CORPORATION

Definition: A legal form of business organization wherein the firm's owners or stockholders have limited liability.

CORPORATE DECISIONS

• INVESTMENT: What real (physical) assets should the firm acquire? How much money should be invested in real assets?
• FINANCING: What securities or financial assets should the firm issue? How much money should be raised through the issuance of securities?
• DIVIDEND: What portion of the firm's profits should be paid to stockholders in the form of dividends?
• WORKING CAPITAL: Management of current assets and current liabilities.
• GOAL OF THE FIRM: To maximize shareholders' wealth or equivalently, to maximize the price of the firm's common stock.

ACCOUNTING STATEMENTS

BALANCE SHEET IDENTITY

Assets = Liabilities + Owners’ Equity

INCOME STATEMENT

Sales
- Cost of Goods Sold (COGS) = Gross Profit (GP)
  - Administrative Expenses
  - Depreciation
  - Other Expenses
    = Earnings Before Interests and Taxes (EBIT)
      - Interest
      = Earnings before taxes
      - Taxes
    = Net Income (Net Profit)

STATEMENT OF RETAINED EARNINGS

Beginning Balance Retained Earnings
+ Net Profit
- Dividends on Preferred Stock
- Dividends on Common Stock
= Ending Balance Retained Earnings

STATEMENT OF CASH FLOWS

Cash Flows from Operations
+ Cash Flows from Investments
  + Cash Flows from Financing
    = Net Increase (or Decrease) in Cash

CASH FLOW IDENTITY

Cash flow from assets =
Sum of the Cash Flow paid to the suppliers of capital to the firm

FINANCIAL RATIOS

LIQUIDITY

Definition: Measure of the firm’s ability to meet its short-term obligations.

Current Ratio = current assets
                 current liabilities
Quick Ratio = current assets – inventory
Net Working Capital = current assets – inventory
to Total Assets Ratio
                   total assets

ACTIVITY

Definition: Measure of the firm’s efficiency in generating sales with its assets.

Inventory Turnover = cost of goods sold
                   average inventory
Collection Period = accounts receivable
                   credit sales per day
Fixed Asset Turnover = net fixed assets
                       sales
Total Assets Turnover = sales
                       total assets

LEVERAGE

Definition: Measure of the firm’s degree of indebtedness and its ability to meet long-term obligations.

Debt Ratio = total liabilities
             total assets
Debt to Equity Ratio = long-term debt
                     stockholders’ equity or equity
Times Interest Earned Ratio = EBIT
                           interest
Cash Coverage Ratio = EBIT + depreciation
                      interest
Fixed Charge Coverage Ratio = EBIT + lease payments
                           interest + lease payments
Equity Multiplier Ratio = total assets
                        total equity

PROFITABILITY

Definition: Measure of the returns on assets and equity.

Gross Profit Margin = gross profit
                    sales
Net Profit Margin = net income
                  sales
Return on Assets (ROA) = net income
                      total assets
Return on Equity (ROE) = net income
                      equity
Price / Earnings (P/E) Ratio = price per share
                               of common stock
Price Earnings (P/E) Ratio = earnings per share
                           earnings per share
Common Stock Price = earnings available to
                  common stockholders
Book value of
                  common stock shares
Market-to-Book Ratio = common stock
                      price per share
                      book value

Dupont system:
ROE = net profit margin x total asset turnover x equity multiplier
or
ROE = ROA x (1 + debt-to-equity ratio)

TIME VALUE OF MONEY

PRESENT VALUES

• SINGLE AMOUNT: Present Value (PV) of a lump sum (FVn) given at the end of n periods at an interest rate of r%.
  • Discounted once per period: PV = FVn
       (1 + r)n
  • Discounted “m” times per period: PV = FVn
       (1 + i/m)mn
  • Discounted Continuously: PV = FVn x e-rm
    (e = base of natural logarithms)
• ANNUITIES
  • Ordinary Annuity – Present value of an ordinary annuity (PVA) of PMT per period for n periods at r% per period:
    PVA = n
       i=1
    PMT
          r
        1 - (1 + i)n
  • Annuity Due – Present value of an annuity due (PVD) of n cash flows (PMT) at r% per period:
    PVD = n
       i=1
    PMT
          r
        1 - (1 + i)n x(1 + r)
  • Perpetuity: Present value of a perpetuity (PVP) of PMT per period at r% per period:
    PVP = PMT
          r

• SERIES OF CASH FLOWS – Present value of a series of cash flows (CFt) at times, t = 1,2,...,n, at r% per period:
    PV = n
       i=1
    CFt
          r
        1 - (1 + i)n

FUTURE VALUES

• SINGLE AMOUNT: Future value at the end of n periods (FVn) of a present amount (PV) invested today at r% per period.
  • Compounded once per period: FVn = PV(1 + r)n
  • Compounded m times per period:
    FVn = PV(1 + i/m)mn
  • Compounded continuously: FVn = e(r)n
• ANNUITIES
  • Ordinary Annuity – Future value at the end of n periods of an ordinary annuity (FVA) of PMT per period for n periods at r% per period:
    FVA = n
       i=1
    PMT(1 + r)n=
          r
        1 - (1 + i)n
  • Annuity Due – Future value at the end of n periods of an annuity due (FDV) per period at r% per period:
    FVD = n
       i=1
    PMT(1 + i)n=1
          r
        1 - (1 + i)n x(1 + r)
  • SERIES OF CASH FLOWS – Future value at the end of n periods of a series of cash flows, CFt, at times, t = 1,...,n:
    FV = n
       i=1
    CFt
          r
        1 - (1 + i)n + cF0

EFFECTIVE ANNUAL RATE (EAR)

EAR = 1 +
      m
(1 + nominal rate )
      m
-1
where m = number of compounding intervals.

ANNUAL PERCENTAGE RATE (APR)

APR = rate per period x periods per year
RISK AND RETURN

- **EXPECTED RETURN (E(r))**: The expected return of an investment with n possible outcomes, \( r_1, r_2, \ldots, r_n \), each with probability of \( p_i \):
  \[
  E(r) = \sum_{i=1}^{n} p_i \cdot r_i
  \]

- **VARIANCE OF RETURNS (\( \sigma^2 \))**: The variance of returns of an investment with n possible outcomes and with an expected return, \( E(r) \):
  \[
  \sigma^2 = \sum_{i=1}^{n} \left( r_i - E(r) \right)^2 \cdot p_i
  \]

- **STANDARD DEVIATION (\( \sigma \))**: \( \sigma = \sqrt{\sigma^2} \)

- **COEFFICIENT OF VARIATION (CV)**:
  \[
  CV = \frac{\sigma}{E(r)}
  \]

- **COVARIANCE OF RETURNS (\( \sigma_{ij} \))**: The covariance between the returns of asset i and asset j, each having n possible outcomes with joint probabilities \( p_{ij}(r_i, r_j) \):
  \[
  \sigma_{ij} = \sum_{i=1}^{n} \left( r_i - E(r_i) \right) \left( r_j - E(r_j) \right) \cdot p_{ij}(r_i, r_j)
  \]

- **CORRELATION COEFFICIENT (\( \rho_{ij} \))**: \( \rho_{ij} = \frac{\sigma_{ij}}{\sigma_i \sigma_j} \)

- **TWO-ASSET PORTFOLIO**: Expected Return (\( E(r_{p}) \)) – The expected return on a two-asset portfolio with proportion \( x_i \) invested in asset i and \( x_j \) invested in asset j:
  \[
  E(r_{p}) = x_1 \cdot E(r_1) + x_2 \cdot E(r_2)
  \]

SECURITY MARKET LINE (SML)

**Definition**: A graphical representation of the CAPM.

VALUE OF AN ASSET

- **Value of an asset with expected cash flows, \( CF_i \) at times, \( t=1,2,\ldots,n \), with required rate of return, \( r \)**:
  \[
  Value \text{ of asset } = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^{t-1}}
  \]

VALUE OF A BOND

- **Value of a bond with coupon interest payments of I per year, maturity value (or par value) of M, maturity of n years, and a required rate of r**: \( \rho_{ij} \)

BETA COEFFICIENT

- **ASSET**: Beta of \( \beta_a \) with the market index portfolio:
  \[
  \beta_a = \sum_{i=1}^{n} \frac{x_i \cdot \beta_i}{\sigma_a^2}
  \]

- **PORTFOLIO (\( \beta_p \))**: The beta coefficient of an N-asset portfolio with \( x_i \) invested in asset i with beta equal to \( \beta_i \):
  \[
  \beta_p = \sum_{i=1}^{n} \frac{x_i \cdot \beta_i}{\sigma_p^2}
  \]

CAPITAL ASSET PRICING MODEL (CAPM)

In equilibrium, the expected return (as well as the required return) \( E(R_c) \) on asset i having a beta coefficient, \( \beta_i \), is given by:

\[
E(R_i) = R_f + \beta_i \cdot (E(R_m) - R_f)
\]

where \( R_f \) is the risk-free rate of return, and \( E(R_m) \) is the expected return on the market portfolio. The term \( E(R_m) - R_f \) is the expected market risk premium.

RISK

- **SINGLE ASSET**: The risk of a single asset held in isolation is equal to the variance of the returns on the asset, \( \sigma^2 \).

- **PORTFOLIO**: The risk of a portfolio of assets is given by the variance of the returns in the portfolio, \( \sigma_p^2 \).

- **SINGLE ASSET IN A PORTFOLIO**: The risk of a single asset held as a part of a portfolio of assets is given by the beta coefficient for that asset.

- **SYSTEMATIC RISK**: The portion of the total risk that cannot be eliminated through diversification. This risk is also known as “market” risk. The systematic risk of an asset or portfolio is given by their beta coefficients.

- **DIVERSIFIABLE RISK**: The portion of the total risk of a portfolio that can be eliminated through diversification. Note that:
  \[
  \text{Total Risk} = \text{Systematic Risk} + \text{Diversifiable Risk}
  \]

CAPITAL BUDGETING

PROJECT OPERATING CASH FLOW

The incremental operating cash flow after taxes (\( \Delta OCF \)) for a project in a firm with a marginal corporate tax rate, \( T_c \), is given by:

\[
\Delta OCF = (\Delta \text{Revenues} - \Delta \text{Costs}) \times (1 - T_c) + \Delta \text{Depreciation}
\]

PROJECT NET CASH FLOW (\( \Delta NCF \))

\[
\Delta NCF = \Delta OCF - \Delta NWC - ACI
\]

\( \Delta NWC \) is the incremental change in net working capital, and ACI is the incremental capital investment required by the project.

DISCOUNTED CASH FLOW TECHNIQUES

- **NET PRESENT VALUE (NPV)**: A project with net cash flows, \( \Delta CF_i = (t=0,1,\ldots,N) \), and a required rate of return of \( k \), has a net present value (NPV):
  \[
  NPV = \sum_{t=0}^{N} \frac{\Delta CF_t}{(1+k)^t}
  \]

INTERNAL RATE OF RETURN (IRR)

The IRR of a project is the rate of discount that makes the NPV of the project’s cash flows equal to zero. The IRR of a project with net cash flows, \( \Delta CF_i = (t=0,1,\ldots,N) \), is the solution to the following polynomial equation:

\[
NPV = \sum_{t=0}^{N} \frac{\Delta CF_t}{(1+k)^t} = 0
\]

PROFITABILITY INDEX (PI)

The PI of a project with net cash flows, \( \Delta CF_i = (t=0,1,\ldots,N) \), and a required rate of return of \( k \), is given by:

\[
PI = \frac{\text{present value of future cash flows}}{\text{initial outlay}} = \frac{\sum_{t=0}^{N} \frac{\Delta CF_t}{(1+k)^t}}{\Delta CF_0}
\]

ACCEPT/REJECT CRITERIA

- **Independent Projects**:

<table>
<thead>
<tr>
<th>TECHNIQUE</th>
<th>ACCEPT</th>
<th>REJECT</th>
<th>INDIFFERENT</th>
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<tbody>
<tr>
<td>NPRI</td>
<td>&gt; 0</td>
<td>&lt; 0</td>
<td>= 0</td>
</tr>
<tr>
<td>IRR**</td>
<td>&gt; k*</td>
<td>&lt; k*</td>
<td>= k*</td>
</tr>
<tr>
<td>PI</td>
<td>&gt; 1</td>
<td>&lt; 1</td>
<td>= 1</td>
</tr>
</tbody>
</table>

**k* is the required rate of return on the project**  
**This criterion is correct for projects with standard patterns of cash flows**

- **Mutually Exclusive Projects**: Two projects are mutually exclusive if the acceptance on one project precludes the firm from undertaking the other project. For mutually exclusive projects, the firm should select the project with the greatest NPV.

NON-DISCOUNTED CASHFLOW TECHNIQUES

- **PAYBACK PERIOD**: The length of time it takes the firm to recover the project’s initial investment.

ACCOUNTING RATE OF RETURN (ARR)

\[
ARR = \frac{\text{Average annual income}}{\text{Average book value}}
\]

VALUE OF PREFERRED STOCK

- **VALUE TODAY** of a share of preferred stock with expected dividends of \( D_{ps} \) per share and a required rate of \( r_{ps} \):

\[
\text{Value of Preferred Stock} = \frac{D_{ps}}{r_{ps}}
\]
COST OF CAPITAL

DEFINITION
The rate of return that must be earned on new investments having the same average risk as the firm's existing assets, in order to provide all investors in the firm with fair market rates of return.

COST OF DEBT

- WITHOUT FLOTATION or issuance cost:
  \[ k_d = (1-T) \times \text{before-tax cost of debt} \]

- WITH FLOTATION cost:
  \[ k_d = (1-T) \times \text{before-tax cost of debt} / (1-f_p) \]

COST OF PREFERRED STOCK (\(k_p\))

- WITHOUT FLOTATION COST:
  \[ k_p = \frac{D_p}{P_p} \]

- WITH FLOTATION COST:
  \[ k_p = \frac{D_p}{P_p (1-f_p)} \]

COST OF RETAINED EARNINGS (\(k_e\))

- USING THE CONSTANT-GROWTH MODEL:
  \[ k_e = D_1 / P_0 + g \]

- WITH FLOTATION:
  \[ k_e = D_1 / P_0 (1-f_e) + g \]

COST OF EQUITY (\(k_e\))

- USING THE CONSTANT-GROWTH MODEL:
  \[ k_e = D_1 / P_0 + g \]

- WITH FLOTATION:
  \[ k_e = D_1 / P_0 (1-f_e) + g \]

WEIGHTED AVERAGE COST OF CAPITAL (WACC)

\[ WACC = W_d k_d + W_p k_p + W_k k_k + W_e k_e \]

where \(W_d\), \(W_p\), \(W_k\), and \(W_e\) are the "weights" or proportions of each source of capital. These "weights" can be based on:
1. market values
2. book values
3. target values

CAPITAL STRUCTURE THEORIES

DEFINITION
Decisions about the mix of financing sources employed by the firm. The optimal capital structure is that mix of financing that maximizes the total value of the firm.

MODIGLIANI-MILLER (MM)

- CASE 1: No taxes.

  Proposition I: In the absence of taxes or transactions costs, capital structure decisions have no effect on firm value:
  \[ V_L = V_U \]

  where \(V_L\) is the value of a levered firm (a firm with debt in its capital structure,) and \(V_U\) is the value of an unlevered but otherwise identical firm to the levered one.

  Proposition II: The rate of return on equity (\(K_E\)) increases linearly with the debt-to-equity (\(D/E\)) ratio:
  \[ K_E = K_o + \frac{D}{E} (K_o - K_d) \]

  where \(K_o\) is the weighted-average cost of capital, and \(K_d\) is the cost of debt.

- CASE 2: Corporate taxes.

  Proposition I: In a world where corporate income is subject to taxation and there are no bankruptcy costs, the firm value increases with leverage:
  \[ K_E = K_o + \frac{D}{E} (1-T_c) (K_o - K_d) \]

  where \(T_c\) is the marginal corporate tax rate, and is the market value of the firm's debt.

  Proposition II: The levered cost of equity increases with the after-tax debt-to-equity ratio:
  \[ K_E = K_o + \frac{D}{E} (1-T_c) (K_o - K_d) \]

  where \(K_E\) is the after-tax weighted-average cost of capital.

TRADE-OFF OR STATIC THEORY

This theory adds the possibility of costly financial distress and bankruptcy to Modigliani-Miller under corporate taxes:

\[ V_L = V_U + T_c D \times \text{Present value of financial distress costs} \]

According to this theory, the optimal level of debt in a firm's capital structure is determined by the balance of the tax-shield provided by debt and the present value of financial distress costs.

MILLER'S MODEL

This theory of capital structure incorporates corporate as well as personal income taxes in the selection of the optimal capital structure for the firm. Under Miller’s model:

\[ V_L = V_U + D [1 - (1 - T_p)(1 - T_s)] (1 - T_b) \]

where \(T_p\) is the personal income tax rate on equity income, and \(T_b\) is the personal income tax rate on debt income.

EPS - EBIT ANALYSIS

This technique is used to analyze the relationship between earnings per share (EPS) and EBIT under a given financing plan. The EPS under a given financing plan is given by:

\[ \text{EPS} = \frac{\text{EBIT} - \text{interest}}{\text{1} - \frac{\text{PD}}{\text{EBIT}}} \]

where \(PD\) = preferred dividends; \(NS\) = number of common stock shares outstanding. The break-even level of EBIT under a given plan is given by:

\[ \text{EBIT}_{\text{BE}} = \text{interest} + \frac{\text{PD}}{\text{1} - \frac{\text{PD}}{\text{EBIT}}} \]

TWO FINANCING PLANS

EPS

FOR TWO FINANCING PLANS, the indifference level of EBIT is the EBIT that yields the same EPS for each plan.

At EBIT*, \(\text{EPS}_{\text{plan1}} = \text{EPS}_{\text{plan2}}\)

BREAK-EVEN AND LEVERAGE

NOTATIONS

\(p\) = price per unit; \(v\) = variable cost per unit; \(FC\) = total fixed cost; \(Q\) = number of units; \(i\) = interest.

BREAK-EVEN

The break-even number of units, \(Q^*\), is given by:

\[ Q^* = \frac{FC}{P - v} \]

DEGREE OF OPERATING LEVERAGE

Refers to the sensitivity of the firm’s EBIT to changes in the firm’s sales. The degree of operating leverage (DOL) at \(Q\) units is:

\[ \text{DOL at } Q = \frac{\% \Delta \text{EBIT}}{\% \Delta \text{Sales}} = \frac{Q(p-v)}{(Q(p-v) - FC)} \]

where \(\Delta\) denotes change and \(\text{EBIT} = Q(p-v) - FC\).

DEGREE OF FINANCIAL LEVERAGE

Refers to the sensitivity of the firm’s EPS to changes in the firm’s EBIT. The degree of financial leverage (DFL) at \(Q\) units is given by:

\[ \text{DFL at } Q = \frac{\% \Delta \text{EPS}}{\% \Delta \text{EBIT} - 1} = \frac{Q(p-v)}{(Q(p-v) - FC) - 1} \]

DEGREE OF COMBINED LEVERAGE

Refers to the sensitivity of EPS to changes in the firm’s sales. The degree of combined leverage (DCL) at \(Q\) is given by:

\[ \text{DCL at } Q = \text{DOL} \times \text{DFL} = \frac{Q(p-v)}{(Q(p-v) - FC) - 1} \]

LEASING

DEFINITION

Leasing is an alternative to owning the asset through 100% debt financing wherein the lessor grants the use of a fixed asset for a specific amount of time in exchange for payment usually in the form of rent from the lessor.

EQUIVALENT LOAN VALUE

\[ \text{Equivalent Loan Value} = \text{Present value of lease cash flows} + \text{Present value of after-tax salvage value} \]

\[ \text{ELV} = \sum_{t=1}^{N} \frac{(1-T_c)t_b + T_c \times \text{Depreciation}}{(1+r_b)^t} + \frac{S_N}{(1+r_b)^N} \]

\(t_b\) = After-tax loss of depreciation
\(S_N\) = salvage

\[ \text{Lease cash flow} = \text{lease payment} \times (1 - r_b) \]

\[ \text{Loss of depreciation tax shield} \]

\[ \text{Equivalent Loan Value} < \text{present value of loan needed to purchase the asset} \]

SINGLE FINANCING PLAN

EPS

\[ \text{Interest} + \frac{\text{PD}}{(1 - T_c)} \]

\[ \text{EBIT} \]

\[ \text{NS} \]

\[ \text{PD} \]

\[ \text{EBIT} \]

\[ \text{interest} + \frac{\text{PD}}{(1 - T_c)} \]
DIVIDENDS

**DEFINITIONS**

- **DIVIDEND PAYOUT RATIO** = Dividends per share
  - **Dividends per share** = Total annual dividends / Common stock price per share

- **DIVIDEND YIELD** = Annual dividends per share
  - **Annual dividends per share** = (Total annual dividends / Common stock price per share) x 100

- **DECLARATION DATE**: Date on which board of directors formally declares a dividend.

- **DATE OF RECORD**: Date on which the holder of record is designated to receive a dividend.

- **EX-DIVIDEND DATE**: Two business days before the date of record.

- **PAYMENT DATE**: Date on which the dividend is actually paid.

- **STOCK DIVIDEND**: Distribution of new share of common stock to existing shareholders. The amount of the increase has to be 25% or less of the total shares outstanding.

- **STOCK SPLIT**: Distribution of new shares to existing stockholders. The amount of the increase has to exceed 25% of the total number of shares outstanding.

- **STOCK REPURCHASE**: The firm purchases its own shares.

**DIVIDEND POLICIES**

- **CONSTANT DIVIDEND PAYOUT**: A firm pays a constant percentage of earnings in dividends.

- **STABLE DOLLAR DIVIDEND PER SHARE**: The firm maintains a policy of paying a stable dollar dividend per share over time.

- **CONSTANT DIVIDENDS PLUS EXTRA**: The firm pays a small dividend every quarter plus an extra year-end dividend when the firm experiences a good year.

**REAL INTEREST RATE**

**Real Rate of Interest** = Nominal rate of interest + inflation

**ACCOUNTS RECEIVABLE (A/R)**

- **INVESTMENT**
  - Average investment in A/R = total variable cost of annual sales / A/R turnover
  - **A/R turnover** = 360 / Collection period

- **DEFINITIONS (A/R)**
  - **CREDIT POLICY**: Involves the determination of credit terms and standards for the selection and granting of credit by the firm.

- **CREDIT SCORING**: A procedure for ranking credit applicants based upon key financial and credit characteristics.

- **CREDIT STANDARDS**: The set of minimum requirements for extending credit to a customer.

- **CREDIT TERMS**: Specify repayment terms for credit customers. Credit terms typically include:
  1. cash discount
  2. discount period
  3. credit period.

**INVENTORY**

- **Total Cost of Inventory** = Order Cost + Carrying Cost
  - **Order Cost** = order cost + carrying cost

  where order costs are associated with placing and receiving an order, and carrying costs are variable costs per unit of holding an inventory item over time.

**INTEREST RATE PARITY (IRP)**

This theory states that the % annualized forward premium or discount in the foreign currency equals the interest rate differential between the two currencies.

\[
F_n(S) = S \left( 1 + \frac{i_{US} - i_F}{n(1+i_F)} \right)
\]

where \( i_{US} \) and \( i_F \) are the interest rates for the US and foreign currencies, \( F_n \) is the \( n \)-days forward rate in US dollars per foreign currency unit, \( S \) is the spot rate in US dollars per foreign currency unit; \( n \) is the number of days of the forward rate. When the IRP holds, there are no covered-interest arbitrage opportunities.

**PURCHASING POWER PARITY (PPP)**

This theory relates the % change in the spot rate for a currency to the inflation rate differential between countries over the time period.

\[
S_{t+1} - S_t = \frac{i_{US} - i_F}{(1+i_{US})(1+i_F)}
\]

where \( S_t \) and \( S_{t+1} \) are the spot rates at times \( t \) and \( t+1 \); \( i_{US} \) and \( i_F \) are the US and foreign inflation rates over the period \( t \). If PPP exists, then the expected spot rate at the end of period \( t \) is given by:

\[
E(S_{t+1}) = S_t \left[ 1 + \frac{i_{US} - i_F}{(1+i_{US})(1+i_F)} \right]
\]

**INTERNATIONAL FISHER EFFECT (IFE)**

If PPP holds and real rates of interest are equal across countries, then the IFE is given by:

\[
S_{t+1} - S_t = \frac{i_{US} - i_F}{(1+i_{US})(1+i_F)}
\]

where \( S_t \) and \( S_{t+1} \) are the spot rates at times \( t \) and \( t+1 \); \( i_{US} \) and \( i_F \) are the US and foreign interest rates. If the IFE holds, countries with low interest rates will have their currencies appreciate through time.

**FOREIGN CURRENCY FINANCING**

The effective financing rate of using a foreign currency over a single period is given by:

\[
r_f = (1 + i_F)(1 + c_F) - 1
\]

where \( i_F \) is the foreign currency interest rate per period, and \( c_F \) is the expected percentage change in the spot rate (dollar price of 1 unit of the foreign currency) over the period.

**PRICE**

U.S. $4.95

CAN $7.50

March 2005