For the course project, you are to choose FedEx corporation ([http://www.fedex.com/us/investorrelations/financialinfo/goals](http://www.fedex.com/us/investorrelations/financialinfo/goals/) ; <http://ir.fedex.com/annuals.cfm> ;  <http://files.shareholder.com/downloads/FDX/992754901x0x395636/5b8f7453-b960-4f0f-92cd-ec27cab06760/FedEx_2010_AR.pdf>) that is listed and traded on the New York Stock Exchange (NYSE: Symbol - FDX) [Current share price, company background and other information: <http://money.cnn.com/quote/quote.html?symb=FDX>].

The project has two sections: in the first section, you are required to estimate the cost of capital of the FedEx Corporation as of the beginning of the present session. In the second part, you apply the cost of capital to assess the extent to which a particular (hypothetical) investment project should be approved by the FedEx Corporation, and the NPV of this proposed investment.

**Part I: Estimation of the company’s weighted average cost of capital**

For this part, please use the consolidated balance sheet (year 2010) of FedEx Corporation. Please state the name of the company at the top of the assignment.

Prepare a table with the following columns:

                Company name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Source of Finance | Balance sheet value as of:\_\_\_\_\_ | Market value as of:\_\_\_\_\_ | Proportion  in total financing | Cost of capital | Product of  (4)x(5) |
| (1) | (2) | (3) | (4) | (5) | (6) |
| Short term debt |  |  |  |  |  |
| Long term debt 1 |  |  |  |  |  |
| Long term debt 2 |  |  |  |  |  |
| Long term debt 3 |  |  |  |  |  |
| … |  |  |  |  |  |
| Preferred shares |  |  |  |  |  |
| Common equity |  |  |  |  |  |
| Total |  |  | 1.000 |  |  |

**Explanations:**

**1. Balance sheet value:**

**1.1 Debt:** The numbers reflect the “book value” or "balance sheet Value" of the different sources securities issued by the company (including loans) for debt financing. These items reflect “history” in the sense that the liabilities are the outstanding amounts that the company borrowed in the past from different sources.

**1.2 Equity:** All items that are not debt (short term or long term) are either preferred shares (very rare in these days) or equity. Accountants prefer to record different items under the headings “equity” but for our purposes the accounting treatment of these items won’t be very relevant.

**2.** What we are interested in is not the historical record but the actual present financial “package” of the company. The analysis is based on the notion that the company’s CFO and his/her team have figured out the “optimal” financial package for the company at the present time, but that package is the “market value” of the financial sources. That assumption pertains to the current business of the company, its systematic operating risk and the present financial environment.

**2.1** It therefore follows that we must reflect the different sources of financing as of “now” in terms of their market values. The book value may or may not be equal to the market value. The market value of liabilities may be different from the “book value” for various reasons:

**a.** *Interest rates* at the present time are different from the rates of interest that prevailed when the various liabilities were incurred (or debt obtained). In particular – if interest rates fell compared to the rates that were in existence when debt was obtained, then the market value (or the cash amount that the company would have to come up with in order to pay up the debt right now) would be higher (“proposition 1” about the effects of interest rate changes on bond prices and values).

**b.** Apart from the “general level” of interest rates, it is conceivable that the “market” in its infinite wisdom assesses the present situation of the company as a whole to be either less, or perhaps more risky from the risk perception that existed when the present debt was obtained. If for example the market now trusts the FedEx Corporation more that when the loans were obtained, the present required interest rates would be relatively lower. Hence in this case the market value of the loan would be more than what is recorded in the balance sheet of the company.

**2.2** Due to the above considerations, there is a need to reassess the debt of the FedEx Corporation and consider in a fairly intelligent manner whether there are reasons to adjust the figures in order to more appropriately reflect the market value of the different debt items.

**2.3** If the FedEx Corporation has incurred debt in foreign currency, it is recorded on the balance sheet in dollars by converting the foreign currency debt to dollars using the exchange rates that prevailed on the date to which the balance sheet refers. Adjustments to the present exchange rates should be performed.

**2.4** For short term debt – you may very well assume (but make it explicit) that the market value is equal to the book value.

**2.5** For long term debt: If the debt of the FedEx Corporation is in the form of bonds that are traded in the market, get the most recent price of the bonds (as of early today) and multiply the book value by the market price of the bonds divided by 100 (or by 1000 if the market price is per $1,000 face value). If the long term debt is not ‘traded,’ then you have a challenge: You must consider what potential lenders would require "now" as a reasonable yield to maturity on similar debt securities if they were to be issued by the FedEx Corporation at the present time.

**2.6** As an example: suppose FedEx Corporation has a $53 million long term debt, carrying interest of 6% per year, and the maturity of this debt is in 6 years. The cash flow that lenders now expect over the next few years is:

                Now       2012   2013   2014   2015     2016

                   ..        3.18    3.18    3.18    3.18    56.18

Suppose that you conclude that if FedEx Corporation was to borrow right now and the required yield by lenders would only be 5%. The market value of this item of debt would be the present value of the cash flow, discounted at 5%:

**V =** 3.18/(1.05)1 + 3.18/(1.05)2 + 3.18/(1.05)3 + 3.18/(1.05)4 + 56.18/(1.05)5 = $57.578.

If the FedEx Corporation has more than one item (source of financing) that is long term debt, you should consider adjustments to all items as the case may be. Use your own judgment as to how detailed your work should be. Don’t over-kill.

**3. Equity:** the market value of equity is simply the number of common shares outstanding times the market price per share, as of early today.

**4.** Inserting the estimates into the Table enables you to determine the market value of the FedEx Corporation and the proportions of the various sources of financing in the total package.

**5.** Note that if the FedEx Corporation is indeed operating with an “optimal capital structure,” and if it were to identify a profitable investment project, it would most probably try to finance that investment using a package that is similar to the optimal package that you have identified.

**6.** We now come to the next task - determine the cost (or the rate of return that the company is required to “deliver”) of each source of financing. Here’s how one should assess or estimate these costs:

**6.1 Short term debt:** Today’s interest rate on the FedEx Corporation’s short term debt, or the “bank borrowing rate,” multiplied by one-minus-the-corporate-tax-rate (1 – corporate tax rate). Use the combined federal and state corporate tax rate as applicable. If FedEx Corporation is not paying taxes and if it has accumulated losses of a large magnitude, then the effective tax rate for the foreseeable future is zero.

**6.2 Long term debt:** The appropriate yield to maturity on the different debt items, with due regard to the present term structure of yields on US government bonds and notes. You may assume that given the stature and business position of the FedEx Corporation, the required yield to maturity of the company’s debt will be a certain (reasonable) number of basis points above the yield to maturity of government bonds of similar terms to maturity. Again, multiply the yields that you feel are appropriate by one minus the tax rate (see above).

**6.3 Equity:** The cost of equity is the required rate of return on equity, or the rate of return that we “believe” is the minimum rate of return that shareholders require in order not to sell off their shares. That rate should be estimated by reference to the Capital Asset Pricing Model’s (CAPM) equation:

**E(Rj) = RF + βi[E(RM) – RF]**

The risk-free rate should be the yield on a one-year T-bill. You may assume that the term [E(RM) – RF] is about 6% (retrospective evidence on the annual rate of return on the S&P500 over the one-year yield on government bonds during the past 50 years). Note that this is at best an assumption. You still have to find (website: [**http://moneycentral.msn.com/detail/stock\_quote?symbol=FDX&ww=1**](http://moneycentral.msn.com/detail/stock_quote?symbol=FDX&ww=1)**)** or estimate the “beta” for your company **(if you cannot find the FedEx Corporation’s beta, please assume beta = 1.04).** Beta can be estimated by using a regression of the company’s rates of return (say, weekly or monthly rate of return on your company’s shares) regressed on the weekly (or monthly) rates of return on the S&P500 index over the past three to four years. The slope coefficient of the regression is an estimate (called by statisticians a consistent estimate) of the systematic risk coefficient of the FedEx corporation.

**6.4** You may now complete the calculations and obtain an estimate of your company’s present cost of capital being the weighted average of the costs of the individual sources of financing at the present time.

**WACC** = (E/V) X Re + (D/V) X Rd X (1 – Tc)

Where:   
**Re** = Cost of equity   
**Rd** = Cost of debt   
**E** = Market value of the firm's equity   
**D** = Market value of the firm's debt   
**V** = E + D   
**E/V** = Percentage of financing that is equity   
**D/V** = Percentage of financing that is debt   
**TC** = Corporate tax rate

**You have to submit full report on Part I of the Project by the end of Module 3.**

**Part II: A Capital Budgeting Decision of Your Company**

Assume that FedEx Corporation is contemplating an investment in an expansion project. The project will be located in the greater Toronto area of Canada. A team of experts from different units of the FedEx Corporation came up with the following projections regarding the required investment and schedule, costs and revenues emanating from the investment over the next several years: **The investment figures are in thousands of U.S. dollars. Expenses on supplies, labor and marketing as well as revenues are in thousands of Canadian dollars.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | Investment in Machinery and equipment | Purchase of office supplies | Direct and indirect labor | Marketing expenses | Revenues |
| 0 | 8,000**(1)** | 0 | 0 | 400 | 0 |
| 1 | 8,000**(2)** | 20 | 4,800 | 800 | 8,000 |
| 2 | 4,000**(3)** | 10 | 5,600 | 690 | 13,000 |
| 3 | 0 | 10 | 5,600 | 690 | 13,000 |
| 4 | 0 | 10 | 5,600 | 690 | 13,000 |
| 5 | 0 | 10 | 5,600 | 690 | 13,000 |
| 6 | 0 | 10 | 5,600 | 690 | 13,000 |

Equipment 1 = $8,000**(1)**

Equipment 2 = $8,000**(2)**

Equipment 3 = $4,000**(3)**

Since your company is American, your currency orientation is the U.S. dollar. As revenues and expenses are in Canadian dollars, you need to express the after-tax cash flow in U.S. dollars. For that “translation” please obtain information on the yield to maturity on one, two, three, four, five, and six year U.S. government bonds and on Canadian Government bonds. Then apply to so-called “Interest Rate Parity” equation:

**E(S*T*)** = S*0* x (1+R*L*)T/(1+R*FOREIGN*)T

Where,

**E(ST)** is the expected exchange rate (U.S. dollars per 1 Canadian dollar),

**S*0*** is today’s exchange rate (U.S. dollars per 1 Canadian dollar, called “spot exchange rate”),

**R*L*** is the annual yield to maturity on a local (U.S.) government bond maturing in **T** years, and

**FOREIGN** is the yield to maturity of a foreign government bond (Canadian) maturing in T years.

Assume that the systematic risk coefficient of the proposed project is estimated to be equal to the operating systematic risk coefficient of FedEx Corporation.

Also assume that in computing taxable income, the FedEx Corporation is allowed to depreciate the investment in M&E on a straight line basis over 4 years [Straight line depreciation method: (Purchase price of asset – Approximate salvage value) / Estimated useful life of asset]. The company is of the opinion that at the end of year “6” it may be able to sell the M&E for US$7,000,000 [Salvage values: Equipment 1 = $3,000,000; Equipment 2 = $3,000,000; and Equipment 3 = $1,000,000]. (Note: this estimation has no bearing on the company’s ability to depreciate the entire investment). The company’s tax rate is the combined federal and state corporate income tax as applicable. (If FedEx Corporation has accumulated large losses that appear on its balance sheet (where?) then the tax considerations are irrelevant.)

**Here are the deliverables for Part II:**

**a.** Prepare and present a side table of the effects of depreciation, year by year, on the company’s future cash flow, including the tax shields of depreciation and the “tax rebates” emanating from the deductibility of depreciation for tax purposes.

**b.** Note that the projections in the table are in terms of “today’s prices.” Such projections are called “real terms cash flow.”  Based on this, please answer the following question:

*In light of the rising concern about inflation in the coming years, do you think adjustments should be made to either the cash flow or to the cost of capital? Explain your answer.*

**c.** Assess the Net Present Value of the proposed project and write a short memo to management recommending acceptance/rejection of the proposal by FedEx Corporation.

**NOTE:** Please note that you will be using the above information step by step to complete all five Session Long Projects. You do not need to answer all the above questions in Module 1. The following is the Module 1 Session Long Project:

**Module 01 - Session Long Project**

In Module 1, please write and submit the introductory part of the Session Long project (two to five pages).