# Cost of Capital Model-02 Problems

**Problem 1: EcoGrid Power Systems Ltd.**

**Key learning focus:** Estimation of WACC using **debt, preference shares, and equity**, incorporating **retained earnings vs new equity**, and **book-value vs market-value weights**.

EcoGrid Power Systems Ltd. is an Indian renewable energy company evaluating its long-term financing policy for grid expansion projects. The management intends to estimate the firm's weighted average cost of capital by computing the component costs of debt, preference shares, and equity using multiple valuation approaches.

The firm has issued **10,000 bonds** with a **face value of ₹10,000 each**, carrying an **annual coupon rate of 5.65%**, payable **semi-annually (CPY = 2)**. The **current market price per bond is ₹11,250**, and **the debt flotation cost is 1.75%**. The bonds were issued on **June 15, 2017, and mature on December 15, 2022**. The firm also has **100,000 preference shares** with a **face value of ₹100**, paying an **annual dividend of ₹5**, currently trading at **₹125**, with **preference share flotation costs of 2.75%**. Equity consists of **1,500,000 equity shares** with a **face value of ₹10**, an **expected dividend next year ($D_1$) of ₹2.75**, a **growth rate of 6.00%**, and a **current market price of ₹28.50**. New equity flotation costs are **3.00%**. The **corporate tax rate is 20.00%**. CAPM inputs are **β = 1.45**, **risk-free rate = 4.00%**, and **market return = 18.00%**.

Students are required to compute the cost of debt (periodic, annualized, and after-tax), cost of preference shares, cost of equity using retained earnings and new equity, and finally calculate WACC using **both book-value and market-value weights**.

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**Problem 2: Akshara Textiles & Fabrics Ltd.**

**Key learning focus:** Application of growth-based equity valuation and flotation-adjusted new equity within WACC estimation.

Akshara Textiles & Fabrics Ltd. is an Indian textile manufacturing firm planning capital investments for plant modernization. The company wishes to estimate its overall cost of capital using detailed component-wise calculations.

The firm has **8,600 bonds** outstanding with a **face value of ₹1,000**, an **annual coupon rate of 6.25%**, and **semi-annual payments (CPY = 2)**. The **current market price per bond is ₹1,125**, and **debt flotation costs are 2.00%**. The bonds were issued on **15-Feb-2017** and mature on **15-Aug-2029**. Preference capital includes **75,000 preference shares** with a **face value of ₹1,000**, an **annual dividend of ₹75.25**, a **market price of ₹1,125**, and **flotation costs of 2.65%**. Equity consists of **2,000,000 shares** with a **face value of ₹5**, **expected dividend ($D_1$) of ₹0.65**, **growth rate of 7.00%**, and **current market price of ₹28.65**. New equity flotation costs are **3.00%**. The **corporate tax rate is 20.00%**, and CAPM inputs are **β = 1.35**, **risk-free rate = 4.25%**, and **market return = 18.50%**.

Students must compute the component costs of capital and determine WACC using retained earnings and new equity under both book-value and market-value weighting schemes.

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**Problem 3: Zenith Pharma Research Ltd.**

**Key learning focus:** WACC estimation with **quarterly coupon bonds** and comparison of growth-based and CAPM-based equity costs.

Zenith Pharma Research Ltd. is an Indian pharmaceutical research firm evaluating its financing mix to support long-term R&D initiatives. The firm aims to estimate its overall cost of capital using comprehensive component-wise calculations.

The firm has **5,000 bonds** with a **face value of ₹50,000**, an **annual coupon rate of 4.75%**, payable **quarterly (CPY = 4)**. The **current market price per bond is ₹51,250**, and **debt flotation costs are 1.65%**. The bonds were issued on **01-Jan-2020** and mature on **31-Dec-2035**. Preference capital consists of **1,000,000 preference shares** with a **face value of ₹50**, an **annual dividend of ₹3.50**, a **market price of ₹72.40**, and **flotation costs of 2.35%**. Equity includes **1,500,000 shares** with a **face value of ₹5**, **$D_1$ = ₹0.85**, **growth rate = 7.50%**, and **market price = ₹26.25**. New equity flotation costs are **2.25%**. The **corporate tax rate is 30.00%**. CAPM inputs are **β = 1.45**, **risk-free rate = 4.50%**, and **market return = 16.50%**.

Students are required to compute component costs and calculate WACC using both book and market weights.

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**Problem 4: Horizon Automotive Components Ltd.**

**Key learning focus:** Effect of higher bond prices and flotation costs on debt and WACC.

Horizon Automotive Components Ltd. is an Indian auto-components manufacturer planning capital expansion. The company seeks to estimate its cost of capital by analyzing its financing instruments in detail.

The firm has **7,500 bonds** with a **face value of ₹10,000**, an **annual coupon rate of 6.50%**, and **semi-annual payments (CPY = 2)**. The **current market price is ₹12,150**, and **debt flotation costs are 3.15%**. Bonds were issued on **15-Feb-2017** and mature on **15-Aug-2029**. Preference shares number **250,000**, with a **face value of ₹100**, an **annual dividend of ₹9.50**, a **market price of ₹106.50**, and **flotation costs of 2.25%**. Equity includes **2,500,000 shares**, **face value ₹10**, **$D_1$ = ₹1.35**, **growth rate = 6.50%**, and **market price = ₹31.25**. New equity flotation costs are **3.00%**. The **corporate tax rate is 25.00%**, and CAPM inputs are **β = 1.25**, **risk-free rate = 4.25%**, and **market return = 17.50%**.

Students must compute the component costs and WACC using alternative equity assumptions.

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**Problem 5: BlueWave Logistics & Warehousing Ltd.**

**Key learning focus:** WACC estimation using **market risk premium**–based CAPM inputs.

BlueWave Logistics & Warehousing Ltd. is an Indian logistics firm planning infrastructure expansion. The firm wants to compute its cost of capital using detailed financing data.

The firm has **2,500 bonds** with a **face value of ₹100,000**, an **annual coupon rate of 7.25%**, payable **quarterly (CPY = 4)**. The **current market price is ₹1,04,250**, and **debt flotation costs are 1.75%**. Bonds were issued on **15-Feb-2018** and mature on **15-Aug-2032**. Preference shares include **100,000 shares**, **face value ₹500**, **annual dividend ₹42.50**, **market price ₹525**, and **flotation costs 2.50%**. Equity consists of **1,800,000 shares**, **face value ₹10**, **$D_1$ = ₹1.15**, **growth rate = 6.75%**, and **market price = ₹36.75**. New equity flotation costs are **2.75%**. The **corporate tax rate is 30.00%**. CAPM inputs are **β = 1.20**, **risk-free rate = 4.50%**, and **market risk premium = 18.50%**.

Students must compute component costs and WACC under book-value and market-value weights.

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**Problem 6: VistaAgro Foods Ltd.**

**Key learning focus:** Consistent treatment of quarterly debt payments and equity valuation under multiple models.

VistaAgro Foods Ltd. is an Indian agri-processing company evaluating its long-term cost of capital for expansion projects.

The firm has **1,000 bonds** with a **face value of ₹25,000**, an **annual coupon rate of 8.25%**, payable **quarterly (CPY = 4)**. The **current market price is ₹26,250**, and **debt flotation costs are 3.25%**. Bonds were issued on **15-Feb-2015** and mature on **15-Aug-2029**. Preference capital includes **150,000 shares**, **face value ₹100**, **annual dividend ₹8.50**, **market price ₹112.50**, and **flotation costs 2.65%**. Equity includes **2,200,000 shares**, **face value ₹10**, **$D_1$ = ₹1.05**, **growth rate = 7.25%**, and **market price = ₹33.50**. New equity flotation costs are **2.50%**. The **corporate tax rate is 25.00%**. CAPM inputs are **β = 1.35**, **risk-free rate = 4.25%**, and **market risk premium = 18.50%**.

Students must compute component costs and WACC using retained earnings and new equity.

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**Problem 7: Nimbus Healthcare Services Ltd.**

**Key learning focus:** WACC estimation for service firms with stable cash flows.

Nimbus Healthcare Services Ltd. is an Indian healthcare services provider planning multi-city expansion. The firm wants to estimate its cost of capital using detailed financing inputs.

The firm has **10,000 bonds** with a **face value of ₹5,000**, an **annual coupon rate of 7.50%**, payable **quarterly (CPY = 4)**. The **current market price is ₹5,125**, and **debt flotation costs are 1.75%**. Bonds were issued on **15-Feb-2019** and mature on **15-Aug-2031**. Preference shares include **200,000 shares**, **face value ₹100**, **annual dividend ₹9.25**, **market price ₹110**, and

**flotation costs 2.50%**. Equity consists of **3,000,000 shares**, **face value ₹10**, **$D_1$ = ₹1.25**, **growth rate = 7.00%**, and **market price = ₹34.75**. New equity flotation costs are **3.00%**. The **corporate tax rate is 30.00%**. CAPM inputs are **β = 1.15**, **risk-free rate = 4.50%**, and **market risk premium = 18.50%**.

Students must compute component costs and estimate WACC under alternative equity assumptions.