Cost of Capital

Learning Problems

**WACC at Winnipeg Electric**

The following are financial data for Winnipeg Electric Company:

|  |  |
| --- | --- |
| Debt | 1,500, 6.80% coupon bonds outstanding; par value CAD 1,000; 10 years to maturity; current bond quotation of 105.32 |
| Common shares | 65,000 shares outstanding; selling for CAD 38.00 per share; beta is 0.78 |
| Preferred shares | 5,000 preferred shares in circulation; annual dividend of CAD 4.00; selling for CAD 80.00 per share |
| Market data | 4.0% risk-free rate; 5.0% market risk premium |
| Tax rate | 30.0% |

The company does not have a formal target capital structure and its policy is not to include issuance costs in the cost of capital.

# REQUIRED:

1. Calculate Winnipeg Electric’s WACC.
2. Why should the company have a target capital structure?

**WACC at Balmer**

Balmer Ltd. has 4.5 million common shares and 540,000, CAD 5.00 preferred shares outstanding. The common shares currently sell for CAD 38.00 per share and have a beta of 1.3. The preferred shares sell for CAD 72.00.

The company also has 300,000, CAD 1,000.00 bonds outstanding. The bonds currently sell for 95.2 and have 20 years to maturity. The coupon rate is 6.00%, compounded semi-annually.

The corporate tax rate is 30.0%. The market risk premium is 5.0% and the risk-free rate is 3.0%. Company policy is not to include issuance costs in the cost of capital.

# REQUIRED:

1. Calculate Balmer’s WACC.

**WACC at Jackson**

Jackson Company wants to determine its WACC and has gathered the following information:

Debt. The firm can raise debt by selling CAD 1,000 par value, 8.00% coupon rate, 20-year bonds with semi-annual interest payments. To sell the issue, a discount of 3.00% will have to be given.

Preferred shares. The firm can sell preferred shares with CAD 95.00 stated value and an 8.00% dividend rate. The preferred shares sell currently for CAD 90.00.

Common equity. The firm’s common shares are currently selling for CAD 90.00 per share. The firm expects to pay cash dividends of CAD 7.00 per share next year. The firm’s dividends have been growing at an annual rate of 6.0%, and this is expected to continue.

Jackson Company has decided that a target capital structure of 30.0% equity, 20.0% preferred shares, and 50.0% debt is desirable. The marginal tax rate is 25.0%. Company policy is not to include issuance costs in the cost of capital.

**REQUIRED:**

1. Calculate Jackson Company’s WACC.

**WACC at Anderson**

Anderson Company’s capital structure consists of common shares, preferred shares, and bonds. It currently has 35,000 common shares in circulation trading at CAD 10.00 per share. The common share has a beta of 1.21. Fifteen thousand preferred shares are trading at CAD 4.00 per share. The shares pay an annual dividend of CAD 0.30. There are 450, CAD 1,000, 10-year bonds outstanding. The coupon rate is 9.00%, compounded semi-annually and the bonds trade at 97.00. The risk-free rate is 3.0% and the market risk premium is 5.0%. The marginal tax rate is 25.0%. Company policy is not to include issuance costs in the cost of capital.

**REQUIRED:**

1. Calculate Anderson Company’s WACC.

**Issuance Costs at Wilson**

Wilson Ltd. is considering a project that requires an initial investment of CAD 5,000,000. The company has a target capital structure of 35.0% debt, 20.0% preferred shares, and 45.0% common shares. Historical records show that the costs of issuing new debt, preferred shares, and common shares are 3.0%, 5.0%, and 10.0% of the market value of these securities. The company's marginal tax rate is 25.0%.

REQUIRED:

1. How should issuance costs be incorporated into the cost of capital and the capital budgeting process?
2. How would this change if Wilson used internally generated equity to finance the project?

**WMCC at Greyhound**

Greyhound Bus Lines of Canada is contemplating diversifying into the air passenger industry. From its headquarters in Calgary, it plans to offer short-haul flights between all major cities in Western Canada. The company is trying to determine if this expansion is feasible. Greyhound's current WACC is 8.00%, but its controller is wondering whether this figure should be used.

Greyhound's current target capital structure is 30.0% debt, 10.0% preferred shares, and 60.0% common shares. It plans to maintain this capital structure in the future. In analyzing this expansion, the following market data was collected about other airlines:

|  |  |  |
| --- | --- | --- |
|  | Western Canadian  Airlines | Point-to-Point  Airways |
| Target capital structure |  |  |
| Debt | 15.0% | 28.0% |
| Preferred shares | 10.0% | 11.0% |
| Common shares | 75.0% | 61.0% |
| Common share beta | 1.20 | 1.65 |
| Preferred shares |  |  |
| Share price | CAD 50.00 | CAD 100.00 |
| Current dividend | CAD 3.50 | CAD 9.00 |
| Bond |  |  |
| Coupon rate | 8.00% | 8.00% |
| Implied kd | 9.50% | 11.30% |
| Term | 10 years | 15 years |

The risk-free rate is currently 4.0% and the market risk premium is 6.0%. The marginal tax rate is 25.0%.

REQUIRED:

1. Should the current WACC of 8.00% be used?
2. What cost of capital should Greyhound bus use?

# WMCC at Predator

Predator Ltd. is contemplating expanding its operations into the computer software industry from its base operations in logistical services. The CFO, Rilla Rankin, realizes that this new industry is more cyclical than their current operations, but the company feels this expansion is still in its best interests.

Instead of using Predator’s current WACC, Rankin has decided to estimate a WMCC that is more reflective of the software industry. A pure play with a similar capital structure was found. This company’s common shares have a beta of 1.7, while its preferred shares have a dividend yield of 8.50%. It recently negotiated a 10-year term loan with an interest rate of 9.00%, compounded semi-annually.

Predator Ltd. has decided on a capital structure of 50.0% common equity, 10.0% preferred shares, and 40.0% debt. The market risk premium is 5.0% and the risk-free rate is 4.0%. The marginal tax rate is 25.0%. Company policy is not to include issuance costs in the cost of capital.

**REQUIRED:**

1. Calculate an appropriate cost of capital for analyzing the expansion.

# WMCC at Allison with Project Risk

Allison Company is contemplating expanding its operations into the manufacturing of medical equipment from its current base in electronic automotive components. It currently has a common share beta of 1.40 and paid 10.00%, compounded semi-annually on bank term loans it recently negotiated. For the new industry, Allison collected data for four pure plays:

|  |  |  |
| --- | --- | --- |
|  | **Beta** | **Treasury Spread** |
| Ester Enterprise | 1.21 | 4.10% |
| Hollywood Inc. | 1.15 | 3.85% |
| Tanis Corp. | 1.11 | 3.50% |
| Wellington Ltd. | 1.32 | 3.95% |

The company determined that the target capital structure should be 40.0% common equity and 60.0% debt. Company policy is to add 2.00% to the cost of capital for any project undertaken that involves the introduction of a new product to incorporate the added risk.

The current risk-free rate is 4.0% and the market risk premium is 5.0%. The marginal tax rate is 25.0%. Company policy is not to include issuance costs in the cost of capital.

**REQUIRED:**

1. Calculate an appropriate cost of capital for evaluating this project.

# WMCC at Harrison with Project Risk

Harrison Ltd. is a manufacturer of injection molding equipment used in the production of plastic food containers. It has a common share beta of 0.85 and a dividend yield of 32.0% on its preferred shares. It recently negotiated a bank loan with the Royal Bank that had an interest rate of 4.00%, compounded semi-annually.

Harrison is considering diversifying into the production of aerospace parts for major aircraft producers such as Boeing, Airbus, and Bombardier. For this industry, Harrison collected data for four pure plays:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Common Share Beta** | **Preferred Share Dividend Yield (%)** | **Treasury Spread**  **(%)** |
| Corsair | 1.45 | 5.40 | 2.45 |
| Mustang | 1.56 | 6.10 | 2.58 |
| Mosquito | 1.39 | 4.90 | 2.10 |
| Liberator | 1.48 | 5.50 | 2.49 |

Harrison’s optimal capital structure is 40.0% debt, 10.0% preferred shares, and 50.0% equity.

The risk-free rate is currently 3.0% and the market risk premium is 5.0%. The marginal tax rate is 25.0%. Due to the high project risk of this new venture, Harrison’s policy is to add 3.00% to the cost of capital. Company policy is not to include issuance costs in the cost of capital.

**REQUIRED:**

1. Calculate an appropriate cost of capital for this new venture.

# Adjusting Beta for Leverage

Boswal Inc. is a manufacturing company. Its shares do not trade publicly, so it has decided to calculate the average beta of a group of public companies in the industry. The following data was collected:

|  |  |  |
| --- | --- | --- |
| **Firm** | **Beta** | **Debt-to-Equity (%)** |
| River Crossing | 1.31 | 35.0 |
| Atlas Manufacturing | 1.26 | 22.0 |
| Innovative Technologies | 1.26 | 24.0 |
| Hanson Brothers | 1.14 | 10.0 |
| West Coast Fabrication | 1.16 | 27.0 |
| Average | 1.23 | 24.0 |

Boswal has a debt ratio of 0.30. The industry has an average tax rate of 25.0%.

# REQUIRED:

1. Estimate a leverage-adjusted beta for Boswal Company

**WMCC at Baxter**

Baxter Ltd. is a privately-held company operating in the building materials industry and is trying to calculate a cost of capital to use in the capital budgeting process. Future projects will continue to be in the same industry, so it was felt an accurate WACC could be calculated using company data.

Since Baxter is privately held, no price information was available for the calculation of its beta. To estimate beta, it decided to use several pure plays for comparison, and was able to collect the following information:

|  |  |  |
| --- | --- | --- |
| **Company** | **Beta** | **Debt-to-Equity (%)** |
| Wilson | 1.21 | 40.0 |
| Jacob and Sons | 1.34 | 50.0 |
| Mathew Jenkins | 1.53 | 65.0 |
| Average | 1.36 | 52.0 |

The value of Wilson as a pure play is questionable since it has two separate divisions. The auto parts division has a beta of 1.45 and is approximately equal in market value to the building materials division.

Baxter’s bonds do trade publicly and currently sell at 99.00. The bonds all have coupon rates of 6.00%, compounded semi-annually and terms of 15 years.

Baxter has a target capital structure of 40.0% debt and 60.0% equity. The current 90-day treasury bill rate is 1.50% and the 20-year treasury bond rate is 4.00%. The market risk premium is 5.0%. Baxter is subject to a marginal tax rate of 25.0%. Company policy is not to include issuance costs in the cost of capital.

**REQUIRED:**

1. Calculate Baxter’s cost of capital.