

Construction Accounting and Financial Management

Chapter 5 Depreciation

Construction Accounting & Financial Management, 3/e
Steven Peterson

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Purpose

- Financial statements
- Cost allocation of equipment
- Taxes

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Variables

- P = Purchase price
- F = Salvage Value
 - Zero for tax purposes
- N = Recovery period (years)
 - Set by code for tax purposes

Variables

- R_m = Percentage of depreciation taken in year m
- D_m = Depreciation for year m
- BV_m = Book value at the end of year m
 - Book value equals the purchase price less the depreciation recorded to date

Straight-Line

- Depreciates uniformly over the life of the asset

- Annual depreciation

$$D_m = (P - F) / N$$

- Book Value

$$BV_m = P - m(D_m)$$

-or-

$$BV_m = BV_{m-1} - D_m$$

Straight-Line

m	R_m	D_m (\$)	BV_m (\$)
0			110,000
1	1/5	20,000	90,000
2	1/5	20,000	70,000
3	1/5	20,000	50,000
4	1/5	20,000	30,000
5	1/5	20,000	10,000

Sum-of-the-Years

- Accelerates depreciation

- Annual depreciation

$$D_m = (P - F)R_m$$

$$R_m = (N - m + 1) / SOY$$

$$SOY = N(N + 1) / 2$$

- Book Value

$$BV_m = BV_{m-1} - D_m$$

Sum-of-the-Years

m	R_m	D_m (\$)	BV_m (\$)
0		0	110,000
1	5/15	33,333	76,667
2	4/15	26,667	50,000
3	3/15	20,000	30,000
4	2/15	13,333	16,667
5	1/15	6,667	10,000

Declining-Balance Method

- Accelerates depreciation

- Annual depreciation

$$D_m = (BV_{m-1})R_m$$

- $R_m = 2.00/N$ for 200% declining-balance
- $R_m = 1.50/N$ for 150% declining-balance

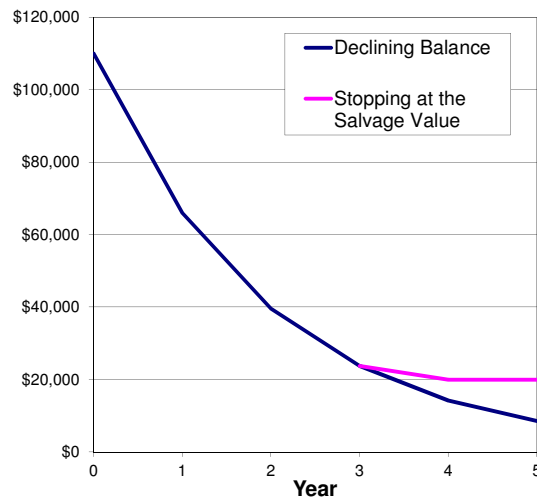
- Book Value

$$BV_m = BV_{m-1} - D_m$$

Declining-Balance Method

- Does not automatically reach salvage value
- Must stop depreciation at salvage value when book value goes below salvage value
 - or -
- Must switch to straight-line depreciation when the straight-line depreciation for the remaining years is greater than declining-balance depreciation

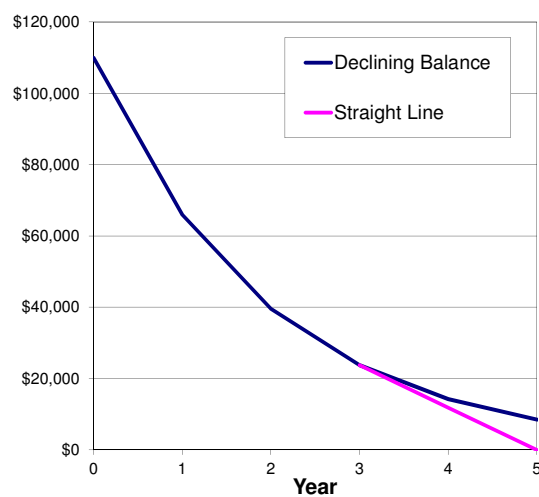
Stopping at Salvage Value (\$20,000)



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Switching to Straight Line (SV = 0)



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MACRS

- Modified accelerated cost recovery system
- The IRS's rules for depreciation
- Depreciation methods used:
 - Double declining balance
 - 150% declining balance
 - Straight line
- Includes rules for placing and removing assets from service

Placing in Service

- Half-year
 - General rule
- Mid-quarter
 - Must use when placing 40% or more of assets in service during the last quarter
- Mid-month
 - For real estate

IRS Recovery Periods

- **Three-year:** Rent-to-own property and tractors
- **Five-year:** Automobiles, light general purpose trucks, calculators, copiers, computer equipment, concrete trucks, heavy general purpose trucks, trailers, and other construction assets
- **Seven-year:** Office furniture, office equipment, and railroad tracks
- **Ten-year:** Vessels, barges, tugs, and other water transportation equipment
- **Fifteen-year:** Retail motor fuel outlets

IRS Recovery Periods

- **Twenty-year:** Farm buildings
- **Twenty-five-year:** Municipal sewers, water treatment plants, and water distribution lines
- **Twenty-seven-and-a-half-year:** Residential real estate where more than 80% of the rent is derived from the dwelling units
- **Thirty-nine-year:** Non-residential real estate
- **Fifty-year:** Railroad roadbeds, right-of-ways, and tunnels

Use of Depreciation Tables

- Find correct table
- Find correct recovery period for asset across top of table
- Percentages are percentage of asset value depreciated during the year
 - not the percent of the previous year's book value

Use of Depreciation Tables

Table 5-6
Depreciation Rates for 200% Declining-Balance Using the Half-Year Convention

Year	3 years (%)	5 years (%)	7 years (%)	10 years (%)
1	33.33	20.00	14.29	10.00
2	44.45	32.00	24.49	18.00
3	14.81	19.20	17.49	14.40
4	7.41	11.52	12.49	11.52
5	NA	11.52	8.93	9.22
6	NA	5.76	8.92	7.37
7	NA	NA	8.93	6.55
8	NA	NA	4.46	6.55
9	NA	NA	NA	6.56
10	NA	NA	NA	6.55
11	NA	NA	NA	3.28

IRS, *Instructions for Form 4562* 2006, p. 13

Section 179

- Can expense up to \$250,000 (for 2010) of equipment without depreciation
- Deduction is reduced if you place more than \$800,000 of Section 179 property in services during the year