Bonds.

Bond = fancy = IOU.

Can buy government bonds.

Bond given 2 returns

(a) lump sum after t years.

(b) Instalements.

What it costs to buy us called the fair market value.

A 5 year government bond has a return of €3,000 in 5 years and €1,000 per annum. AER is 3%. Find fair market value.

$P = ?$ $\quad F = 3000 \quad t = 5 \quad r = 0.03$

$$P = \frac{F}{(1+r)^t}$$

$$P = \frac{3000}{(1.03)^5}$$

$$= €2587.83$$

$$P = \frac{1000}{1.03} + \frac{1000}{(1.03)^2} + \cdots$$

$$= 1000 \left[\frac{1}{1.03} + \frac{1}{1.03^2} + \cdots \right]$$

$$a = \frac{1}{1.03} \qquad r = \frac{1}{1.03} \qquad n = 5$$

$$S_n = \frac{a(1-r^n)}{1-r} = \frac{\frac{1}{1.03}\left[1 - \left(\frac{1}{1.03}\right)^5\right]}{1 - \frac{1}{1.03}}$$

$$= 1000(4.58) = €4,579.71$$

Value €4579.71 + €2587.83

€ 7167.54

A 5 year government bond has a return of 18%. Find APR.

$$F = P(1+c)^t$$

Let $P = 1$, $F = 1.18$

$$(1+c)^5 = 1.18$$

$$1 + c = \sqrt[5]{1.18}$$

$$= 1.03365$$

$$= 3.365\%$$

$$= 3.4\%$$