

## CHAPTER 21

### TAX ASPECTS OF CORPORATE FINANCING

#### Review Questions

1. Why is it important to examine the corporate cost of financing alternatives in conjunction with the tax position of the potential investors?
2. If a corporation is subject to a 27% tax rate, why may it be advantageous for it to issue debt as opposed to preferred shares?
3. If the corporate tax rate is 13%, what difference does it make whether the corporation issues debt bearing 8% interest or preferred shares with a 6 3/4% dividend rate?
4. A corporation issues 7% bonds as well as preferred shares with an annual 5.5% dividend rate. Excluding the risk factor, what type of investor would prefer the bond and what type would prefer the shares? Explain.
5. An investor who is an individual could earn a 10% return either from shares that pay a low dividend and have high growth or from shares that pay a high dividend and have low growth. Assuming that the risk related to each is the same, which investment would the individual prefer? Assume the dividends are eligible dividends.
6. If the cost of preferred share financing is greater than debt, why are such securities issued by public corporations?
7. Briefly describe the tax treatment applied to expenses incurred to issue shares or borrow money (the cost of a prospectus, commissions to brokerage firms, and the like). What impact does this tax treatment have on the after-tax cost of financing?
8. If a corporation issues a bond at a price less than the face value of the security, the discount is amortized, for accounting purposes, over the life of the bond. How does this treatment of the discount compare with the treatment for tax purposes?
9. If a corporation issues a bond at a discount, will the after-tax cost of financing to the issuing corporation be higher or lower than if it had issued the bond at its face value? Explain.
10. Is the after-tax return to a casual investor who purchases a bond at a discount greater than or less than the after-tax return on a bond purchased at its face value? Explain.
11. How does the issuing of a bond at a premium affect the after-tax cost of financing to the corporate issuer?
12. Explain the difference between a financial lease and an operating lease.
13. What is the difference, in tax terms, between leasing and owning?

## Solutions to Review Questions

R21-1. The buyers of corporate securities include individuals, private corporations, other public corporations, and an array of pension and other investment funds. The tax treatment of investment returns for each type of investor may vary. Therefore, certain investors prefer certain types of securities because of that particular tax treatment, and may be prepared to pay a higher price than other investors for the same investment. In order to take advantage of a tax sensitive market, the corporation issuing securities must be familiar with investor tax concerns in order that a cost efficient financing structure is developed.

R21-2. Debt financing is serviced by the payment of interest that is fully deductible from corporate income for tax purposes. In comparison, preferred shares are serviced by the payment of dividends which are not deductible and, therefore, must be paid from after-tax corporate income.

For example, a corporation that incurs an interest cost of 10% on \$100,000 of borrowed funds (\$10,000) can fund the cost of the borrowed funds by investing them to provide a minimum return of 10%. If this occurs, the after-tax income available to the common shareholders remains the same. In comparison, issuing preferred shares with a dividend rate of 8% requires that the capital be invested by the corporation at a minimum rate of 10.96% in order that it would not affect the after-tax income available to common shareholders. A 10.96% return results in an 8% after-tax return (10.96% - 27% tax = 8%) that is required to make the dividend payments. Therefore, even though a dividend rate may be lower than an interest rate (8% versus 10%), the real cost of the dividend is significantly higher.

R21-3. If the corporate tax rate is 13%, the cost of issuing debt with interest at 8% or preferred shares with dividends of 6 3/4% is very similar. In both cases, the corporation will have to invest the acquired funds to return a minimum of 8% in order to service the debt or preferred shares.

This is demonstrated below assuming that \$100,000 of funds are obtained from the financing arrangement and invested by the corporation to earn an 8% pre-tax return.

Debt:

Corporate income earned	\$8,000
Less interest (8% of \$100,000)	<u>(8,000)</u>
Net income to corporation	<u>\$ 0</u>

Preferred shares:

Corporate income earned	\$8,000
Less corporate tax (13%)	<u>(1,040)</u>
	6,960
Less dividend (6 3/4% of \$100,000)	<u>6,750</u>
Net to corporation	<u>\$ 210</u>

R21-4. Each type of investor may be subject to different tax treatments on the returns provided by the two securities. Interest returns are fully taxable to each investor at their marginal rates of tax. However, dividend returns vary considerably. Public corporations are not taxable on the receipt of Canadian dividends, Canadian-controlled private corporations are subject to a special refundable tax of 38 1/3%, and individuals are eligible for the dividend tax credit. The approximate marginal tax rates and after-tax yields for each investor are summarized below:

	<u>7% Bond</u>		<u>5.5% Shares</u>	
	<u>Tax Rate</u>	<u>After-tax Yield</u>	<u>Tax Rate*</u>	<u>After-tax Yield</u>
Individual:				
Low bracket	20%	5.6%	0%	5.5%
2 <sup>nd</sup> bracket	30	4.9	7	5.1
3 <sup>rd</sup> bracket	40	4.2	21	4.3
4 <sup>th</sup> bracket	45	3.9	28	4.0
High bracket	50	3.5	35	3.6
Private Corporation	50 2/3	3.5	38 1/3**	3.4
Public Corporation	27	5.1	0	5.5

\* Dividend assumed to be Eligible

\*\* 38 1/3% refundable part IV tax

Based on the above, individuals (other than those in the low bracket) and public corporations prefer the 5.5% preferred shares over the 7% bonds; individuals in the low bracket and private corporations prefer the bond.

R21-5. The tax rates on capital gains and dividends vary by different amounts for individuals in the four applicable tax brackets. Therefore, the preference for obtaining returns as dividends versus capital gains also varies. The applicable tax rate and after-tax yields for each tax bracket are summarized below. The rates exclude provincial surtaxes and relate to an unspecified province. (See Chapter 10)

	<u>Dividend (Eligible)</u>		<u>Capital Gain</u>	
	<u>Tax Rate</u>	<u>After-tax Yield</u>	<u>Tax Rate</u>	<u>After-tax Yield</u>
Low bracket	0%	10.0%	10%	9.0%
2 <sup>nd</sup> bracket	7	9.3	15	8.5
3 <sup>rd</sup> bracket	21	7.9	20	8.0
4 <sup>th</sup> bracket	28	7.2	23	7.7
High bracket	35	6.5	25	7.5

Based on the above, individuals in the first two tax brackets prefer the investment with high dividends and low growth. Individuals in the third, fourth and highest tax bracket prefer capital gains over dividends. The timing of the tax cost may also be a factor as dividends are taxed as they are received but capital gains are taxed only when the shares are sold.

- R21-6. In spite of the fact that preferred share issues result in a higher cost than debt securities, they are still considered viable when debt loads reach their maximum level. As long as the preferred share capital can be invested at a rate of return that is higher than the after-tax cost of the preferred share issue, common shareholders will benefit. In addition, the added equity base may relieve the pressure of current debt loads (especially if the preferred shares have no fixed redemption requirements) permitting future debt to be obtained at a lower interest cost.
- R21-7. Expenses incurred to borrow money or issue shares are permitted to be deducted for tax purposes over a five year period at the rate of one-fifth of the total cost per year [S.20(1)(e)]. Therefore, the after-tax cost of financing must consider the timing of the tax savings that occur from such costs. While the costs associated with interest or dividends are spread out over the life of the security, the implementation costs create tax savings in the first five years.
- R21-8. While the discount cost of issuing a bond at less than face value is amortized over the life of the bond for accounting purposes, the tax treatment is dramatically different. For tax purposes, the cost is recognized only when the bond is repaid. In addition, the amount of the deduction may be limited. If the initial discount is a "shallow" discount (issued at 3% or less than its face value), the full discount cost is deductible when the debt is repaid. However, if the initial discount is greater than 3% (a "deep" discount) only one-half of the discount is deductible when the debt is repaid [ITA 20(1)(f)]. Therefore, the primary difference is the timing of the deduction and the related tax savings, although the amount of the deduction may be different as well.
- R21-9. Where it is anticipated that a bond with a stated interest rate will have to be issued at a discount, the discount can be eliminated by increasing the interest rate to the amount demanded by the marketplace. If this is done, the additional cost occurs in the form of an actual interest payment creating tax savings annually as payments are made.

In comparison, if the interest rate is not adjusted and the discount remains, the cost of that discount, which reflects the higher required interest rate, is deductible for tax purposes when the debt is repaid rather than annually over the term of debt. Therefore, the timing of the tax savings from the cost deduction is later rather than sooner. Consequently, the after-tax cost of financing when measured on a time basis is greater under the discount approach. The discount approach may result in even greater costs if it is a "deep" discount and only one-half of the cost is deductible (see solution to question 8).

- R21-10. An investor who purchases a bond at a discount will receive a lower than normal annual interest return but will receive a gain when the debt is repaid (difference between the discount price and face value), such that the combined pre-tax yield is the same. The tax treatment of the investor's gain from the discount is, therefore, important in establishing an after-tax yield comparison.

Where the purchasing of bonds is part of the investor's business, the gain from the discount is fully taxable. However, where the investor is not in the business of buying and selling securities but rather is investing savings from time to time, the gain may be considered as a capital gain for tax purposes of which only one-half is taxable. For this type of investor, acquiring discounted bonds will provide greater after-tax returns.

- R21-11. Issuing a bond at a premium means that the security is issued at a price greater than the face amount but the annual interest cost is equal to the stated rate of interest on the face value. This premium reflects the fact that the stated interest rate is too high. Consequently, the issuer incurs a higher annual interest cost in exchange for a premium gain because they must repay only the face value of the bond rather than the higher amount received on issuance.

The premium gain is not taxable to the issuing corporation (unless it is in the business of lending money) but the actual higher interest costs remain deductible for tax purposes even though that higher cost is recovered from the premium. In comparison, if the corporation reduced the interest rate to eliminate the premium, only the lower interest would be deductible even though the pre-tax cost is the same. Therefore, issuing debt securities at a premium normally results in lower after-tax financing costs.

- R21-12. A financial lease is one that provides the lessee with the right to use an asset for a long period of time, normally for most of its useful life. In most cases, the lessee will be the only user of the property. The lease payments are usually structured to permit the leasing company to recover the full cost of the property plus a reasonable return on their investment. Financial leases are a direct alternative to purchasing assets with debt financing as the payment terms are based on similar variables.

In comparison, an operating lease normally has a short term and is used to obtain the use of assets that have a lower cost and short-term life, such as furniture and small office equipment.

- R21-13. Annual rent payments under a leasing arrangement are deductible for tax purposes as they occur. Therefore, provided that the business entity has taxable income, the rental payments directly reduce income taxes in proportion to the lease payments. If assets are purchased, the timing of the related tax savings may be significantly different. Cash payments are required for the down payment as well as the principal and interest on a loan. However, the tax deductions occur in accordance with the applicable capital cost allowance rate and the payment of interest. Therefore, the timing of cash payments and the tax savings that occur are not in proportion as is the cash under a lease arrangement.

## Key Concept Questions

### QUESTION ONE

Orange Inc., a multi-national, publicly traded electronics manufacturer, is considering expanding its product portfolio to include crop inspection drones. A new production facility will be purchased at a cost of \$50,000,000 to produce the drones. Management is currently deciding how to finance the expansion and is considering the issuance of preferred shares or long-term (i.e., 20 year) bonds. The current market rate of interest on debt with a similar risk profile is 6.5%. Research suggests that preferred shares with a dividend yield of 5% would provide investors with sufficient return to attract the needed amount of capital. Orange Inc. currently pays income tax at a rate of 25%.

Determine the following:

- What pre-tax yield must Orange Inc. earn on each source of the invested capital in order to ensure that the after-tax cash available to common shareholders remains unchanged?
- What preferred share dividend rate would make the required pre-tax yield on both types of invested capital the same?
- What is the after-tax cost of each source of financing? Assume the bonds pay interest on an annual basis and that they are issued at their stated value.

*CPA Competency 5.2.3 Evaluates sources of financing.*

### QUESTION TWO

Given the facts in Question One, what is the after-tax cost of debt financing if the market interest rate increases by 0.2% prior to the issuance of the bonds?

*CPA Competency 5.2.3 Tax implications of the financing options. Income tax reference: ITA 20(1)(f).*

### QUESTION THREE

Let's Eat Ltd. is a Canadian-controlled private corporation. The company provides home delivery services for restaurants. The sole shareholder, Maggie Dellio, intends to acquire a fleet of delivery vehicles and is trying to decide if they should be leased or purchased. If purchased, each vehicle will cost \$45,000 and will have a useful life of four years. At the end of four years, Maggie anticipates that each vehicle could be sold for \$8,300. For capital cost allowance (CCA) purposes, the vehicles are not designated *immediate expensing property*. The vehicles qualify as Class 10 assets and for the Accelerated Investment Incentive. Assume that the CCA class would remain open when the vehicles are sold in four years.

To fund the purchase, Let's Eat Ltd would have to borrow the money from a bank at an interest rate of 4%. The amount owing would be amortized over four years, with annual payments of \$12,397 (payable at the end of the year). If the vehicles are leased, the annual lease payments would total \$9,207 per year for four years (payable at the beginning of the year). Let's Eat Ltd. would be responsible for all maintenance costs on the vehicles.

Assume that Let's Eat Ltd. uses a discount rate of 15% when analyzing capital expenditures, and that the corporate tax rate is 27%. Should Let's Eat Ltd. purchase or lease vehicles?

*CPA Competency 5.3.1* Analyzing capital projects, incorporating the tax considerations. *Income tax reference: ITA 20(1)(a), 20(1)(c).*

## Solutions to Key Concept Questions

### KC 21-1

[CPA Competency Map 5.2.3]

In order to ensure the same amount of cash is available to common shareholders, the annual after-tax income earned on the invested capital should equal the annual required payment to service the capital (i.e., there should be no change in the net cash of the corporation). The required pre-tax yield on invested capital funded through debt is the interest rate on the debt, since the interest paid is fully deductible for tax purposes. This is illustrated as follows:

Pre-tax yield @ 6.5%	\$	3,250,000	(\$50,000,000 x 6.5%)
Interest costs @ 6.5%	-	3,250,000	(\$50,000,000 x 6.5%)
Net cash to corporation	\$	-	

Therefore, the required pre-tax yield on the bonds would be 6.5%.

The required pre-tax yield on preferred share capital, however, is always higher than the dividend rate because, unlike interest, the dividend payments are not tax deductible. The pre-tax yield on preferred share capital = Dividend %/(1-t), which in this case = 5%/0.75 = 6.7%.

Put another way, the pre-tax income that must be earned on the invested capital is \$3,333,333:

Pre-tax corporate income	\$	3,333,333	
Corporate taxes @ 25%		833,333	
After-tax corporate income		2,500,000	
Dividends paid	-	2,500,000	(5% x \$50,000,000)
Net cash to corporation	\$	-	

The pre-tax yield required on the preferred share capital is computed as follows:

\$	3,333,333
\$	50,000,000
=	6.7%

The dividend rate where the required pre-tax yield on both types of invested capital would be the same (i.e., 6.5%) is calculated as:

$$\begin{aligned} & \text{pre-tax yield on debt capital} \times (1-t) \\ & 6.5\% \times 0.75 = 4.875\% \end{aligned}$$

To demonstrate, with a dividend rate of 4.875% and a pre-tax yield of 6.5%, the net cash to the corporation is zero:



Pre-tax corporate income	\$	3,250,000	
Corporate taxes @ 25%		812,500	
After-tax corporate income		2,437,500	
Dividends paid	-	2,437,500	(4.875% x \$50,000,000)
Net cash to corporation	\$	-	

The pre-tax yield required on the preferred share capital is computed as follows:

\$	3,250,000
\$	50,000,000
=	6.5%

Note that the after-tax cost of debt financing = 6.5% (1 - t) = 4.875%. It can be concluded from the above analysis that the required dividend rate on preferred shares to ensure that the pre-tax yield on the invested capital is the same, whether debt or equity is issued, is the after-tax cost of debt. This should be intuitive, given that the before and after-tax cost of preferred share financing is the same (in this case, 5%) because of the inability to deduct dividend payments in computing taxable income.

## KC 21-2

[ITA: 20(1)(f)]

The rise in the market rate of interest will cause the bond to be issued at a discount (i.e., issuance price will be less than the stated value), since investors will not be receiving their required rate of return in cash on an annual basis and will only buy the bonds if they are issued at a discount from the stated value. The discount represents a finance cost to the issuer, since it means the company will get less money upon issuance than the company will pay at maturity to the investors. From a tax standpoint, the discount is a deductible business expense (like interest), but only when the bond is redeemed. The amount of the discount (as a percentage of stated value) is important, since only half the discount is deductible if the discount is greater than 3% of the stated value (i.e., “deep discount”). Incorporating the change in the market interest rate, the expected issuance price of the bonds and related discount are calculated as follows:

Future value		\$50,000,000	
Interest rate		6.7%	
Periodic payment		3,250,000	(\$50,000,000 x 6.5%)
Number of payments		20	
<b>Issuance price (PV)</b>		<b>\$48,915,441</b>	
Discount		\$1,084,559	
Discount % of stated value		2.2%	

The 2.2% discount represents a “shallow discount”, since it is less than 3% of the stated value (i.e., \$50,000,000) of the bonds. Therefore, the entire amount of the discount will be deductible in the year the bond is redeemed. At the time of redemption, then, the after-tax cost of redeeming the bonds will be:

Stated value of bond		\$50,000,000	
Tax savings from discount		271,140	(\$1,084,559 x 25%)
Net amount		\$49,728,860	

The revised after-tax cost of debt financing is computed with reference to the revised issuance price and the after-tax cost to redeem the bond as follows:

Future value		\$49,728,860	
After-tax periodic payment		2,437,500	(\$50,000,000 x 6.5% x .75)
Number of payments		20	
Issuance price (PV)		\$48,915,441	
<b>Interest rate (cost of financing)</b>		<b>5.03%</b>	

The interest rate increase and resulting discount increase the after-tax cost of debt financing from 4.875% to 5.03%.

### KC 21-3

[ITA: 20(1)(a), 20(1)(c)]

The decision to purchase or lease depends on a few factors, most notable the annual cash flow requirements of the business and the overall cost of each alternative. In general, the option with the lowest cost on a net present value basis should be preferred unless the other option provides more favourable cash flow patterns relative to the needs to the business.

#### Purchase Option

When an asset is purchased, the cash payments will be offset by any tax savings that may result from making the payment and/or owning the asset. In particular, interest costs related to the purchase of an asset are fully deductible, provided the asset is used to earn income from the business or property. In addition, capital cost allowance may be claimed on assets that are legally owned, provided they are available for use. As a first step, the interest costs are calculated based on the outstanding amount of the loan and the amount of time the loan was outstanding as follows:

<u>Payment</u>	<u>Principal</u>	<u>Interest</u>	<u>Balance</u>
1	\$10,597	\$1,800	\$34,403
2	11,021	1,376	23,282
3	11,462	935	11,920
4	11,920	477	-

Next, capital cost allowance is computed with reference to the specific class the asset falls under, taking into account the fact that the vehicles qualify for the Accelerated Investment Incentive which entitles the business to deduct 1.5 times the normal CCA in the year of acquisition. The CCA and resulting tax savings are presented below.

<u>Year</u>	<u>CCA</u>	<u>Interest</u>	<u>Total</u>	<u>Tax Savings</u>
1	\$20,250	\$1,800	\$22,050	\$5,954
2	7,425	\$1,376	\$8,801	\$2,376
3	5,198	\$935	\$6,133	\$1,656
4	3,638	\$477	\$4,115	\$1,111

The overall cost on a net present value basis of purchasing is computed with reference to the payments, as well as the tax savings from interest deductibility and capital cost allowance as follows:

<u>Year</u>	<u>Payments</u>	<u>Tax Savings</u>	<u>After-Tax Cost</u>	<u>NPV</u>
1	\$12,397	\$5,954	\$6,444	\$5,603
2	12,397	2,376	10,021	7,577
3	12,397	1,656	10,741	7,063
4	12,397	1,111	11,286	6,453
Salvage	-\$ 8,300	-	8,300	- 4,746
CCA TS			- 189	- 19
<b>Net Cost of Purchasing</b>				<b>\$21,931</b>

The CCA TS (“CCA Tax Shield”) above refers to the present value of the savings from deducting CCA after the asset has been sold. CCA on any remaining UCC balance can be claimed as long as the balance in the pool remains positive and there are other assets in the class at the time of the disposal. The CCA TS on the remaining UCC balance is calculated as follows:

$$\frac{\text{Remaining UCC (at time of disposal)} \times \text{CCA}\% \times \text{tax rate}}{\text{CCA}\% + \text{discount rate}}$$

$$\frac{(\$45,000 - 20,250 - 7,425 - 5,198 - 3,638 - 8,300) \times 30\% \times 27\%}{30\% + 15\%}$$

$$= \$34$$

This is the present value of the tax shield provided, as valued at the end of the fourth year. This amount must be discounted back to time zero to get the present value of the tax savings as follows:

$$= \$34 / (1.15)^4$$

$$= \$19$$

### Leasing Option

When leasing an asset, the entire annual payment is deductible as an operating expense for tax purposes. However, since the vehicles are not legally owned by Let’s Eat Ltd., capital cost allowance cannot be claimed on the vehicles. The net present value of leasing the vehicle is calculated as follows:

<b>Year</b>	<b>Payment</b>	<b>Tax Savings</b>	<b>After-Tax Cost</b>	<b>NPV</b>
1	\$ 9,207	\$ 2,486	\$ 6,721	\$ 6,721
2	9,207	2,486	6,721	5,844
3	9,207	2,486	6,721	5,082
4	9,207	2,486	6,721	4,419
<b>Net Cost to Leasing</b>				<b>\$ 22,066</b>

It is important to note that the lease payments are made at the start of the year, as opposed to the end of the year as was assumed with the purchase option. This increases the overall cost of the leasing option. As can be seen by comparing the two options, the option to purchase is the cheaper alternative.

In terms of cash flows, leasing requires a slightly higher after-tax cash payment in year one, but results in significant cash savings in years two and three. This can be very important, especially in the early years of a business as the business consumes large amounts of cash. At the end of year four (start of year 5), the disposal of the vehicles under the purchase option results in a cash inflow of \$8,300 per vehicle, which serves to reduce the overall cash outflows during that timeframe. A forecast of cash flow requirements by year should be used in conjunction with a net present value analysis to make a final determination as to which option best suits the needs of the business.