



# 11 - Risk Analysis - ch. 13

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## ▼ Supplemental

### ▼ IRR

#### Internal Rate of Return (IRR) Rule: Definition and Example

The internal rate of return (IRR) is a metric used in capital budgeting to estimate the return of potential investments.

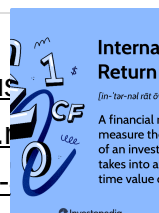
🔗 <https://www.investopedia.com/terms/i/irr.asp>

#### KEY TAKEAWAYS

- The internal rate of return (IRR) is the annual rate of growth that an investment is expected to generate.
- IRR is calculated using the same concept as net present value (NPV), except it sets the NPV equal to zero.
- The ultimate goal of IRR is to identify the rate of discount, which makes the present value of the sum of annual nominal cash inflows equal to the initial net cash outlay for the investment.
- IRR is ideal for analyzing capital budgeting projects to understand and compare potential rates of annual return over time.
- In addition to being used by companies to determine which capital projects to use, IRR can help investors determine the investment return of various assets.

## Resources

[https://s3-us-west-2-3388-20e7-54d/9.2\\_-\\_RISK\\_ANALYSIS\\_-\\_Chapter\\_13.pdf](https://s3-us-west-2.amazonaws.com/secure-asset-us-east-2-us-west-2-3388-20e7-54d/9.2_-_RISK_ANALYSIS_-_Chapter_13.pdf)



# ▼ Lecture

## ▼ risk

- ▼ higher the variability of expected returns → greater risk of an investment

## ▼ risk averse

- ▼ investors generally require higher expected return for more risk

## ▼ risk vs return

- ▼ key investment consideration
- ▼ IRR or projected NPV should be viewed w.r.t. risks associated

## ▼ investment risks

- ▼ economic risk (all geo scales)
- ▼ business risk, financial risk, internal rate risk, liquidity risk, inflation risk, management risk
- ▼ environmental risk, legislative risk, pandemic risk, etc.

## ▼ due diligence

- ▼ process of identifying various risk and potential returns by evaluating all relevant information to determine if returns are worth the risk
- ▼ market study, rent roll, major leases, physical inspection, design and engineering, title and

survey, zoning and code  
compliance, taxes, insurance,  
litigation

▼ sensitivity analysis

▼ modifying key assumptions of  
future investment performance  
(rent levels, CPI, occupancy, exit  
cap rate, sale timing) to check  
impact on IRR and equity  
multiple

▼ usually done in combination  
(two at a time)

▼ shows how sensitive expected  
return is to changes in  
assumptions

▼ partitioning IRR

▼ determining portion of  
investment return that comes  
from annual cash flow and  
portion from sale or residual  
value

## ▼ Discussion



### SUMMARY