Session 8 - Marginal tax rates

- Provide an overview of the structure of the corporate income tax
- Define the marginal tax rate
- Understand the importance of the dynamics of the tax code

Basic Structure of the Corporate Income Tax

RECEIPTS
Business receipts
Less cost of sales
Interest
Rents
Royalties
Net capital gains
Net gain, noncapital assets
Dividends received
Other receipts

-DEDUCTIONS:
Compensation
Repairs
Bad debts
Rent paid
Taxes paid
Interest paid
Contributions or gifts
Amortization
Depreciation
Depletion
Advertising
Pension, profit-sharing etc
Employee benefits
Net loss, noncapital assets
Other deductions

= Taxable Income before NOLD and special deductions

- NOLD and special deductions

= Taxable income (non-negative)

TAXES
Income tax
Other taxes
  Personal holding co.
  Recapture taxes
  Alternative minimum tax
= Total income tax before credits

- Credits
Foreign tax credit
U.S. possessions tax credit
Qualified electric vehicle credit
Nonconventional source fuel credit
General business credit
Prior year minimum tax credit

= Total income tax after credits

The Alternative Minimum Tax (AMT)

- Expanded in 1986 to address perceived disparities between financial and taxable income
- Is a parallel tax system - taxes are calculated under both the regular and AMT
  - AMT income is broader, but subject to a lower rate (20% instead of 35%)
  - Includes 75% of the difference between regular taxable income and adjusted current earnings (ACE)
  - Pay the maximum of the two amounts
- AMT generates credits that can offset future regular tax
  - AMT changes the PV of tax payemnts

Who pays the AMT?

- Currently represents ~2% of corporate taxes, ignoring taxes paid to avoid the AMT. Reached 7.7% in 1990.
- Tax changes are diminishing its importance (opposite the effect of the individual AMT).
- Characteristics of AMT firms
  - Capital inensive (via depreciation adjustments)
  - Natural resources (via depletion)
  - Significant accounting differences

Deductions versus Credits

- Deductions reduce the amount of income subject to tax
  - The value of a deduction is the amount of tax saved.
  - The value of a deduction will therefore vary depending on the tax characteristics of the taxpayer.
    - Deductions are worth more the higher the marginal tax rate
- Credits reduce the amount of tax paid
  - Absent restrictions, credits provide the same benefit to all taxpayers, regardless of their tax rate

Marginal or Effective Tax Rates

- Example:
  - Say the first 8 hours per day you work you earn $50 per hour. Beyond that you only earn $10 per hour.
  - Will you work that extra hour?
- What is relevant to your decision?
  - your marginal wage? or
  - your average wage?

Marginal Tax Rates

- Definition
  - Present value of current and deferred taxes that result from an additional dollar of income / deduction.
    - Marginal Explicit Tax Rate
    - Marginal Implicit Tax Rate

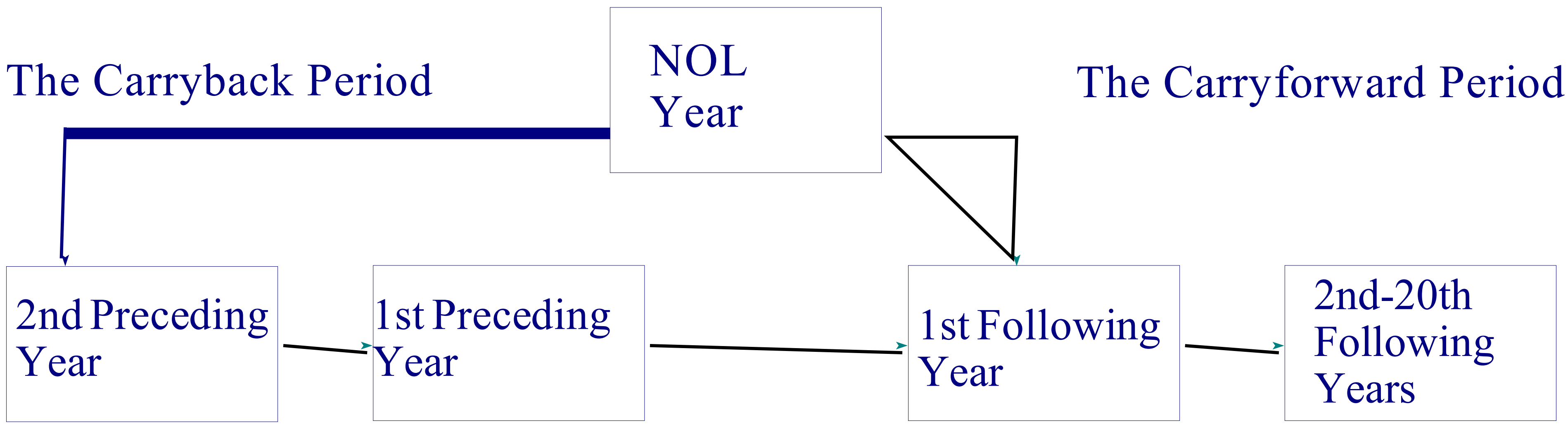
      Definition: (PV change in taxes) / (incremental change in income)

      Alternatively, PV change in return
- Generally, when we talk about the marginal tax rate we mean the marginal *explicit* rate
- Measures of average tax rates do not capture the marginal efffects of incremental investment and financing.

Calculating MTRs

- Setting:
  - CORP began in 1986, has an after tax discount rate of 5% per year, and can project the future with certainty
  - In 1989, CORP has $1 million to invest in either taxable bonds or tax-exempt municipals with pretax returns of 10% and 7%, respectively
  - The maximum statutory tax rate for calendar year corporations was 46% before 1987, 40% in 1987, and 34% for 1988 and beyond
  - Net operating losses (NOLs) can be carried back 2 (3) years and forward 20 (15) years (Pre 8/5/97)

Net Operating Losses



The profitable corporation

Current				Projections	
1986	1987	1988	1989	1990	1991>
+100	+100	+100	+100	+100	+100

The NOLCF corporation

Current				Projections	
1986	1987	1988	1989	1990	1991>
+100	-450	+100	+100	+100	+100

Do you want to allocate the NOL back 3 years then forward or allocate the loss forward? Does it matter?

The NOLCF corporation

Current				Projections	
1986	1987	1988	1989	1990	1991>
+100	-450	+100	+100	+100	+100
- 100		-100	-100	-100	-50
0	0	0	0	0	50

What happens if we increase income by 1 in 1989? We will only have \$49 of NOLCF to offset 1991 income., increasing our tax in that year by 1*t. Given the assumptions, we will pay .34 more in tax, with a PV of $(.34)/(1.05)^2 = .308$, yielding an after-tax yield on the taxable bond of 6.92% which is less than the 7% yield on the tax exempt. Therefore, we should invest in the tax exempt even though we currently pay no taxes. If the horizon was three years, the PV of the tax would be .294 and the yield on the taxable would be 7.06%, making it a better investment than the tax-exempt.

The NOLCF corporation

Current				Projections	
1986	1987	1988	1989	1990	1991>
+100	-450	+100	+100	+100	+100
- 100		-100	-100	-100	-50
0	0	0	0	0	50

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The NOLCF corporation

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1986	1987	1988	1989	1990	1991>
0	0	0	0	0	50

Briggs and Stratton Corporation
June 30 fiscal year-end
(in $ thousands)

	1986	1987	1988	1989	1990
Pretax Income	61,930	45,564	43,161	(34,012)	53,665
Income Tax	27,850	18,950	12,950	(13,980)	18,290
Net Income	34,080	26,614	30,211	(20,032)	35,375
Tax Rate	46%	46%	34%	34%	34%
Tax Rate t-3	46%	46%	46%	46%	46%
Federal TI	47,454	26,939	30,515	(33,230)	39,594

Effect of NOLs

- For firms with NOL carryforwards, the marginal tax rate depends on when they will be able to use the loss.
- NOLCFs typically lower the effective MTR below the current statutory rate.
- A higher discount rate lowers the effective MTR for NOLCF firms.
- Alternatively
  - What do you invest in?
  - How do you raise funds?

Some complications

- Uncertainty complicates the calculation.
  - MTR is be dependent on the expected path of taxable income

- MTR is endogenous
  - Actions you take today can affect the MTR in the future
    - What effect would a large capital outlay have on future earnings?

- A firm can have multiple MTRs
  - MTR can vary by type of income / deduction

Some complications

- Multiple layers of taxation (e.g. state taxes)
  - Can get complicated as state taxes are a deduction for federal purposes
- Acquisitions - NOLs have special rules