

STA 4183 Review for 8-30-16

Simple Interest: $a(t) = 1 + it$
 $a(t+s) - a(t)$ does not depend on t

Compound Interest: $a(t) = (1+i)^t$
 $\frac{a(t+s) - a(t)}{a(t)}$ does not depend on t .

Present Value: of k dollars t periods in future
 $k v^t$ with $v = \frac{1}{1+i}$

Effective Rate of Discount:

$$d_n = \frac{a(n) - a(n-1)}{a(n)}$$

When i and d correspond,

$$d = \frac{i}{1+i}$$

$$i = \frac{d}{1-d}$$

Nominal Rates

effective annual

$$(1+i) = \left(1 + \frac{i^{(m)}}{m}\right)^m$$

nominal annual

effective annual

$$(1-d) = \left(1 - \frac{d^{(m)}}{m}\right)^m$$

nominal annual

Letting $m \rightarrow \infty$

$$(1+i) = e^{i^{(\infty)}}$$

$$i^{(\infty)} = \ln(1+i)$$

effective annual

nominal annual under continuous compounding