How Your Economist's Choice of Discounting Method Will Affect the Size of Your Damage Award

Presented at

The Maryland Association for Justice

By

Joseph I. Rosenberg, CFA

September 20, 2013

What is Current Practice?

- Wide range of methods used by Forensic Economists (FEs) to convert future loss of earning capacity to present value for a damage award
- Much academic study on topic but limited consensus
- Variations of two main types of methods are used (from 2013 survey of FEs):
  - Current Interest Rates (i.e., Market Yields): 38.6%
  - Historical Average: 44.6%
  - Forecast of Interest Rates: 6.6%
  - Other: 10.2%

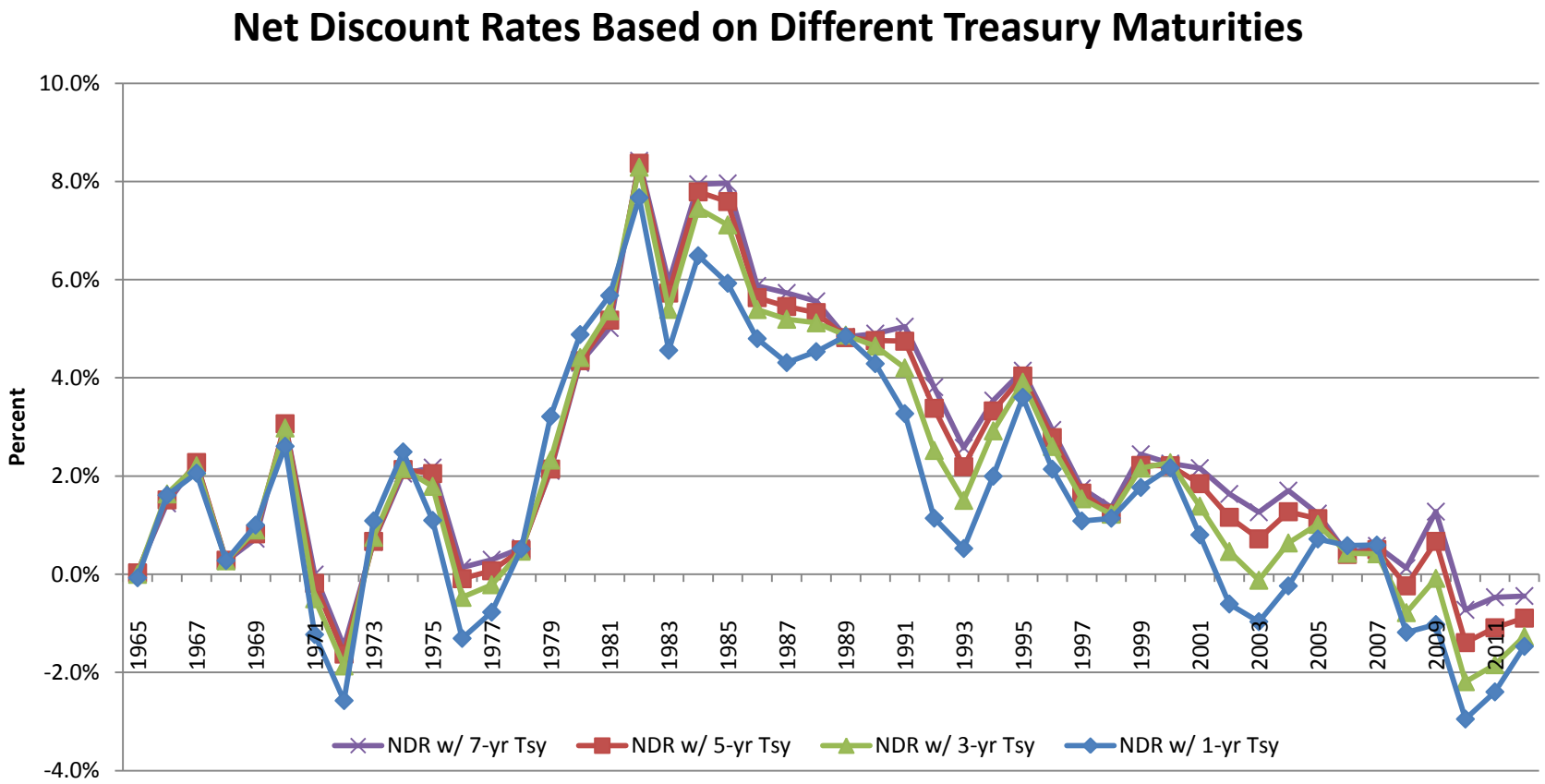
Pros and Cons of Two Main Methods

	Current Market Yields (Use a single bond or bond "ladder" w/ current market yields at all maturities)	**Historical Average Yields** (Use a single bond or several bonds with different maturities , averaging yields over an assumed historical period in # of years)
Pros	•Objective •Observable every day •Investible in real bonds & yields •Can approximately cash flow match each year's lost future earnings by a ladder of bonds w/ same maturities. (Exact match w/ zero coupon bonds)	•More stable over time (if one uses the same bond maturity and historical "lookback" period for discounting each time the method is used) •Little reason to update results near time of trial
Cons	•Damage award results are more volatile & dependent upon when observed •Material changes in valuation before trial may warrant revision to damage award. However, easy to update results if needed	•Damage award results are inherently subjective, with many choices of bond maturities & lookback periods for discounting •Plaintiff cannot invest in a "historical average yield"; there is no way to link the discount rate with an available investment rate

What Does Academic Research Show?

- Damage award calculations must make assumptions about future earnings growth rates as well as interest rates for discounting
- Most studies show that neither of the two main discount rate methods is very accurate in predicting the PV of lost future earnings (e.g., JFE: Brush, 2003, 2004, 2011; Cushing & Rosenbaum, 2006; Rosenberg & Gaskins, 2012)
- Some FEs opt for using a "Net Discount Rate" (roughly, interest rate less earnings growth rate), although this is negative in today's rate environment

Should Earnings Growth Rate be Linked via use of a "Net Discount Rate"?

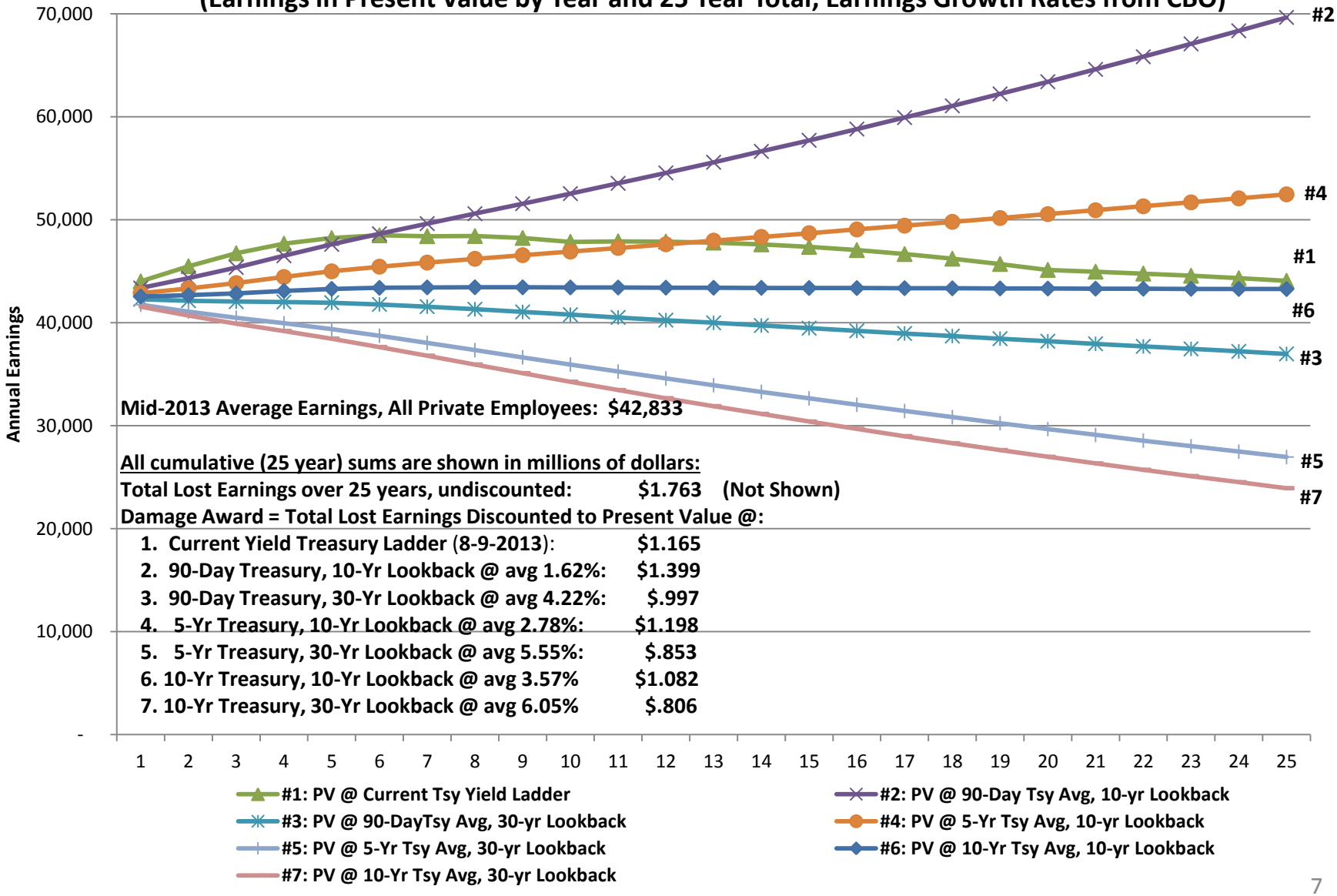


How Much Does Choice of Discounting Method Matter?

- Hypothetical example of damage award (i.e., lost future earnings at 2013 mid-year average (~$42.8K), then growing for 25 years, first from CBO forecast 2013-2023 & at constant rate after)
- Compare seven different discount rate scenarios
  1. Current yield Treasury bond ladder (as of 8-9-2013)
  2. 90-day Treasury Yield @ average over past 10 years
  3. 90-day Treasury Yield @ average over past 30 years
  4. 5-year Treasury Yield @ average over past 10 years
  5. 5-year Treasury Yield @ average over past 30 years
  6. 10-year Treasury Yield @ average over past 10 years
  7. 10-year Treasury Yield @ average over past 30 years

Comparative Damage Awards Using 7 Different Discounting Scenarios

(Earnings in Present Value by Year and 25 Year Total; Earnings Growth Rates from CBO)



Summary of Results

- Award results range +/-70% higher or lower, depending upon:
  - Which method (current or historical) is used
  - If historical, which investment instrument(s) and maturities are used
  - If historical, which lookback period is used
- Highest damage award is 90-day Treasury bill yield averaged over only last 10 years $1.399 mil. (scenario 2)
- Closely vying for second place are 5-year Treasury averaged over only last 10 years at $1.198 mil., and a Current Yield Treasury Ladder at $1.165 mil. (scenarios 4 and 1)
- Three lowest damage awards result from using average yields over a 30-year lookback period. All three Treasury bond maturities, i.e., 90-day, 5-yr, and 10-yr, have lower present values (all < $1 mil., scenarios 3, 5, and 7) than their counterparts using shorter lookback periods or the Current Yield Treasury Ladder
- Today's still low yields produce relatively high present values unless one uses historical average yields based on an arbitrarily short (10-yr) lookback period
- Results illustrate a general "arbitrariness" of Historical Average method:
  - On what basis is an average 10-year lookback period (vs. a 20 or 30 year period) appropriate? Average lookback period in FE survey was 27.5 yrs, with longest at 66 yrs and shortest at 4 yrs!
  - There is simply no theoretical or economic basis for linking lookback period to expected loss period! (34% of FE's using the historical average method make this linkage while 66% do not)
  - Also arbitrary is which bond maturity is used (e.g., 90 day v. 5 Year v. 10 Year, or any other)

Conclusions

- Large differences in damage awards can result from choices made in discounting method, maturity of bond(s), and lookback period for historical averaging, as well as in applying earnings growth rates
- There is no theoretical basis for applying any particular historical average yield for discounting (i.e., bond maturity & lookback period are arbitrary)
- Only current yields, preferably via a bond ladder, offers objectivity, daily observability, and investability in real bonds that could be available to a plaintiff to invest a damage award
- Attorneys should understand and be comfortable with:
  - The choices his/her FE makes in valuing an award;
  - How well the FE can explain the rationale behind his/her choices, especially on discount rate method; and
  - Whether the FE is consistent in applying the same discounting method in different cases in order to maintain credibility as an impartial expert