

Week 3: Time Value of Money II

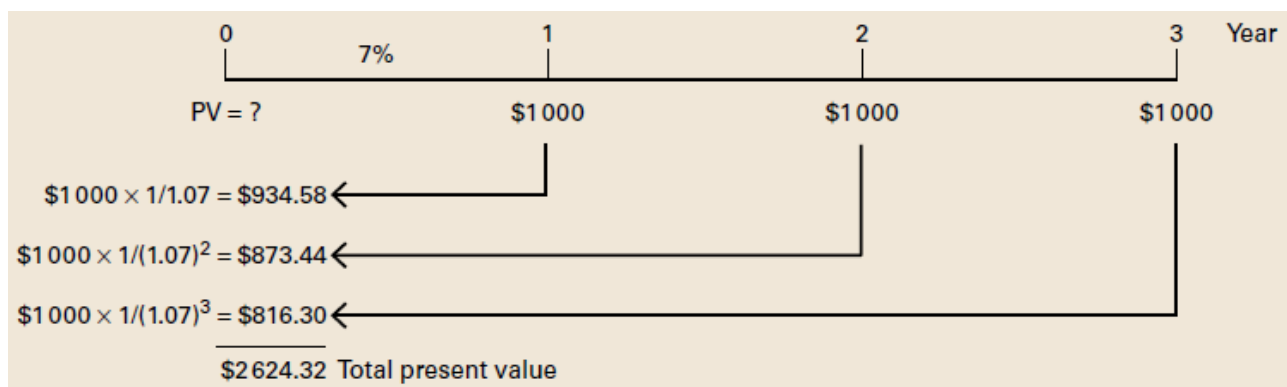
Future Value of Multiple Cash Flows

1. Draw a timeline to ascertain each cash flow is placed at the correct time
2. Calculate future/present value of each cash flow for its time period
3. Add up the future/present values (check with common sense, greater/less than)

E.g. Future Value of three cash flows

- This is more realistic for the majority of business situations
- This can be used to value similar future multiple cash flows

E.g. Present value of three cash flows (more common for decision making)



For MORE than a manageable number of payments there is a formula, use the **annuity formula**

Annuities

- Annuity D: any financial contract calling for equally spaced level cash flows over finite numbers of periods

$$PVA_n = CF \times \left[\frac{1 - \frac{1}{(1+i)^n}}{i} \right] \quad FVA_n = CF \times \left[\frac{(1+i)^n - 1}{i} \right]$$

Perpetuities

- Perpetuity D: contract calling for cash flow payments to continue infinitely
- Constant stream of growth (otherwise $g = 0$)

$$PVA_{\infty} = \frac{CF_1}{(i - g)}$$