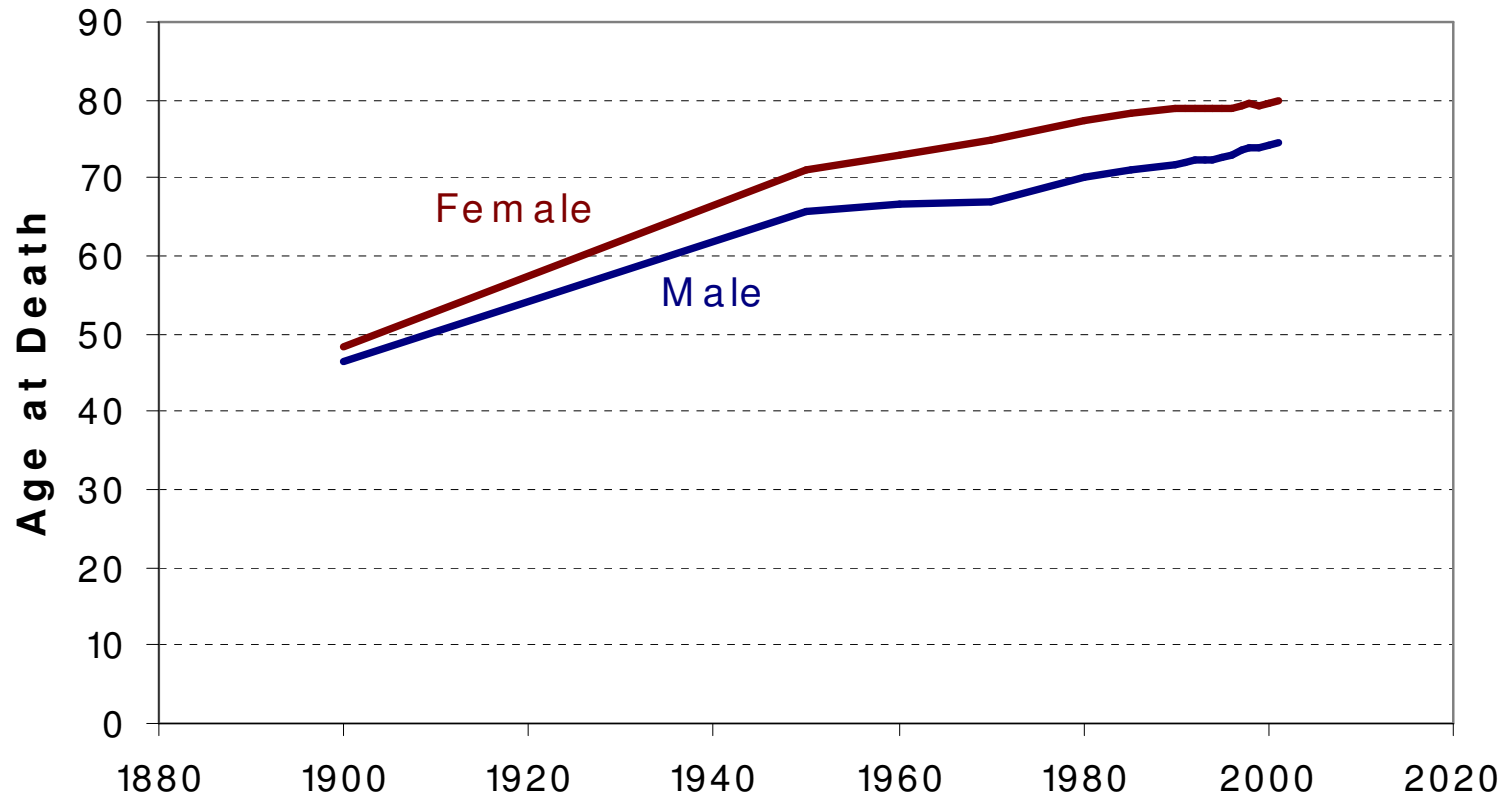
# Problems Inhibiting Longevity Bonds

- EIB Bonds were nominal bonds, should be real

- UK Issuers of life annuities were not seriously enough interested in this small issue to take fast action

- Those who would take other side are not easily found, need to look at prices in an established market

# Two-Period Model for LTI

- Effects of premia based on risks
- "Term structure of interest rates" theory parallel
- Fundamental problem of strategic cancellation of policy

# Conclusion

- LTI would be a major advance for risk management
- Paradox remains: long-term risk is most important, but often overlooked
- Stock market is a long term market, but futures markets are not really
- Economic development will gradually extend terms of markets, and eventually bring LTI into practice