# Cost of Capital

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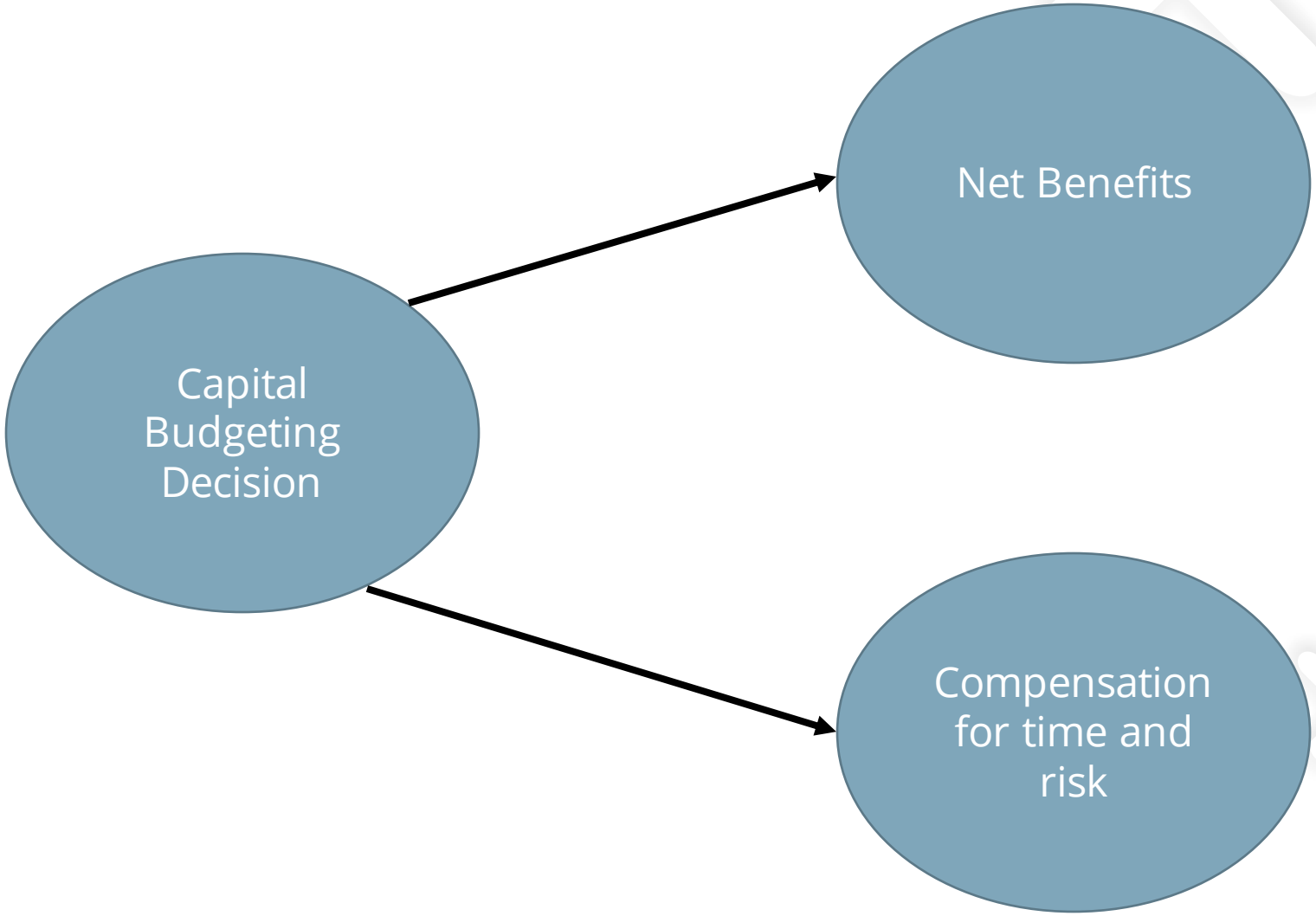
Financial Management

University Elective

# Topics

- Cost of capital – meaning
- Cost of debt
- Cost of preference
- Cost of equity
- Weighted average cost of capital
- Numericals

# Capital Budgeting Decisions



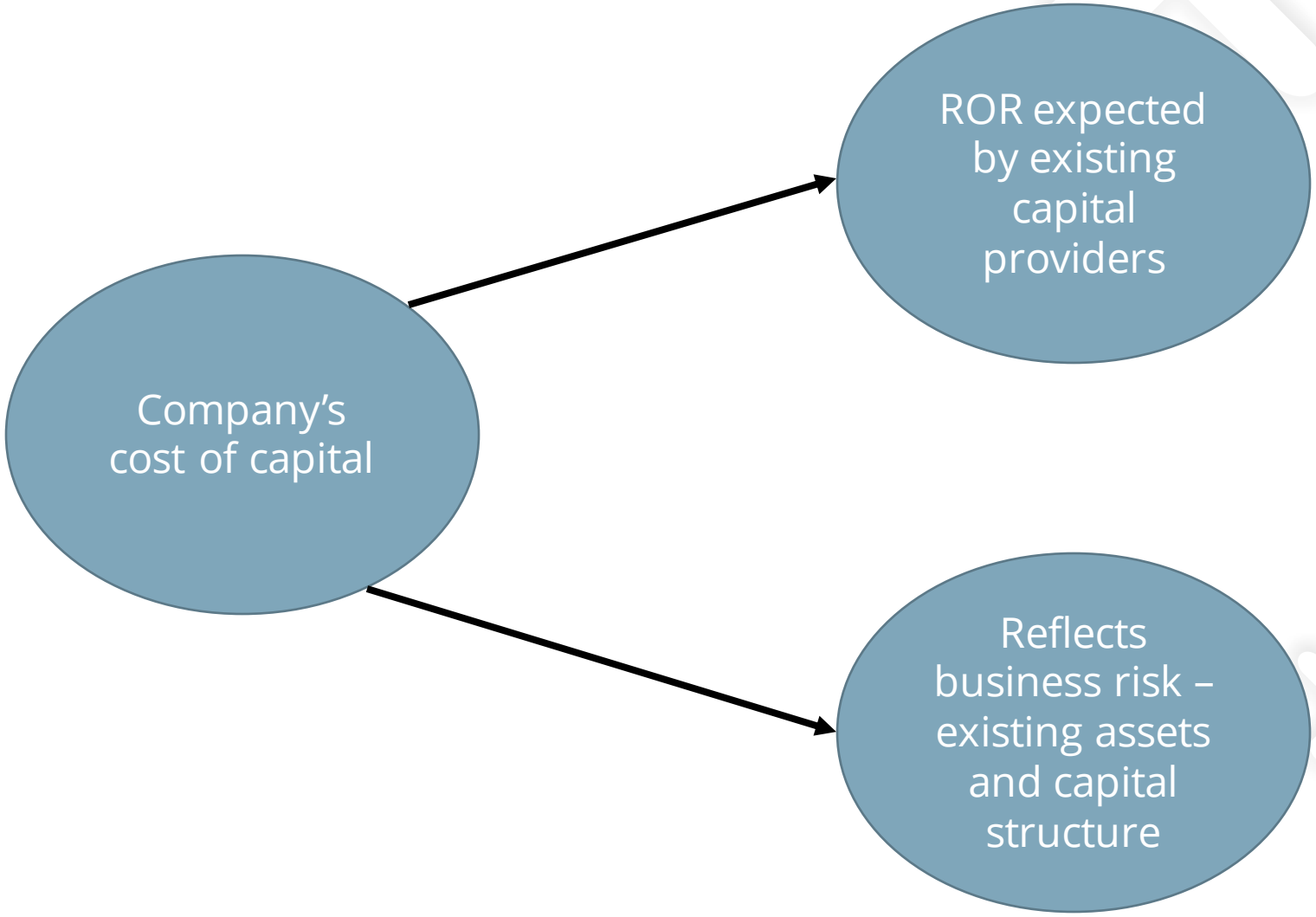
# Cost of Capital

- Compensation for time and risk – discount rate
- Choosing discount rate – from the viewpoint of cash flows
- Viewpoint – investor claims or sources of funds (capital/financing)
- Financing/capital – equity, preference and debt
- Capital has a cost – cost of capital
- Average cost of various sources of capital (weighted average cost of capital)
- Average rate of return required by the investors who provide capital
- COC = ROR

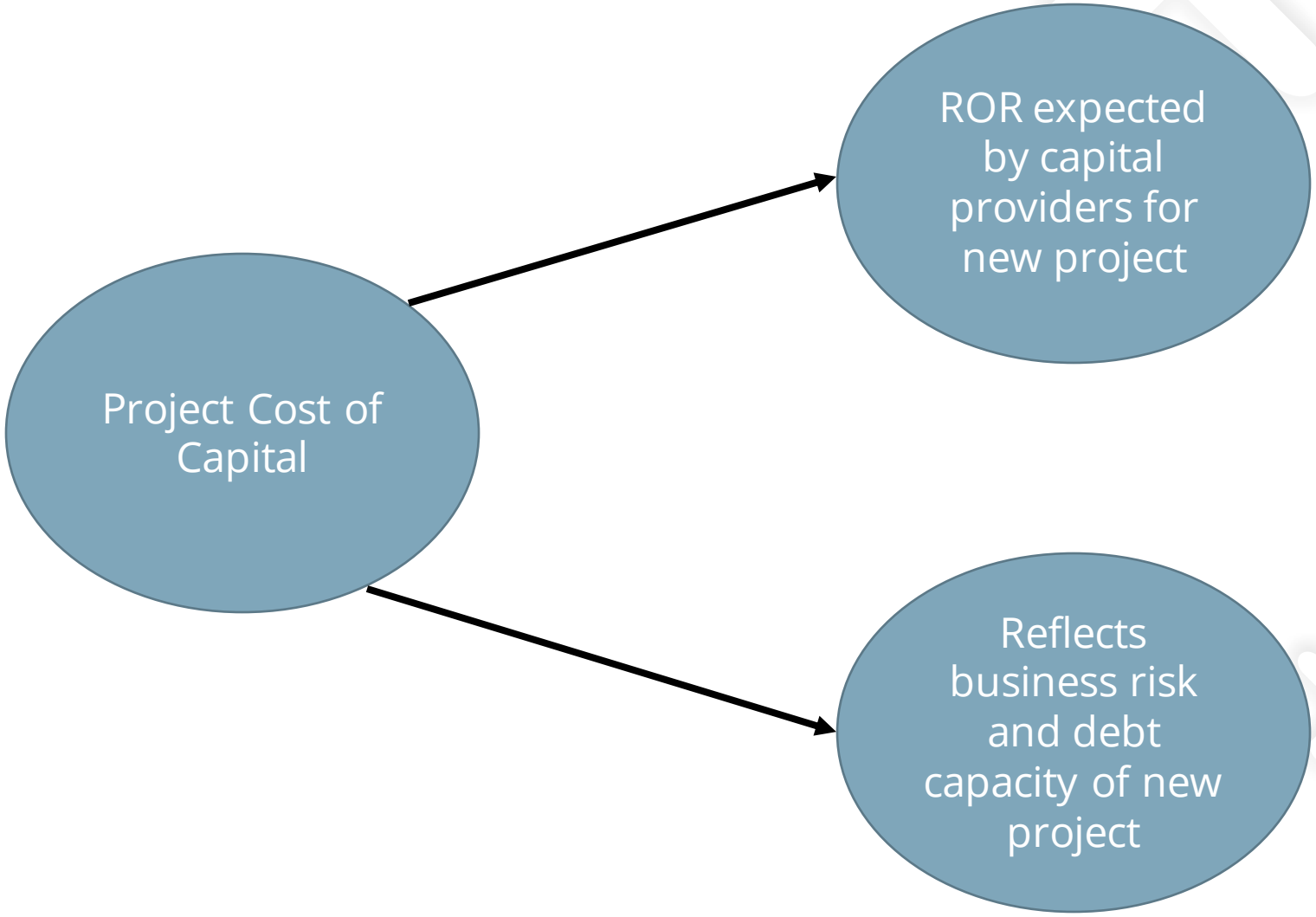
# Importance

- COC is central to FM
- Capital budgeting
- Capital structure
- Lease proposal
- ROR on investment exceeds COC – equity shareholders benefit
- Hurdle rate in capital budgeting

# Company's Cost of Capital



# Project Cost of Capital



# Company COC as Project COC

- Business risk of new investment is the same as business risk of existing investments
- Capital structure will not change – continue with same financing policy

# Cost of Debt

- Cost of debenture

$$\left( \frac{I + (F - P_o)/n}{0.6\ P_o + 0.4\ F} \right)$$

- I – interest
- F – face value
- Po – current market price
- N – remaining period to maturity
- Pre-tax and post-tax rates

# Cost of Debt

- Bank loan: Interest on similar loan if raised now
- Commercial paper – implicit interest rate
- FV/P0 – 1
- Average of all components of debt

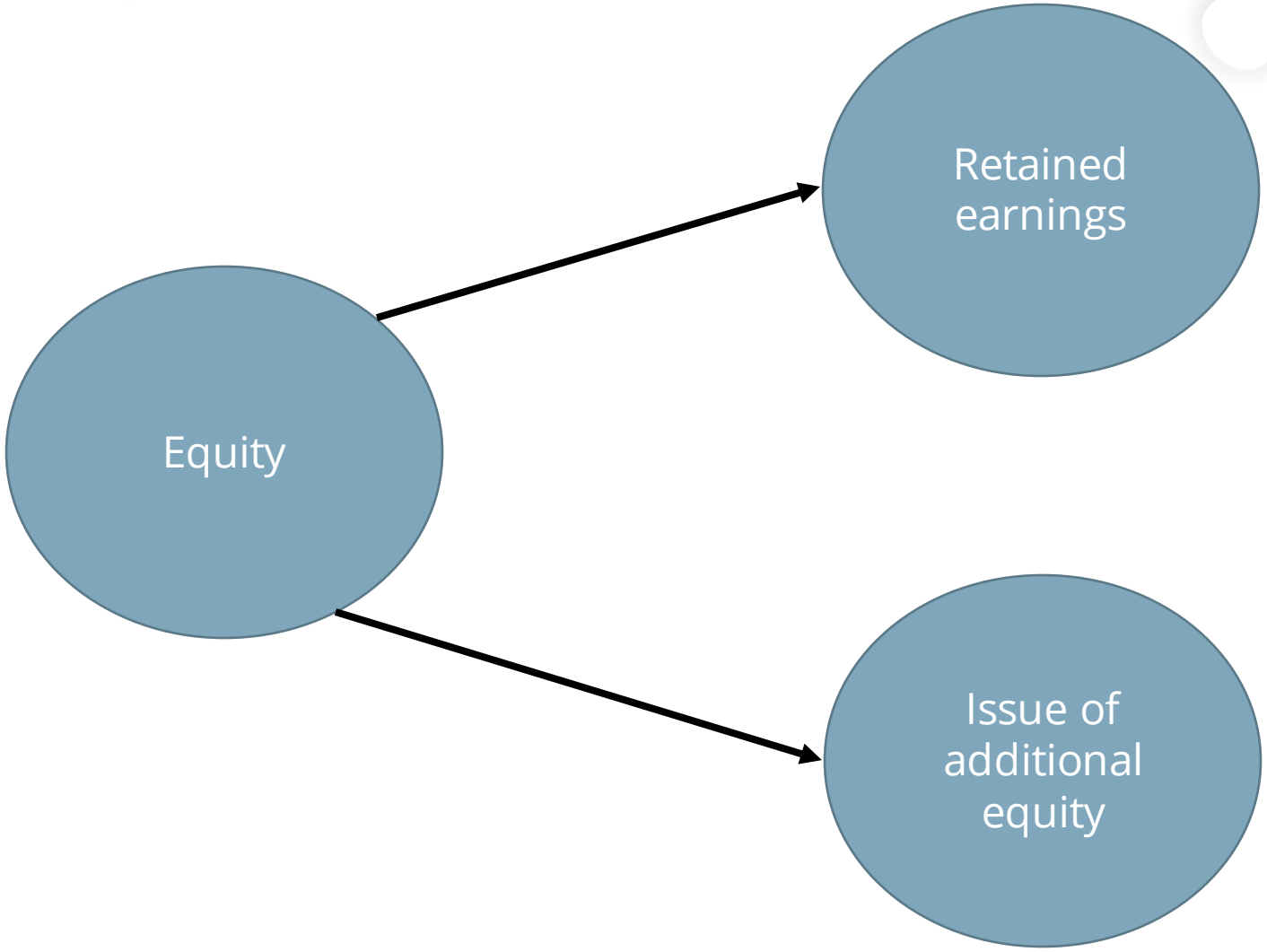
# Cost of Preference (Shares)

- Cost of preference

$$\left( \frac{D + (F - P_o)/n}{0.6\ P_o + 0.4\ F} \right)$$

- D – dividend
- F – face value
- Po – current market price
- N – remaining period to maturity

# Cost of Equity




Cost of equity or return required by equity shareholders is same
Only difference is the floatation cost

# Cost of Equity

+ Difficult to estimate in comparison of debt and preference
+ Reasonable estimates
+ Different approaches

1. CAPM approach
2. Bond yield plus risk premium approach
3. Dividend growth model approach
4. Earnings price ratio approach

# Capital Asset Pricing Model

$$E(R_i) = R_f + [E(R_M) - R_f]\beta_i$$

- Risk free return
- Risk premium
- Higher the beta, higher the return
- Risk free return – estimated as yield on a long term government bond that has maturity of 10 years or more
- Rm – Rf : difference between average return on market minus average Rf over 10 to 15 years (longer, the better)
- Beta: Co-movements Ri and Rm; past 60 months or more

# Dividend Growth Model

- Price of an equity stock depends on dividends expected from it
- $P_0 = \sum \left( \frac{D_t}{(1+r)^t} \right)$
- Growth rate
- $r_e = \left( \frac{D_0 (1 + g)}{P_0} \right) + g$

# WACC

- **WACC = summation of (Cost of a component * proportion)**
- **Determining proportions**
- Target capital structure weights stated in the market value terms
- Target capital structure – current capital structure won't reflect capital structure expected to prevail in the future
- Market value – component costs used in WACC calculation represents the opportunity cost reflecting current market conditions

# Bond Yield Plus Risk Premium

- Cost equity = Yield on long term bonds + risk premium
- Risk premium – subjective – 2 to 6%
- Basing cost of equity on the cost of debt
- If debt is risky, cost of debt is higher, thus higher cost of equity

# Earnings Price Approach

- $r_e = E_1/P_0$
- $E_1$ = earning per share (next year)
- $P_0$ = current market price
- $E_1 = E0 * (1+g)$
- Conditions
- Earnings per share (EPS) remains constant
- Dividend payout ratio (D/P ratio) is 100%
- Return on retained earnings = return required by equity shareholders