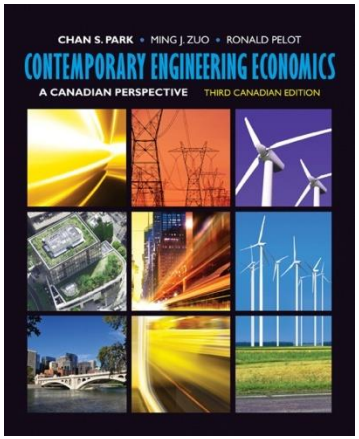
Corporate Income Tax Calculation



Lecture No. 26
Chapter 9
Contemporary Engineering Economics
Third Canadian Edition

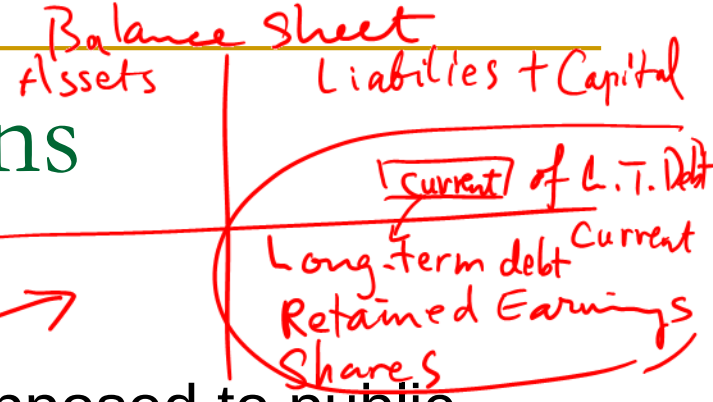
Lecture 26 Objectives

- How do you determine the appropriate tax rate to use in project analysis?
- What is the availability of investment tax credits (ITC) for certain types of expenditures?
- How do you calculate the disposal tax effect when selling off assets?

Combined Corporate Tax Rates on Operating Income

- The combined corporate tax rate consists of a federal rate plus a provincial or territorial rate. Rates can depend on factors such as what the corporation does, where it is located, and how large it is.
- For Canadian-controlled private corporations, there are three corporate tax rates: small business, nonmanufacturing, and manufacturing.
- In all cases, the starting point is the basic federal tax rate of 38%, which is reduced by the 10% federal tax abatement.
- Corporate tax rates are flat in each tax category.

Small Business Deductions



- Private Canadian corporations (as opposed to public corporations listed on the stock exchange) whose taxable capital is less than $10 million qualify for the federal small business deduction (SBD) of 17% on the first $400,000 of taxable income. SBDs differ between provinces and territories.
- For corporations with taxable capital exceeding $10 million, the SBD percentage is reduced linearly until it reaches zero when the taxable capital is $15 million.
- Taxable capital includes the company's capital stocks, retained earnings, long-term debt, etc.

Combined Corporate Tax Rates

- Combined corporate tax rate is obtained by adding the federal value for a given type of corporation to the corresponding provincial/territorial value.

Federal Corporate Tax Structure for 2008

	Type of Corporation		
	Small Business[2]	Manufacturing	Nonmanufacturing
Basic federal tax	38.0%	38.0%	38.0%
Less: federal abatement	10.0%	10.0%	10.0%
Less: SBD	17.0%	—	—
Less: MPPD	—	8.5%	—
Less: rate reduction[3]	—	—	8.5%
Total federal tax rate	11.0%	19.5%	19.5%

Combined Corporate Tax Rates

Provincial /Territorial Corporate Tax Structure for 2008

	Small Business[2]	Manufacturing	Nonmanufacturing
Province/Territory			
British Columbia	3.91%[3]	11.5%[3]	11.5%
Alberta	3.0%	10.0%	10.0%
Saskatchewan	4.5%	10.0%	12.5%[3]
Manitoba	2.0%	13.5%[3]	13.5%[3]
Ontario	5.5%	12.0%	14.0%
Quebec	8.0%	11.4%	11.4%
New Brunswick	5.0%	13.0%	13.0%
Nova Scotia	5.0%	16.0%	16.0%
Prince Edward Island	3.47%[3]	16.0%	16.0%
Newfoundland & Labrador	5.0%	5.0%	14.0%
Yukon	2.5/4.0%[4]	2.5%	15.0%
Northwest Territories	4.0%	11.5%	11.5%
Nunavut	4.0%	12.0%	12.0%

Example 9.4: Corporate Income Taxes

- A Canadian-controlled and private mail-order computer company in Truro, Nova Scotia, sells computer supplies and peripherals. The company leased showroom space and a warehouse for $20,000 a year and installed $100,000 worth of inventory checking and packaging equipment. At a 30% CCA rate, the CCA within the first year will amount to $15,000. The store was completed and operations began on January 1. The company had a gross income of $1,450,000 for the calendar year. Supplies and all operating expenses other than the lease expense were itemized as follows:

Costs of goods sold	$500,000
Employee salaries & benefits	$250,000
Other supplies and expenses	$90,000
Total expenses	$840,000

- How much will the company pay in federal and provincial income taxes for the year?

Example 9.4: Corporate Income Taxes (continued)

Facts:

Capital expenditure	$100,000
CCA	$15,000
Gross Sales revenue	$1,450,000
Expenses:	
Cost of goods sold	$500,000
Employee salaries and benefits	$250,000
Other Supplies	$ 90,000
Leasing warehouse	$ 20,000

Question: Taxable income?

Example 9.4: Solution

- Given: Income, cost information, and CCA
- Find: Taxable income, federal and provincial income taxes

Taxable income:

Gross income	$1,450,000
Expenses: (Exclude leasing + CCA)	$840,000
leasing expense	$20,000
CCA	$15,000
Taxable income	**$575,000**

(Singled out for taxation)

Example 9.4: Solution: Federal Income Tax

Taxable income	**$575,000**

First $400,000 is taxable at the rate of 11%
(Small business federal corporate tax rate)

Federal tax	= 400,000 × 11% =	$44,000

The remaining $175,000 is taxable at the rate of 19.5%

Federal tax	= 175,000 × 19.5% =	$34,125
Federal tax payable		$78,125

Example 9.4: Solution: Provincial Income Tax

Taxable income **$575,000**

First $400,000 is taxable at the rate of 5% of the small business federal corporate tax rate:

Provincial tax = 400,000 × 5% = $20,000

The remaining $175,000 is taxable at the rate of 16%:

Provincial tax = 175,000 × 16% = $28,000

Provincial tax payable $48,000

Total combined corporate tax payable $126,125

(Federal + provincial)

Types of Corporate Income and Tax Rates

- **Tax Rate on Operating Income: t, usually given**
- **Tax Rate on Capital Gains Income: ½ t** — tax
- **Tax Rate on Capital Loss: ½ t**

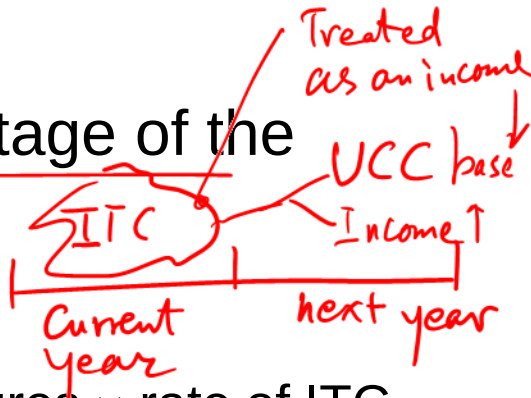
credit

Investment Tax Credits

- Investment tax credits (ITC) provide incentives that encourage investments in certain types of activities within specific areas of Canada.
- Income taxes can be reduced by a percentage of the expenditures that are eligible for an ITC.
- ITCs are calculated as follows:

  investment tax credit = value of eligible expenditures × rate of ITC

- When the ITC is earned from expenditures toward the capital cost of qualified depreciable assets, the UCC in that class must be reduced by the ITC amount in the year following the corresponding ITC claim for that investment.



Investment Tax Credits

Investment Tax Credit Rates (2008) and Key Conditions

Expenditure category	Rate (%)	Region	Refundable tax credit	Limits
SR&ED	20 or 35[1]	Canada	Y	$3,000,000[2]
Qualified property	10	Atlantic provinces and offshore;		
		Gaspé Peninsula	Y	n/a
Pre-production mining	10	Canada	N	n/a
Child-care spaces	25	Canada	N	$10,000 per child-care space
Apprenticeship job creation	10	Canada	N	$2,000/year/ employee

SR&ED: Scientific Research & Experimental Development

Example 9.5: Investment Tax Credits

- During 2009, Medea Metals, near Moncton, New Brunswick, invested $2,000,000 in precision processing machinery to expand their operation (Class 43) and also hired seven apprentices to assist with the increased workload. Their combined salaries eligible for ITCs amounted to $140,000 for the year. Calculate the impact of the investment tax credits for 2009 and 2010.

limit $2000 x 7 = $14,000

just right for

10% x $140,000 = $14,000

ITC rate

Example 9.5: Solution

- Given: Expenditures on Qualified Property and on Eligible Apprentices
- Find: The ITCs and their impact on taxes and on CCA for two years
- For the current expenditures on apprentices the ITC rate is 10%, so there will be a $14,000 credit against the 2009 tax payable. This amount of $14,000 must be included as income in 2010.
- The ITC for the capital investment is 10% in the Atlantic Provinces, thus there will be a credit of $200,000 against Tax Payable in 2009.

Example 9.5: Solution

- The Class 43 depreciation rate is 30%. The 50% rule will be applied to the total capital investment of $2,000,000 to calculate the capital cost allowance for 2009 as follows:
  - CCA_{2009} = 1/2 * 0.30*$2,000,000 = $300,000
- Therefore, this allowance will reduce the UCC at the end of 2009 to $1,700,000.
- In 2010, the $200,000 ITC must be deducted from the January 1, 2010, UCC, leaving a balance of $1,500,000. So the 2010 CCA will be:
  - CCA_{2010} = 0.30*$1,500,000 = $450,000

Timing of Corporate Income Tax Payments

- It is assumed that corporate investments occur at the beginning of each fiscal year and income taxes are paid as a lump sum at the end of each fiscal year.

Depreciable Assets: Disposal Tax Effects

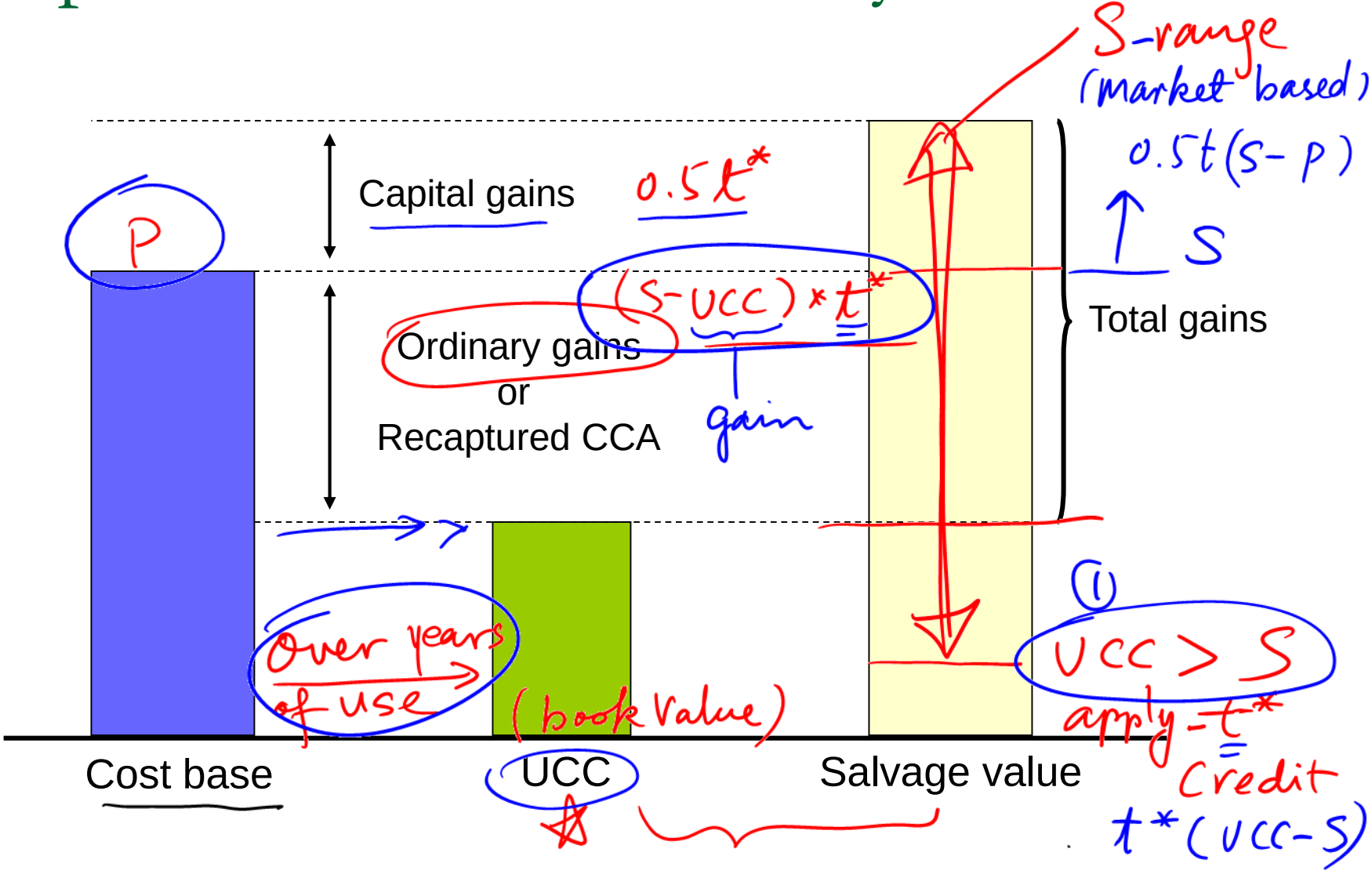
- During the disposal of capital assets, there are generally gains or losses on the sale (or exchange) of depreciable assets. To calculate a gain or loss, we first need to determine undepreciated capital cost (UCC) of the depreciable asset at the time of disposal.
- When a depreciable asset used in business is sold for an amount different from its UCC, this gain or loss has an effect on income taxes. The gain or loss is found as follows:

  Gains (losses) = salvage value – UCC.

  when S > P
  [S - P] - Capital gain

- These gains, known as recaptured CCA, are taxable.

Capital Gains and Ordinary Gains



Disposal Tax Effects

1. If Cost Base > Salvage Value > UCC, CCA recapture applies.
2. If Salvage Value > Cost Base > UCC, Capital Gains and CCA recapture applies.
   - Capital gains tax = capital gains × tax rate on capital gains, which is currently ½ of the effective income tax rate
3. If Cost Base > UCC > Salvage Value, CCA tax reduction applies.

Calculation of Disposal Tax Effects

- We assume that the tax implications of the disposal are completely realized in the year of disposal and there are no new acquisitions to the asset class in that year. Specifically, we assume that the disposal occurs just prior to the end of the last year of service and that the CCA in the year of asset disposal is calculated in the usual manner and without reference to the disposal.
- Because of the above assumptions, any gains on disposal are taxable at appropriate tax rates, and any losses incurred result in tax savings.

Calculation of Disposal Tax Effects

- Let G be the extra tax payment or the tax savings realized in the year of disposal. We usually have:

  $G = t\,(U_{Disposal} - S)$,

  - where $U_{Disposal} = UCC_N$, and t is the tax rate

- When capital gains are involved, the total disposal tax effect G becomes

  $G = t\,(U_{Disposal} - P) - t_{CG}(S - P)$

  - where P is the initial cost base (time zero installed cost), t_{CG} is the capital gains tax rate, and $U_{Disposal}$ is the asset's UCC at the end of the year in which the disposal occurs.

Calculation of Disposal Tax Effects

- The net salvage value, NS, is the sum of the salvage value and the disposal tax effect:

$$NS = S + G$$

taxation effect

Example 9.7: Disposal Tax Effects on Depreciable Assets

- A company purchased a drill press costing $250,000. The drill press is classified as a CCA Class 43 property with a declining balance rate of 30%. If it is sold at the end of three years, compute the disposal tax effects and the net salvage values for the following four salvage values: (a) $150,000, (b) $104,125, (c) $90,000, and (d) $280,000. Assume that the company's combined federal and provincial tax rate is 40% and that capital gains are taxed at 1/2 of their value, i.e., effectively taxed at 20% in this example.

t

$t_{CG} = 0.5t$
$= 20\%$

Example 9.7: Solution

- Given: a CCA Class 43 asset, cost base $250,000, sold three years after purchase.
- Find: Disposal tax effects, and net salvage value from the sale if sold for $150,000, $104,125, $90,000, or $280,000

Year	Capital Cost Allowance (30% CCA rate)	UCC
0		$250,000
1	$37,500	212,500
2	63,750	148,750
3	44,625	104,125

Example 9.7: Solution (a)

- Case 1: UCC < salvage value < cost base

$$\text{Disposal tax effects} = G = t(U_{Disposal} - S)$$
$$= 0.4 \times (\$104{,}125 - \$150{,}000)$$
$$= -\$18{,}350$$

change of sign

payback to government

$$\text{Net salvage value} = \text{salvage value} + \text{disposal tax effects}$$
$$= \$150{,}000 - \$18{,}350$$
$$= \$131{,}650$$

Example 9.7: Solution (b)

- Case 2: Salvage value = UCC

- In Case 2, the UCC is again $104,125. Thus, if the drill press's salvage value is $104,125, equal to the UCC, no taxes are calculated on that salvage value. Therefore, the net proceeds equal the salvage value.

G = 0

NS = S + G = $104,125

Example 9.7: Solution (c)

- Case 3: Salvage value < UCC

Credit - t

$$\text{Disposal tax effects} = G = t(U_{Disposal} - S)$$

14,125

$$= 0.4 \times (\$104{,}125 - \$90{,}000)$$

Ucc − S

$$= \$5{,}650$$

Sign has to be judged on the term referred

$$\text{Net salvage value} = \text{salvage value} + \text{disposal tax effects}$$

$$= \$90{,}000 + \$5{,}650$$

$$= \$95{,}650$$

(Continue next time)

Example 9.7: Solution (d)

- Case 4: Salvage value > cost base

$$\text{Capital gains} = \text{salvage value (S) - cost base (P)}$$
$$= \$280{,}000 - \$250{,}000 = \$30{,}000$$

$$\text{Capital gains tax} = \$30{,}000 \times 1/2 \times 0.4 = \$6{,}000$$

½ of tax rate (40%)

$$\text{Disposal tax effects} = \text{-capital gains tax} + t(U_{Disposal} - P)$$
$$= -\$6{,}000 + 0.4 \times (\$104{,}125 - \$2500{,}000)$$
$$= -\$6{,}000 + \$58{,}350$$
$$= -\$64{,}350$$

$$\text{Net salvage value} = \text{salvage value} + \text{disposal tax effects}$$
$$= \$280{,}000 - \$64{,}350 = \$215{,}650$$

Extra Example

An asset in Class 8 with a CCA rate of 20% costs $120,000 and has a zero estimated salvage value after six years of use. The asset will generate annual revenues of $300,000 and will require $80,000 in annual labour and $50,000 in annual material expenses. There are no other revenues and expenses. Assume a tax rate of 40%.

(a) What is the net income in a specific year?

(b) What is the net cash flow in a specific year?

(c) What is the net salvage value of the disposal of the asset?

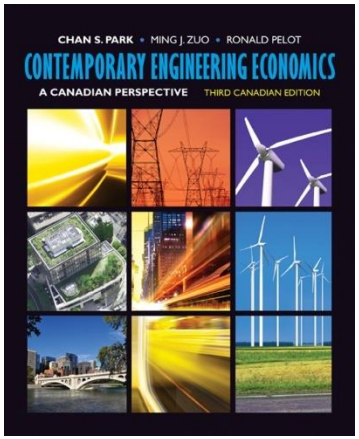
Calculation Results

Given	CCA rate	20%		Tax rate	40%		
Year	0	1	2	3	4	5	6
Investment on equipment	$ 120,000						
Revenue		$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Labour Cost		$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000	$ 80,000
Material Cost		$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
UCC		$ 120,000	$ 108,000	$ 86,400	$ 69,120	$ 55,296	$ 44,237
CCA		$ 12,000	$ 21,600	$ 17,280	$ 13,824	$ 11,059	$ 8,847
Gross Income		$ 158,000	$ 148,400	$ 152,720	$ 156,176	$ 158,941	$ 161,153
Operating Tax		$ 63,200	$ 59,360	$ 61,088	$ 62,470	$ 63,576	$ 64,461
Salvage Value							0
Disposal Tax Saving (UCC>S)							$ 17,695
Net Income		$ 94,800	$ 89,040	$ 91,632	$ 93,706	$ 95,364	$ 114,386
Net Cash Flow		$ 106,800	$ 110,640	$ 108,912	$ 107,530	$ 106,424	$ 123,234
Net Slavage Value							$ 17,695

(Cost) 20% 40% + CCA 50% first-yr rule applied

CCA 20% 40% Tax Credit timing +8,847 used in tax reduction

Summary



Disposal of depreciable assets – as with disposal of capital assets – may result in gains (recaptured depreciation) or losses, which must be considered in calculating taxes.