

Depreciation and Taxation of Physical Assets

Part 07-02

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Purpose

- Introduce Students to the concept of tax deferral resulting from the legal use of depreciation tax shelters.
- Introduce Students to the basics of the IRS asset tax rules.

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Learning Objectives

- Students should be able to compute MACRS and ST-Line BTCF and ATCF tables for simple investment cases.
- Students should be able to compute capital gains taxes for simple equipment transactions.

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Depreciation – Basic Concepts

- Physical assets deteriorate (or depreciate in value) over time – usually due to use or to obsolescence.
- This deterioration is assumed to result in a loss of value over time and the IRS allows some taxpayers to recover the cost of this loss of value.
- Non-physical assets (like stocks and bonds) may not be depreciated because their loss in value is not related to use. (But professional athletes are considered physical assets that deteriorate with use and age and they ARE depreciated by Club Owners.)

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Basic Concepts Continued

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- As a taxpayer the IRS allows you to deduct the assumed cost of this loss of value from your taxable net income:
 - If this asset produces taxable income (not a hobby), and
 - If you “actively participate” in its operating and management (attend meetings), and
 - If you are “at risk” for the value of (it’s your \$\$’s) the asset.

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Basic Concepts Continued

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- In IRS “tax-speak” this is called depreciating or “writing off” an asset.
- The IRS allows taxpayers to depreciate assets by four different methods:
 - Straight Line – Same amount every year
 - Declining Balance, etc – More in up-front years
 - ACRS/MACRS – Generally the case now. Actually DDB with conversion to St-Line.
 - Production – Most unusual: Actually has something to do with “wear out”

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Basic Concepts Continued

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- In fact, depreciation is simply a bookkeeping entry accounting for an intangible expense that has no physical reality.
- Its sole purpose is to reduce net taxable income and hence reduce total taxes due the IRS. The government uses depreciation and investment tax credits to encourage or discourage certain types of investments by investors.
- In this context, the tax benefits of depreciation may accrue to the taxpayer whether or not the investment in question actually generates a positive cash flow.

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PAT#7.1.1

- Take out sheet of paper, etc.
- What are the purposes of depreciation? Yours? The Governments?

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A Simple Example

- A taxpayer in the 30% tax bracket owns and manages a small warehouse which nets \$900/mo in pre-tax, cash income. The warehouse and the lot it occupies are worth \$100,000 for tax purposes.
- What are the after-tax consequences of this investment on the taxpayer during the second recovery-year of ownership?

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A Simple Example

- What can be depreciated?
 - Land can not be depreciated – it doesn't wear out.
 - Assume that building qualifies as 10* year property (page 154 of text). From the table, the allowable depreciation for the second year is 18% of the original value of the asset.

* Real estate is normally 15+ year property but I needed something shorter as an example.

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A Simple Example

- How much can be depreciated?
 - Assume the land is worth \$30,000.
 - The building is worth \$70,000 (\$100k - \$30k)
 - The depreciation amount is 18% times \$70,000 or \$12,600

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A Simple Example

- How do you use depreciation to offset income in the second (or any) year?
 - Net taxable rental income is $900 \times 12 = \$10,800$
 - Allowable depreciation = \$12,600
 - Subtracting depreciation from net income your taxable income is - \$1,800
or a tax loss of \$1,800
 - Therefore, you owe NO tax on rental income this year.

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A Simple Example

- Now there is the good part, the IRS actually owes you money!
 - Remember, you are in the 30% tax bracket. That means you have other net taxable income somewhere on your tax return – (earned income) salary, the sale of stock, real estate, or personal property, (unearned income) stock dividends, interest income, royalties, whatever.
 - The \$1,800 can be used to offset the other taxable income and reducing your total tax bill by $30\% \times \$1,800 = \540 .
- Pretty neat, huh?

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A Simple Example

- Let's take a look at year 10.
 - $\$70,000 \times 6.55\% = \$4,585$ Depreciation
 - $\$10,800 - \$4,585 = \$6,215$ Net Profit
 - You owe \$1,865 in year 10.
- Let's Look at St-Line for 10 years
 - Assuming the warehouse will be completely written off: $\$70,000/10 = \$7,000$ annually
 - $\$10,800 - \$7,000 = \$3,800$ Net Profit
 - You owe \$1,140 every year.

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A Simple Example

- Which is the best MACRS or St-Line?
 - It depends upon the 15 year tax picture.
 - It depends upon when you sell the property.
- All things being equal, which would you choose? And why?
- How would you tell?

Note: Failure to declare all taxable income is called tax fraud and you do "hard time" for that – Al Capone was imprisoned for tax fraud not for being a racketeer, murderer, etc. Over enthusiastic deductions may result in a fine and penalties and maybe some time in "club fed."

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PAT #7.1.2

- Take out a sheet of paper, etc.
- Under what circumstances, is it possible for you to reduce taxable income using tax shelters?

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Advantage of MACRS over St-Line Depreciation

EOY	BTCF	Taxable Income		ATCF		NPV-10%
	Income	MACRS	St-Line	MACRS	St-Line	Delta
0	(100,000)			(100,000)	(100,000)	\$833.00
1	10,800	3,800	3,800	9,660	9,660	0
2	10,800	(1,800)	3,800	11,340	9,660	1,680
3	10,800	720	3,800	10,584	9,660	924
4	10,800	2,736	3,800	9,979	9,660	319
5	10,800	4,346	3,800	9,496	9,660	(164)
6	10,800	5,641	3,800	9,108	9,660	(552)
7	10,800	6,215	3,800	8,936	9,660	(725)
8	10,800	6,215	3,800	8,936	9,660	(725)
9	10,800	6,215	3,800	8,936	9,660	(725)
10	10,800	6,215	3,800	8,936	9,660	(725)
11	10,800	8,497	10,800	8,251	7,560	691
	18,800	48,800	48,800	4,160	4,160	0

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A Simple Example

- It does not count until you sell
 - Real estate rarely actually falls in price and at the end of the 11 year holding period you sell the property for \$150,000
 - You have depreciated the Building to \$0 so you have a tax basis of \$30,000.
 - For tax purposes, you have a capital gain of $\$150,000 - \$30,000 = \$120,000$
 - The tax rate is 20% so you owe

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A Simple Example

- Still think this was a good idea?
 - Taxes deferred by depreciation = $\$70,000 \times 30\% = \$21,000$
 - Taxes actually paid on depreciation recapture = $\$70,000 \times 20\% = \$14,000$
 - You actually saved \$7,000 by deferring taxes to the future (not to mention interest earnings).
 - Extra taxes paid on $\$50,000 = \$10,000$
- Depreciation is essential to financial survival for ordinary citizens as well as the "investor class."

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MACRS Example in Detail

EOY	BTCF Income	MACRS Depr	Taxable Income	Taxes Due	ATCF
1	10,800	7,000	3,800	1,140	9,660
2	10,800	12,600	(1,800)	(540)	11,340
3	10,800	10,080	720	216	10,584
4	10,800	8,064	2,736	821	9,979
5	10,800	6,454	4,346	1,304	9,496
6	10,800	5,159	5,641	1,692	9,108
7	10,800	4,585	6,215	1,865	8,936
8	10,800	4,585	6,215	1,865	8,936
9	10,800	4,585	6,215	1,865	8,936
10	10,800	4,585	6,215	1,865	8,936
11	10,800	2,303	8,497	2,549	8,251
	118,800	70,000	48,800	14,640	104,160
IC	(100,000)				(100,000)
NET	18,800				4,160
BV			30,000		
SP	150,000		150,000		150,000
Gain			120,000	24,000	(24,000)
Total	168,800				130,160

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Double Declining Balance

- $DDB\% = 200\% / \text{Years} = 50\%$
- $\text{Depr}\$ = BV_{\text{bof}} * DDB\%$ (same as EOF)
- $BV_{\text{eof}} = BV_{\text{bof}} - \text{Depr}\$$

EOY	BV	Depr
0	\$150,000	\$0
1	\$75,000	\$75,000
2	\$50,000	\$25,000
3	\$0	\$0
4	\$0	\$0
SV	\$50,000	

You can't go below the SV

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A More Complex Example

EOY	BTCF	ST-Line	DDB	ST-Line	DDB	ST-Line	DDB	Diff
0	(\$150,000)					(\$150,000)	(\$150,000)	\$0
1	50,000	25,000	75,000	7,500	-7,500	42,500	57,500	15,000
2	50,000	25,000	25,000	7,500	7,500	42,500	42,500	0
3	50,000	25,000	0	7,500	15,000	42,500	35,000	-7,500
4	50,000	25,000	0	7,500	15,000	42,500	35,000	-7,500
SP	100,000							
Cap Gain	50,000			10,000	10,000	90,000	90,000	
Net	\$150,000	\$100,000	\$100,000	\$40,000	\$40,000	\$110,000	\$110,000	NPV \$3,824
								FW \$6,688

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Some Details to Remember...

- Be able to calculate the difference between St-line and DDB. Why does DDB abruptly stop?
- Notice that there is NO depreciation in year Zero.
- The Capital Gain is handled as a separate item on the line below.
- Notice that there is no difference in the foot total between St-line and DDB.
- Why does DDB result in a greater NPV for the cash stream?

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Class Assessment

- Please take a minute to write down the muddiest topic in this presentation.

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