



# SPROTT

SCHOOL OF BUSINESS

## **BUSI 2505e - Business Finance**

**Monday, January 4, 2010**

§2.3 Cash Flow (review)

§2.5 Capital Cost Allowance (CCA)

§10 Capital Investment Decisions

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- Textbook:** Ross, Westerfield, Jordan and Roberts (2007)  
**Fundamentals of Corporate Finance**  
(6th Canadian Ed.)  
McGraw-Hill Ryerson

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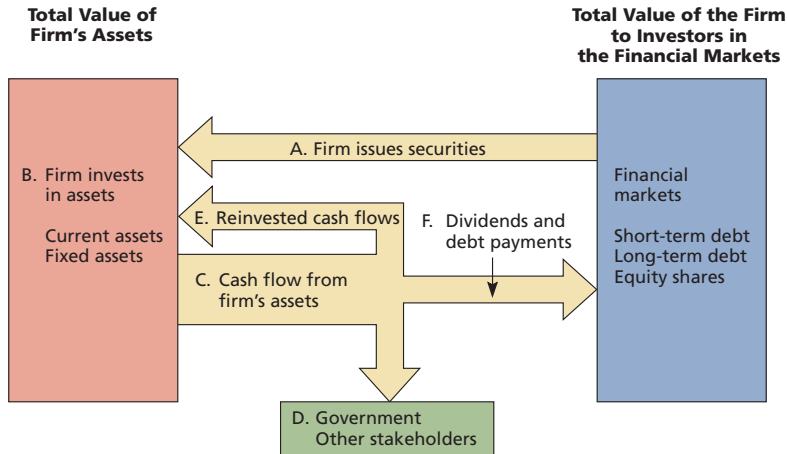
	weight	date
4 In-class Quizzes (best 3 of 4), 3@5%	15%	#1: week of jan 25 #2: week of feb 8 #3: week of mar 8 #4: week of mar 22
Group Assignments (2 in total, group of 3 people max), 2@5%	10%	#1: week of feb 22 #2: week of mar 29
<b>[Must be typed, late assignments not accepted]</b>		
Midterm Exam	25-30%	sat feb 27, 10am
Final Exam	45-50%	TBA

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- §2.3 - Cash Flows (review)
- §2.5 - Capital Cost Allowance (CCA)

- Cash flow is one of the most important pieces of information that a financial manager can derive from financial statements
- We will look at how cash is generated from utilizing assets and how it is paid to those that finance the purchase of the assets

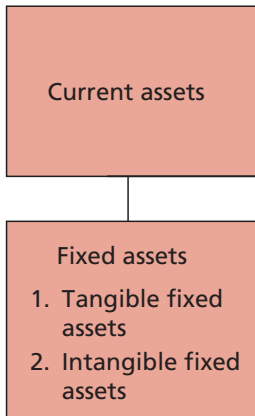
## cash flow: corporation and financial markets (figure 1.4, p.18)



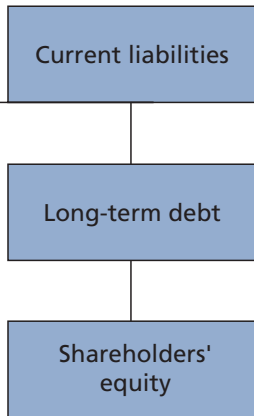
- A. Firm issues securities to raise cash.
- B. Firm invests in assets.
- C. Firm's operations generate cash flow.

- D. Cash is paid to government as taxes. Other stakeholders may receive cash.
- E. Reinvested cash flows are plowed back into firm.
- F. Cash is paid out to investors in the form of interest and dividends.

**Total Value of Assets**



**Total Value of the Firm to Investors**



**Net  
working  
capital**



- **Operating Cash Flow (OCF)** results from day-to-day activities of producing and selling, expenses from financing assets are not included since they are not operating expenses.
- **Net Capital Spending (NCS)** is money spent on fixed assets less money received from the sale of fixed assets (ie. salvage).
- **changes in Net Working Capital (NWC)** show how current assets and liabilities differ from year-to-year, eg. more accounts receivable and inventory needed to support higher sales.

- **cash flow to creditors** is interest paid on debt less “net new borrowing” (“principal paid back” - “new borrowing”)
- **cash flow to shareholders** is dividends paid less “net new equity” (“shares repurchased” - “*new* shares issued”)

similar to balance sheet identity (assets = liabilities + equity)

The first equation is how the cash flow from the firm is divided among the investors that financed the assets:

$$\left( \begin{array}{l} \text{cash flow} \\ \text{from assets} \end{array} \right) = \underbrace{\left( \begin{array}{l} \text{cash flow to} \\ \text{creditors} \end{array} \right)}_{\substack{\text{interest paid} \\ + \text{principal paid} \\ - \text{new borrowing}}} + \underbrace{\left( \begin{array}{l} \text{cash flow to} \\ \text{stockholders} \end{array} \right)}_{\substack{\text{dividends paid} \\ + \text{stock repurchased} \\ - \text{new stock issued}}}$$

CFFA = cash flow from assets

The second equation is the cash flow that the firm receives from its assets:

$$\left( \begin{array}{c} \text{cash flow} \\ \text{from assets} \end{array} \right) = \underbrace{\left( \begin{array}{c} \text{operating} \\ \text{cash flow} \end{array} \right)}_{\substack{\text{EBIT} \\ + \text{ depreciation} \\ - \text{ taxes}}} - \underbrace{\left( \begin{array}{c} \text{net capital} \\ \text{spending} \end{array} \right)}_{\substack{\text{ending fixed assets} \\ - \text{ beginning fixed assets} \\ + \text{ depreciation}}} - \underbrace{\left( \begin{array}{c} \text{additions} \\ \text{to NWC} \end{array} \right)}_{\substack{\text{ending NWC} \\ - \text{ beginning NWC}}}$$

EBIT = earnings before interest and taxes

NWC = net working capital

## cash flow: cash flow identity - bubblegum inc. example

	2005	2006
Cash	100	121
Accounts rec.	350	425
Inventory	440	410
Current assets	890	956
Net fixed assets	1,556	1,704
<b>Total assets</b>	<b>2,446</b>	<b>2,660</b>
Accounts payable	400	350
Notes payable	390	370
Current liabilities	790	720
Long-term debt	500	550
<b>Total liabilities</b>	<b>1,290</b>	<b>1,270</b>
Common stock	600	580
Retained earnings	556	810
<b>Total equity</b>	<b>1,156</b>	<b>1,390</b>

	2006
Net sales	1,384
Less: Cost of goods sold	605
Less: Depreciation	180
<b>EBIT</b>	<b>599</b>
Less: Interest paid	80
Taxable income	519
Less: Taxes	156
<b>Net income</b>	<b>363</b>
<i>Dividends paid</i>	<i>109</i>

Find (i) OCF, (ii) NCS, (iii) changes in NWC, (iv) CFFA, (v) cash flow to creditors, and (vi) cash flow to shareholders.

answers: 623, 328, 136, 159, 30, 129

- CCA is depreciation for tax purposes
- CCA is deducted before taxes and acts as a tax shield
- Every capital asset is assigned to a specific asset class by the government
- Every asset class is given a depreciation method and rate
- **Half-year Rule** - In the first year, only half of the asset's cost can be used for CCA purposes

# capital cost allowance: canada revenue agency (cra) form

## Area A – Calculation of capital cost allowance (CCA) claim

1 Class number	2 Undepreciated capital cost (UCC) at the start of the year	3 Cost of additions in the year (see areas B and C below)	4 Proceeds of dispositions in the year (see areas D and E below)	5* UCC after additions and dispositions (col. 2 plus col. 3 minus col. 4)	6 Adjustment for current- year additions $1/2 \times (\text{col. 3} - \text{col. 4})$ If negative, enter "0."	7 Base amount for CCA (col. 5 minus col. 6)	8 Rate %	9 CCA for the year (col. 7 x col. 8 or an adjusted amount)	10 UCC at the end of the year (col. 5 minus col. 9)
<b>Total CCA claim for the year</b> (enter this amount, minus any personal part and any CCA for business-use-of-home expenses, on line 9936 in Part 5 on page 2**)									

\* If you have a negative amount in this column, add it to income as a recapture on line 8230, "Other income," in Part 3 on page 1. If no property is left in the class and there is a positive amount in the column, deduct the amount from income as a terminal loss on line 9270, "Other expenses," in Part 5 on page 2. Recapture and terminal loss do not apply to a class 10.1 property. For more information, see Chapter 4 in the *Business and Professional Income* guide.

\*\* For information on the CCA for "Calculation of business-use-of-home expenses," see Chapter 4 – "Special Situations" in the *Business and Professional Income* guide.

# capital cost allowance: canada revenue agency asset classes

## CCA classes

The following is a list of commonly used assets in a business.

Class	Rate (%)	Description
1	4	Most buildings you bought after 1987, including components such as wiring, plumbing, heating, and cooling systems. Under proposed changes to the Income Tax Regulations, the rate for eligible non-residential buildings acquired after March 18, 2007 used for manufacturing and processing in Canada of goods for sale or lease will increase to 10%. For all other eligible non-residential buildings, the rate will increase to 6%. For more information, see page 32.
3	5	Most buildings including components that you bought after 1978 and before 1988. However, you may have to include part of the cost of additions made after 1987 in class 1. For more details, see Interpretation Bulletin IT-79, <i>Capital Cost Allowance – Buildings or Other Structures</i> .
6	10	Frame, log, stucco on frame, galvanized iron, or corrugated metal buildings that do not have any footings below the ground. Class 6 also includes fences and greenhouses.
7	15	Canoes, rowboats, and most other vessels and their motors, furniture, and fittings. For more details, see Interpretation Bulletin IT-267, <i>Capital Cost Allowance – Vessels</i> .
8	20	Property that you did not include in any other class. Some examples are fixtures, furniture, machinery, photocopiers, refrigeration equipment, telephones, and tools that cost \$200 or more. Under proposed changes, the cost limit will increase to \$500 for tools acquired after May 1, 2006. Class 8 also includes outdoor advertising signs you bought after 1987.
9	25	Aircraft, including furniture or equipment attached to the aircraft, and spare parts.
10	30	Automobiles, except those you use as a taxi or in a daily rental business, including vans, trucks, tractors, wagons, and trailers. General-purpose electronic data-processing equipment (commonly called computer hardware) and systems software acquired before March 23, 2004. See also class 45.
10.1	30	A passenger vehicle. See page 36 for the capital cost limits.
12	100	China, cutlery, kitchen utensils that cost under \$200, linen, uniforms, dies, jigs, moulds, cutting or shaping parts of a machine, tools and medical or dental instruments that cost under \$200, computer software (except systems software), and video cassettes bought after February 15, 1984, that you rent and do not expect to rent to any one person for more than 7 days in a 30-day period. Under proposed changes, the cost limit will increase to \$500 from \$200 for tools acquired after May 1, 2006. The cost limit for medical or dental instruments and kitchen utensils under Class 12 will increase to \$500 from \$200 for such utensils and instruments acquired after May 1, 2006. Tools eligible under this class specifically exclude electronic communication devices and electronic data processing equipment.

- Usually firms have multiple machines (i.e. more than one photocopier) in an asset class.
- When an asset is sold, the asset class is reduced by the realized value of the asset, or by its original cost, whichever is less.
- When the last asset in an asset class is sold, the asset class is terminated. This can result in a terminal loss or recaptured CCA.

ABC Corporation purchased \$100,000 worth of photocopiers in 2004. Photocopiers fall under asset class 8 with a CCA rate of 20%.

How much CCA will be claimed in 2004 and 2005?

**answer:** \$28,000

- §10.1 - Project Cash Flows: A First Look
- §10.2 - Incremental Cash Flows
- §10.3 - Pro Forma Financial Statements and Project Cash Flows

- cash flows included in a capital budgeting analysis are those that will only occur (or not occur) if the project is accepted
- these cash flows are called **incremental cash flows**
- **stand-alone principle** allows us to analyze each project in isolation from the firm simply, by focusing on incremental cash flows

- You should always ask yourself “Will this cash flow occur (or not occur) ONLY if we accept the project?”
  - If the answer is **yes**, it should be included in the analysis because it is incremental
  - If the answer is **no**, it should not be included in the analysis because it will occur anyway
  - If the answer is **part of it**, then we should include the part that occurs (or does not occur) because of the project

KN Jewelers purchased some land four years ago at a cost of \$218,000. They spent \$45,000 to raze the old building and clear the lot. Today, the lot is valued at \$237,000 and produces an annual income of \$22,000 from its use as a parking lot. KN has drawn plans to construct a new retail store on this land. The lot preparation costs will be \$28,000 and the building will cost \$229,500. What is the initial cost of this project?

**answer:** \$494,500

- **Sunk costs** - costs that have been incurred in the past
- **Opportunity costs** - costs of lost options
- Side effects
  - **Positive side effects** - benefits to other projects
  - **Negative side effects** - costs to other projects, eg. erosion
- Changes in net working capital
- Financing costs
- Inflation
- Capital Cost Allowance (CCA)

Capital budgeting relies heavily on **pro forma** accounting statements, particularly income statements.

### computing cash flows (review)

$$\text{OCF} = \text{EBIT} + \text{depreciation} - \text{taxes}$$

$$\text{CFFA} = \text{OCF} - \text{NCS} - (\text{changes in NWC})$$

OCF = operating cash flow

EBIT = earnings before interest and taxes

CFFA = cash flow from assets

NCS = net capital spending

NWC = net working capital

Jackson Enterprises is preparing a pro forma statement for next year. It estimates sales at 12,840 units with a selling price of \$43.01. Variable costs are estimated at \$21 a unit. \$868,000 of fixed assets is being depreciated straight-line to zero over seven years. Annual fixed costs are \$104,660 and annual interest payments are \$11,051. The tax rate is 35%.

What is the net income? and operating cash flow?

**answer:** \$27,800; \$162,850