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# Time Value of Money and Capital Budgeting Terms

**Annual Percentage Rate (APR)** – If the interest rate is stated in terms of periods of the year (e.g. rate per month), APR is computed as the periodic rate multiplied by the number of periods per year. It does not take in account the compounding effect within the year. Also called the nominal rate, stated or quoted interest rate.

**Annual Compounding** – The process of determining the final value of a cash amount when the interest is added once a year.

**Annuity** – A series of equal cash flows occurring at regular intervals over a period of time.

**Annuity Due** – A series of equal cash flows occurring at the beginning of each time period rather than at the end of each time period.

**Capital Budgeting** – A financial analysis tool for comparing an initial cash outlay (e.g. business investments) with its future cash inflows.

**Capitalizing** – Computing the present value of a stream of future cash flows.

**Cash Flow** – It is a stream of cash into and out of a business. The cash flow of a business is similar but different than its net income. Cash flow can be approximated as net income plus depreciation. Depreciation is added to net income because it is a cost (expense) in computing net income but not a cash outlay in computing cash flow. Also, debt payments are included in cash flow but not in computing net income, although interest payments on debt are included as a deduction in net income.

**Cash Outlay** – It is an outlay of cash (e.g. investment in a business project) that will generate future cash flows.

**Compounding** – The process by which the interest earned on a cash amount is added to the cash amount to compute the interest earned in the next time period.

**Discounting** – The opposite of compounding.

**Discount Rate** – The interest rate used to compute the present value of future cash flows.

**Effective Interest Rate** – The interest rate that recognizes the nominal or annual interest rate plus the extra interest received from compounding within the year.

**Future Value (FV)** – It is a cash amount occurring at some future time. It can be computed by compounding cash flows to a future value.

**Gradient Series** – A series of payments uniformly spaced but differing from one period to the next by a constant amount.

**Internal Rate of Return (IRR)** – The discount rate that makes the net present value of future cash flows equal to zero.

**Internal Rate of Return Rule** – A capital investment is accepted if the internal rate of return from the investment is greater than the threshold rate of return benchmark. If it is not, the capital investment is rejected.

**Modified Internal Rate of Return (MIRR)** – The internal rate of return analysis is modified by compounding the cash flows at the reinvestment rate of return rather than the internal rate of return.

**Modified Internal Rate of Return Rule** – A capital investment is accepted if the modified internal rate of return from the investment is greater than the threshold rate of return benchmark. If it is not, the capital investment is rejected.

**Net Present Value (NPV)** – An initial cash outlay is compared to the present value of future cash flows that were generated by the cash outlay using a predetermined discount rate. It is computed by subtracting the initial cash outlay from the present value of the future cash flows.

**Net Present Value Rule** – An investment (project) is accepted if its net present value is positive and rejected if its net present value is negative.

**Nominal Interest Rate** – This is the stated or quoted interest rate not taking into account compounding or inflation. The interest rate often quoted by financial lenders and others.

**Opportunity Cost of Capital** – The return that could be received by investing money elsewhere (alternative investment). The opportunity cost of capital is often used as the discount rate or the threshold rate of return. If the investment will not generate a return sufficient to equal or exceed the opportunity cost of capital, then the money should be invested in the alternative investment.

**Perpetuity** – Series of equal and periodic future cash flows that continue on forever.

**Present Value (PV)** – Current cash amount. It is computed by discounting future cash flows back in time to its equivalent current value now.

**Profitability Index** – The present value of future cash inflows divided by the present value of future cash outflows.

**Profitability Index Rule** – A project is accepted if the index is greater than one. If it is less than one, the project is rejected.

**Quoted Interest Rate** – It is the annual interest rate not taking into account compounding within the year. It is also called the stated or nominal interest rate.

**Reinvestment Rate of Return** – The rate of return received from an alternative investment or the rate of return savings from reducing debt.

**Semiannual Compounding** – The process of determining the final value of a cash amount when the interest is added twice a year.

**Stated Interest Rate** – It is the annual interest rate, not taking into account compounding within the year.

**Statement of Cash Flows** – A statement showing the cash flow operating, investing and financing activities.

**Threshold (Required) Rate of Return (TRR)** – It is the required rate of return in order for an investment alternative to be accepted.

**Time Line** – It is a graphic representation showing the timing of current and future cash flows.

**Time Value of Money** – Time impacts the value of money by an individual. For example, a dollar received today is of more value than a dollar received at some future point in time. This difference in value is equalized by the use of an interest rate.

**Uniform Annual Series** – A series of payments, uniform in amount and uniformly spaced such as a payment every year.

**Valuation** – Process of capitalizing future net cash flows that are provided by an asset.

**Yield to Maturity** – The rate of return that is earned if a bond is purchased at its market price and held until maturity. It is the internal rate of return created by discounting the future value (maturity value) back to its present value (market price). As market price changes and the length of time until maturity changes, the internal rate of return will change.

**Additional Resources** on capital budgeting may be found on the [Ag Decision Maker website](http://www.extension.iastate.edu/agdm/vdoperations.html), [www.extension.iastate.edu/agdm/vdoperations.html](http://www.extension.iastate.edu/agdm/vdoperations.html).

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