

Straight Line and Accelerated Depreciation Methods

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Aggressive and Conservative Accounting Series

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Straight Line Acceleration Depreciation Method

The simplest and most commonly used method of depreciation is the straight line method or **straight line accelerated depreciation method**.

The straight line depreciation method takes the purchase or acquisition price, subtracts the salvage value and then divides it by the total estimated life in years.

For example, an equipment worth \$1m with an estimated life of five years and salvage value of \$100,000 would have the following depreciation schedule and asset value after each year as shown below.

Straight Line Accelerated Depreciation Method Illustrated

$$\text{Depreciation Expense} = (\text{Total Acquisition Cost} - \text{Salvage Value}) / \text{Useful Life}$$

The characteristics of the straight line method is that the depreciation expense is constant so the valuation of the company is easier as you know how to adjust it if necessary. Plus, it is easy to predict.

Accelerated Depreciation Method

As the name suggests, this method allows companies to write off more of their assets in the earlier years and less in the later years. The biggest benefit of this method is the tax benefit. By writing off more assets against revenue, companies report lower income and thus pay less tax.

Year	Cost	Salvage Value
0	1,000,000	100,000
Depreciation Expense		Balance Sheet
1	180,000	820,000
2	180,000	640,000
3	180,000	460,000
4	180,000	280,000
5	180,000	100,000

Straight Line Accelerated Depreciation

The common method of accelerated depreciation is called the **double declining balance (DDB) method**. This is where the depreciation expense doubles the straight line depreciation expense of the first year. The same percentage is then applied to the non depreciated amount in the subsequent years.

$$\text{DDB in year 1} = 2/n * (\text{Total Acquisition Cost} - \text{Accumulated Depreciation})$$

where n = number of years

$$\text{DDB in year 2 and beyond} = 2/n * (\text{Asset Value on Balance Sheet})$$

Straight Line vs Accelerated Depreciation

Put these two side by side and you will be able to see the picture clearer.

In order to make the comparison as fair as possible, let's assume company XYZ is just starting out as a business and they bought several new computers for their staff. The purchase value of the computers is \$10,000.

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Computers do not have a long useful life, but five years is realistic and adequate. Computers also deteriorate in value much quicker in the first year than the later years so an accelerated depreciation method is more than satisfactory. At the end of five years, computers are generally worthless so the salvage value will be \$0.

As I mentioned earlier, one of the benefits to accelerated depreciation is the reduction of taxes, but another point of great benefit is if the equipment requires maintenance.

Accelerated depreciation will offset the increasing maintenance cost and essentially equalizes the combined charges of both maintenance and depreciation. The graph below is a simplified view of how the accelerated depreciation and maintenance cost works out to give a straight line total expense.

Year	Cost	Salvage Value	Useful Life
0	1,000,000	100,000	n = 5

Depreciation Expense	Balance Sheet
1	400,000
2	240,000
3	144,000
4	86,400
5	29,600

In the final year, the depreciation amount is the difference between the second last year and the last year, which is equivalent to the salvage value. An asset cannot be depreciated below the salvage value.

Year	Cost	Salvage Value	Useful Life
0	10,000	0	n = 5

Straight Line Expense	Balance Sheet	Accelerated Expense	Balance Sheet
1	2,000	4,000	6,000
2	2,000	2,400	3,600
3	2,000	1,440	2,160
4	2,000	1,080	1,080
5	2,000	1,080	0

Again you see that accelerated depreciation requires a straight line write off in the final year otherwise the balance sheet will never reach 0.

If the straight line method was used, the depreciation would be constant and the maintenance cost would increase which would increase the total expenses.

To see this side by side, we get the following table using the same assumptions as before but with the added maintenance expenses.

At the beginning of the life, the accelerated method obviously costs more but towards the later stages of the useful life, the expenses become much less.

In the first article I wrote comparing the aggressive and conservative methods, I labeled accelerated depreciation as the aggressive method. Reason being that by quickly reducing the depreciation expense, later on, the net income increases only due to the account method.

In the example with maintenance cost included, just after one year, the depreciation expense is already close to equal to the straight line method. By year three, the expense is much less compared to the straight line method, and so more revenue can be recognized without any improvements in business.

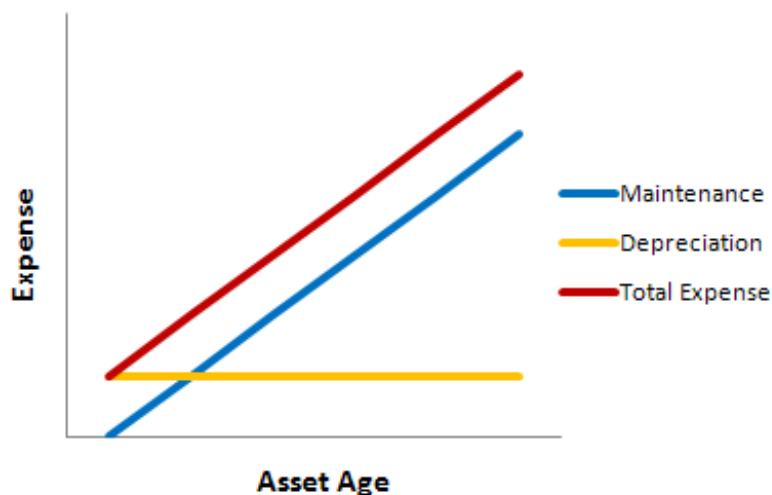
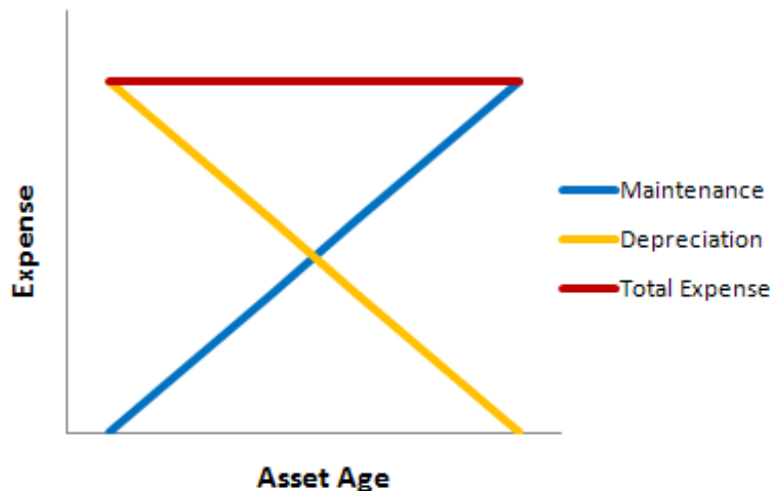
The straight line method on the other hand does not alter the performance of the business. It can be seen as a revenue smoothing method.

Depreciation Red Flags

That was the accounting part of it.

For the investing part of depreciation, it all depends on the type of company. If you are looking at a rapid tech company where assets lose most of the value within the first year, needs to be replaced regularly, and costs a lot to maintain, the accelerated method is the right choice.

This brings us to the big red flag related to depreciation.



Year	Cost	Salvage Value	Useful Life
0	10,000	0	n = 5

	Maintenance Expense	Straight Line Expense	Accelerated Expense	Difference
1	0	2,000	4,000	-2,000
2	150	2,150	2,550	-400
3	250	2,250	1,690	560
4	400	2,400	1,480	920
5	650	2,650	1,730	920

If you come across a company where the depreciable life of the assets is extended or the useful life is much too long, **watch out**.

By depreciating assets too slowly, the company is using aggressive accounting. Sounds contradictory, but the result is that earnings are being manipulated by being artificially inflated.

This is true for amortization and writing off any other asset such as impaired assets and/or obsolete inventory.

When you go through the financial statements, quickly check what type of accounting method is used. Then compare it to a competitor and see whether it is inline with industry standards and suitable for the business model.

9 out of 10 times, you won't find anything alarming, but that one time is what we are trying to protect ourselves from.