Module 1: Corporate Finance and the Role of Venture Capital Financing
Alternative Sources of Finance

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1.0 Alternative Sources of Finance

Although the focus of this course is venture capital it is important to be aware of other types of financing commonly used by businesses. Essentially businesses have access to two types of financing, i.e. debt capital (borrowed funds) and equity capital (invested funds).

Every business needs some equity capital to get started and equity capital, usually combined with debt capital to grow. Debt capital can be further classified as short-term debt and long term debt. Short-term debt is due to be paid back within the next twelve months whereas long term debt will be paid back beyond the next twelve months.

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1.1 Short-Term Debt (Short-Term Loans, Line of Credit)

Short-term loans are used to address a short-term financing requirement such as bridge financing until permanent financing is in place or financing to cover a temporary shortfall in funds.

An operating line of credit is another type of short term financing that is commonly used in businesses that are cyclical in nature. For example, a retail-clothing store may need to draw on its operating line of credit to stock up on inventory prior to the Christmas season. As Christmas sales are realized, the funds are used to pay back amounts borrowed on the line of credit.

Lines of credit are often margined by the lender against accounts receivable and/or inventory. This means that the credit limit is set as a percentage of accounts receivable and inventory. The percentage varies depending upon such factors as the age and quality of receivables and type of inventory being financed.

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1.2 Long-Term Debt (Commercial Loans, Mortgages, and Bonds)

Many capital investments are financed in part by commercial loans, mortgages or bonds. It is important to understand how these financing instruments are structured because the magnitude and timing of payments of interest and principal affect cash flows and therefore the economic results of an investment.

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1.21 Commercial Loans

Many commercial loans are structured such that the borrower makes a constant payment (often monthly) over the term of the loan until the principal is paid off. Each payment consists of a principal portion and an interest portion and the amount of principal and interest varies with each payment. This type of loan is known as an **amortized loan.**

Some loans are structured such that each payment consists of interest and a constant amount of principal paid. Some loans are structured such that payments consist of interest only and the principal is paid back in one lump sum at the end of the term of the loan. The lump sum principal payment is often referred to as a **balloon payment.**

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1.22 Amortized Loans

The first step in analysing an amortized loan is to calculate the constant loan payment given the principal, interest, and term of the loan using the formula:

$$A = P\left[\frac{i(1+i)^N}{(1+i)^N - 1}\right]$$

The interest portion of each payment is calculated by multiplying the interest rate by the principal outstanding at the beginning of the period in which the payment is made.

The principal portion is calculated by subtracting the interest portion from the total loan payment calculated in Step 1. The principal portion is then subtracted from the opening principal to get the opening principal for the next period.

Example

A commercial loan of $100,000 is to be paid back in 4 equal end of year payments. The loan bears interest at 8% compounded annually. Prepare a loan amortization schedule showing the principal and interest portion of each payment. First calculate the loan payment (A)

$$A = P\left[\frac{i(1+i)^N}{(1+i)^N - 1}\right]$$

= $100,000[(0.08(1+ 0.08)4) / ((1+0.08)4 – 1)]

= $30,192

First Payment

In the first payment of $30,192, the interest portion is the principal outstanding at the beginning of the period (i.e. $100,000) times the interest rate per period (i.e. 8%) is: i = 0.08($100,000) = $8,000

The principal portion in the first payment is therefore $30,192 - $8,000 = $22,192

The principal outstanding after the first payment is: $100,000 - $22,192 = $77,808

Second Payment

The interest portion in the second payment is: i = 0.08($77,808) = $6,225

The principal portion is: $30,192 - $6,225 = $23,967

The principal outstanding after the second payment is: $77,808 - $23,967 = $53,841

Third Payment

The interest portion in the third payment is: i = 0.08($53,841) = $4,307

The principal portion is: $30,192 - $4,307 = $25,885

The principal outstanding after the 3rd payment is: $53,841- $25,885 = $27,956

Fourth Payment

The interest portion in the third payment is: i = 0.08($27,956) = $2,236

The principal portion is: $30,192 - $2,236 = $27,956

The principal outstanding after the 3rd payment is: $27,956 - $27,956 = $0

The loan is paid off!

Summary of Amortized Loans

t	Principal Outstanding	Loan Payment	Interest Portion	Principal Portion
0	$100,000			
1	$77,808	$30,192	$8,000	$22,192
2	$53,841	$30,192	$6,225	$23,967
3	$27,956	$30,192	$4,307	$25,885
4	$0	$30,192	$2,236	$27,956

Note how the interest portion of each successive payment declines and the principal portion increases.

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1.23 Finding the Principal Outstanding on an Amortized Loan after n Payments

The principal outstanding on an amortized loan after ***n payments*** can be calculated by finding the present worth at t=n of the remaining payments.

Example
In the previous problem, the \$100,000 loan is being paid pack in four equal end-of-year payments. To find the principal outstanding after 1 payment has been, simply find the present worth of the remaining 3 payments at t = 1. The payments (A) are \$30,192 and i = 8%, n = 4 - 1 = 3 To find (P) given (A): $P = A\left[\frac{(1+i)^N - 1}{i(1+i)^N}\right]$ **= \$30,192[(1 + 0.08)3 - 1)/(0.08(1 + 0.08)3)] = \$30,192(2.5771) = \$77,808**

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1.24 Mortgages

Mortgages are long term loans that are often used to partially finance fixed assets such as buildings and property.

The asset is being financed by the mortgage (land and/or building) is pledged as security for the loan. A collateral mortgage is a mortgage that provides additional security on a loan that is already secured. It will be called upon as backup security in the event that the loan is in default and the primary security is inadequate to repay the loan.

Most mortgage loans do not exceed 75% of the appraised value of the asset.

Example

What are the monthly payments during the 5-year tem of a $350,000 commercial mortgage with a 25-year amortization and an interest rate of 5 percent compounded monthly?

P = $350,000

Since the payments are monthly, the interest rate per month = 0.05/12 = 0.0042

A 25-year amortization means 300 monthly payments.

Calculate the monthly mortgage payment:

$A = P[(i(1 + i)^N)/((1 + i)^N - 1)]$

$A = \$350,000[(0.0042(1 + 0.0042)^{300})/((1 + 0.0042)^{300} - 1)]$

A = $2,058

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1.25 Bonds

Bonds are a form of debt financing commonly used by large corporations and government agencies to raise capital.

Most bonds pay the lender/investor a regular interest payment and the principal is normally paid back at the end or maturity date of the bond.

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1.25a Terms

Par Value or Face Value (V): the principal amount of the bond or the amount borrowed. Bond par values are typically even denominations (e.g. $5,000, $20,000).

Maturity Date: the specified date at which the principal must be paid back.

Coupon Rate (r): the nominal annual interest rate paid by the borrower on the bond. Sometimes the annual interest owed is paid monthly, quarterly, annually. For example, a 10% coupon rate on a $10,000 bond might involve semi-annual interest payments of $500.

Debenture: an unsecured bond. There is no pledge of assets to secure the bond in the event of default of the borrower.

Mortgage Bond: a bond that is secured by a pledge of assets such as property or buildings

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1.25b Bond Valuation

Bonds are traded by investors in public capital markets. Bond investors are, in effect, lenders to the corporations and government agencies that issue the bonds.

Investors often sell bonds prior to the maturity date of the bond. When one investor sells a bond, the buying investor may pay more or less than the face value of the bond, depending upon the purchaser's desired rate of return or yield at the time of the purchase. The desired yield is influenced by prevailing market interest rate conditions.

If the purchaser's desired yield at the time of the purchase/sale is higher than the bond coupon rate because of prevailing market conditions, the bond will sell at less than face value or **at a discount**. If the investor's desired yield at the time of the purchase/sale is lower than the bond coupon rate, the bond will sell at a price greater than the face value or **at a premium**.

The purpose of bond valuation is to find out what price (relative to the bond face value) should be paid for a bond, given the bond coupon rate and the purchaser's desired yield, which in turn is influenced by prevailing market conditions.

There are three scenarios to consider when purchasing bonds - the desired nominal yield can be greater than, less than, or equal to the coupon rate of the bond.

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1.25b Bond Valuation

1. Desired Yield Greater than Bond Coupon Rate

How much will you pay for a 3-year $5,000 bond with a coupon rate of 8% and semi-annual interest payments if your desired nominal yield is 10% annually?

Bond Price: Desired Yield > Coupon Rate

V = $5,000
r = 8% = 4% semi-annually or $200 semi-annually
i = 5%
n = 6

The present value of the annual interest payments is:

$P = A[((1+i)^n – 1)/(i(1+I)^n)]$
$P = \$200[((1+0.05)^6–1)/(0.05(1+0.05)^6)]$
$P = \$200(5.075) = \$1,015$

The present value of the bond face value is:

$P = F/(1+i)^n$
$P = \$5,000/(1+0.05)^6 = \$3,731$

The price you would pay for the bond is: P = $1,015+ $3,731 = $4,746

In this case you would be buying the bond at a discount relative to the face value because your desired yield is higher than the bond coupon rate.

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1.25b Bond Valuation

2. Desired Yield Less than Bond Coupon Rate

How much will you pay for a 3-year $5,000 bond with a coupon rate of 8% and semi-annual interest payments if your desired nominal yield is 6% annually?

Bond Price: Desired Yield < Coupon Rate

V = $5,000

The annual interest payments will be: r = $5,000(0.04) = $200

The price you will pay for the bond will be the present value of the annual interest payments plus the present value of the bond face value at the desired yield of 3%.

The present value of the annual interest payments is:

$P = A[((1+i)^n - 1)/(i(1+i)^n)]$
$P = \$200[((1+0.03)^6 - 1)/(0.03(1+0.03)^6)]$
$P = \$200(5.4172) = \$1,083$

The present value of the bond face value is:

$P = F/(1+i)^n$
$P = \$5,000/(1+0.03)^6 = \$4,187$

The price you would pay for the bond is: P = $1,083 + $4,187 = $5,270

In this case you would be paying a premium for the bond relative to the face value because your desired yield, given current market conditions, is less than the bond coupon rate.

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1.25b Bond Valuation

3. Desired Yield Equals the Bond Coupon Rate

How much will you pay for a 3-year $5,000 bond with a coupon rate of 8% and semi-annual interest payments if your desired nominal yield is 8% annually?

Bond Price: Desired Yield = Coupon Rate

V = $5,000

The annual interest payments will be: r = $5,000(0.04) = $200

The price you will pay for the bond will be the present value of the annual interest payments plus the present value of the bond face value at the desired yield of 4%.

The present value of the annual interest payments is:

$P = A[((1+i)^n – 1)/(i(1+i)^n)]$
$P = \$200[((1+0.04)^6–1)/(004(1+0.04)^6)]$
$P = \$200(5.2421) = \$1,048$

The present value of the bond face value is:

$P = F/(1+i)^n$
$P = \$5,000/(1+0.04)^6 = \$3,952$

The price you would pay for the bond is: P = $1,048 + $3,952 = $5,000

In this case since the bond yield is equal to your desired yield, you will pay a price equal to the face value of the bond.

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1.26 Equity Financing

All companies require at least some equity capital to launch the business. It is very difficult for a start-up firm to borrow money until there are debt-free assets in the company to end against and/or established cash flow. Equity capital is also needed to grow a business. Sufficient equity is needed to ensure that the company does not exceed its optimal debt:equity ratio.

Equity capital consists of share capital provided by investors, possibly shareholder loans that are subordinated to all other loans made to the company and are therefore considered to be equity rather than debt, and the retained earnings or profits of the business. It is not unusual for all of the equity capital to be in the form of share capital in the early stages of a business because retained earnings may in fact be negative due to start-up losses.

Equity financing is sourced from investors as opposed to lenders. The investors might be the founding shareholder(s) of the company, private investors such as family, friends and/or wealthy individuals (often referred to as “angels”), professionally managed venture capital firms, or public equity markets.

The role and approach to investment of the various types of equity investors will be examined in greater depth later in this course.

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