ACC250: Intro to Financial Accounting

Ch9. Long-lived assets

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Assets

Assets (A)

Resources owned by a company that are expected to provide future economic benefits.

Characteristics of assets:

- Owned or controlled by the business
- Expected to provide **future economic benefits**
- Measurable in monetary terms

Carrying Value or Book Value

The value of an asset reported on the balance sheet.

- BV is initially equal to the acquisition cost under **acquisition cost** principle.
- BV is adjusted for depreciation, amortization, and impairment, depending on the asset type.
- BV is not necessarily equal to the **market value** of the asset.
- BV indicates **Net** BV unless it is specified for **Gross** BV.

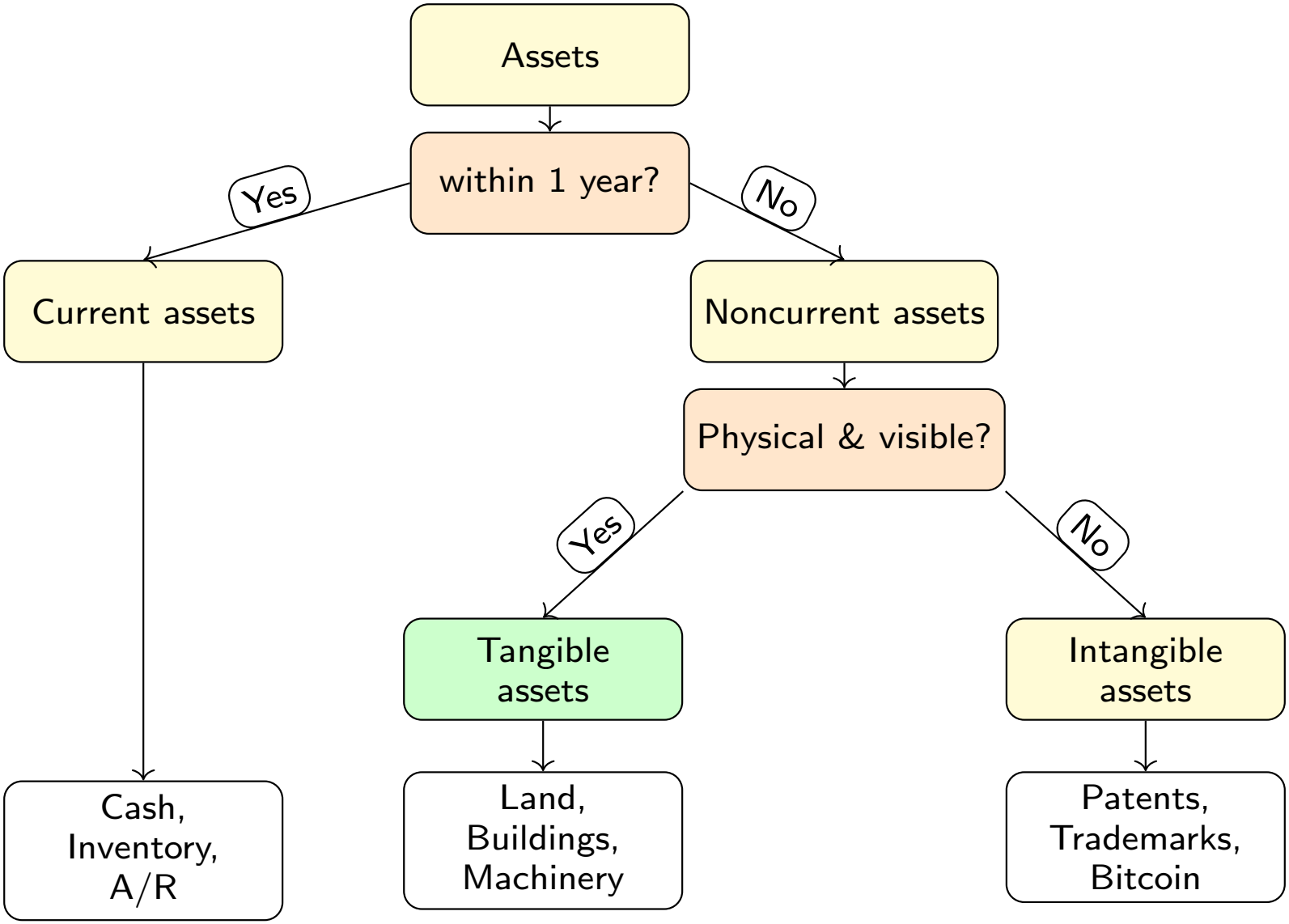
EX. For PPE:

- Gross BV is \$1M
- Accumulated Depreciation is \$0.3M
- $\rightarrow$ Net BV is **\$0.7M**.

Assets - Classification

Two important questions for classification:

1. How long will the asset contribute to revenue generation?
   - **Current asset**: expected to be converted to cash or used up within one year.
   - **Non-current (Long-lived) asset**: expected to provide benefits for more than one year.
2. Is the asset physical and visible?
   - **Tangible asset**: has physical substance.
   - **Intangible asset**: lacks physical substance.


Assets
within 1 year?
Yes
No
Current assets
Noncurrent assets
Physical & visible?
Yes
No
Tangible assets
Intangible assets
Cash, Inventory, A/R
Land, Buildings, Machinery
Patents, Trademarks, Bitcoin

Tangible assets

Tangible assets

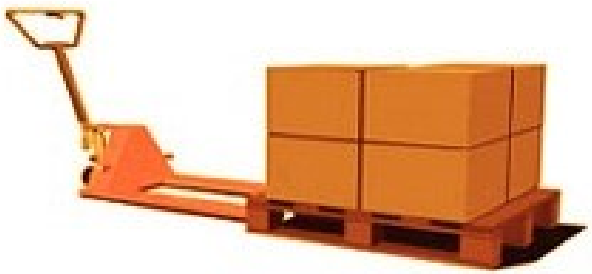
Physical assets that are expected to provide future economic benefits for more than one year.

- Land
- Buildings
- Equipment
- Property

Tangible assets

Property, Plant, and Equipment (PPE, Assets)

Long-term tangible assets that a company uses to operate its business, such as buildings, machinery, and vehicles, with a useful life of more than one year.



Tangible assets

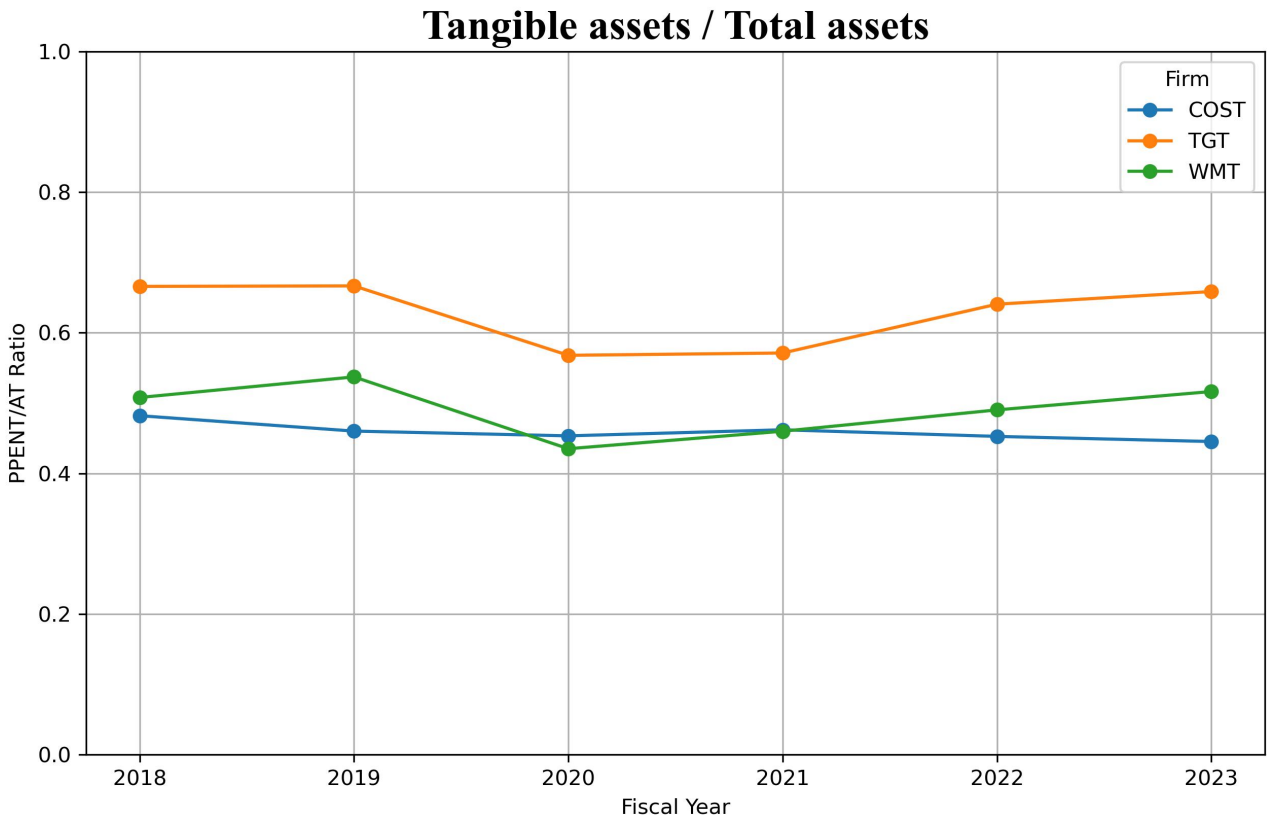
Table: PPE (Property, Plant, and Equipment) at the end of Fiscal Year

fyear tic	2018	2019	2020	2021	2022	2023
COST	19,681	20,890	25,187	27,382	29,040	30,722
TGT	27,498	28,519	29,106	30,737	34,169	36,458
WMT	111,395	127,049	109,848	112,624	119,234	130,338

Note: Unit: $ million; COST: Costco; TGT: Target; WMT: Walmrt.

Tangible assets

How significant are **tangible assets relative to total assets** in the balance sheet?



Tangible assets: Disclosures

PPE and Accumulated Depreciation

Balance Sheet
As of Dec 31, 2025

Assets	
.....	...
.....	...
PPE (at cost)	$100,000
Less: Acc.Dep.Exp	($40,000)
PPE, net	**$60,000**
.....	...
Total Assets	$200,000

Depreciation Expense

Income Statement
For the Year Ended Dec 31, 2025

Revenues	$220,000
Cost of Goods Sold	($120,000)
Gross Profit	$100,000
Dep.Exp	($20,000)
Net Income	**$80,000**

Tangible assets: Acquisition

Cost Principle

Assets are initially recorded at their **acquisition cost**, which includes all costs necessary to acquire the asset and prepare it for its intended use.

Acquisition cost is the total cost incurred to acquire an asset and prepare it for its intended use. It includes:

- Purchase price
- Sales tax
- Delivery and installation costs
- Legal fees
- Discounts (deduction)

EX. ABC paid $100,000 for a machine. Additional costs (all paid by cash) include Sales tax: $10,000; Delivery: $5,000; and Installation: $3,000. How much to recognize as the acquisition cost of the machine?

$118,000

Tangible assets: Acquisition

Note that expenditures such as sales tax and delivery costs are **capitalized** as part of the asset's acquisition cost.

Capitalization

The process of recording an expenditure as an asset rather than an expense.

- Capitalized costs are added to the asset's acquisition cost.
- So it's part of the asset's value on the balance sheet.
- **Not expensed** immediately on the income statement.
- Instead, the costs are **depreciated** over the asset's useful life.

EX. On Jan 1, 2026, A company purchases machinery for $50,000 by cash.

Questions:

1. Journal entries on Jan 1, 2026:

PPE (+A)	50,000	
Cash (-A)		50,000

EX. On Jan 1, 2026, A company purchases machinery for $50,000 by cash. Additional costs (all paid by cash) include Sales tax: $5,000; Delivery: $3,000; and Installation: $2,000.

Questions:

1. Total acquisition cost:

$$\$50{,}000 + \$5{,}000 + \$3{,}000 + \$2{,}000 = \$60{,}000$$

2. Journal entries on Jan 1, 2026:

PPE (+A)	60,000	
Cash (-A)		60,000

EX. On Jan 1, 2026, A company purchases machinery for $50,000 less a $10,000 discount. The company signed a note payable for the machinery.

Questions:

1. Total acquisition cost:

   $50,000 - $10,000= $40,000

2. Journal entries on Jan 1, 2026:

PPE (+A)	40,000	
Notes Payable (+L)		40,000

Tangible assets: Depreciation

Q. Companies pay cash to buy PPE. But no expenses?

Matching Principle

- Expenses should be recognized **in the same period as the revenues** they help to generate, regardless of when cash is paid. In other words,
- Expenses should be recognized when the resources are **used up** to generate the revenues.

- Long-term assets contribute the revenue generation over multiple periods.
- So it is **not expensed** in the period of acquisition.
- Instead, the cost is **allocated** over the asset's useful life.
- The allocation process is called "**depreciation**".

Tangible assets: Depreciation

Depreciation

The process of allocating the cost of a long-term, tangible asset over its useful life.

- Depreciation expense is recorded on the income statement.
- Accumulated depreciation is recorded on the balance sheet as a **contra-asset account**.

Tangible assets: Depreciation

Depreciation Expense (DepExp, Expense)

The amount of the tangible asset's cost that is allocated to the current accounting period.

Accumulated Depreciation (AccDep, Contra Asset, xA)

The total amount of depreciation expense that has been recorded against the asset since it was acquired.

Tangible assets: Depreciation

Q1. Does the **recognition of depreciation** come with a **cash outflow**?

1. **No**. We pay cash when we acquire the asset.
2. The recognition of depreciation is just **delayed**.[1]

Q2. Does the **depreciation process** have something to do with the asset's **market value**?

1. Market value is how much the asset is worth in the market.
2. Depreciation expense and Net BV depends on accounting methods, not by how much we would get if we sold the asset.
3. So it is "**No**".

[1] Deferral adjustments in Ch4.

Tangible assets: Depreciation

Two widely used methods of depreciation:

1. Straight-line method
2. Double-declining balance method

Tangible assets: Depreciation - Straight-line method

Straight-line method

- The most common method of depreciation.
- Allocates an equal amount of depreciation expense to each accounting period over the asset's useful life.
- Annual DepExp $= \frac{\text{Cost} - \text{Residual Value}}{\text{Useful Life}}$

Cost - The total acquisition cost of the asset.
Residual value - The estimated value of the asset at the end of its useful life.
Useful life - The estimated period over which the asset will be used.

EX. A company purchases equipment on Jan 1, 2026, for $60,000. The equipment has a residual value of $0 and a useful life of 5 years. Calculate the annual depreciation expense.

1. Annual depreciation expense:

$$\frac{\$60{,}000 - \$0}{5} = \$12{,}000$$

2. Journal entries on Dec 31, 2026:

Depreciation Expense (+E)	12,000	
Accumulated Depreciation (+xA, -A)		12,000

3. Journal entries on Dec 31, 2027:

Depreciation Expense (+E)	12,000	
Accumulated Depreciation (+xA, -A)		12,000

4. 5 years later, the expected value of the asset?:

$0

Year	Cost Value	Beg BV	DepExp	AccDep	Ending BV
1	$60,000	$60,000	$12,000	$12,000	$48,000
2	$60,000	$48,000	$12,000	$24,000	$36,000
3	$60,000	$36,000	$12,000	$36,000	$24,000
4	$60,000	$24,000	$12,000	$48,000	$12,000
5	$60,000	$12,000	$12,000	$60,000	$0

Table: Depreciation Schedule for Straight-Line Method

Beg BV= Last year's Ending BV.
Ending BV= **Cost - AccDep**.

EX. A company purchases equipment on Jan 1, 2026, for $60,000. The equipment has a residual value of $12,000 and a useful life of 10 years. Calculate the annual depreciation expense.

1. Annual depreciation expense:

$$\frac{\$60{,}000 - \$12{,}000}{10} = \$4{,}800$$

2. Journal entries on Dec 31, 2026:

Depreciation Expense (+E)	4,800	
Accumulated Depreciation (+xA, -A)		4,800

3. Journal entries on Dec 31, 2027:

Depreciation Expense (+E)	4,800	
Accumulated Depreciation (+xA, -A)		4,800

4. 10 years later, the expected value of the asset?

$12,000

5. This asset, if sold, will generate $12,000 in cash flows.

Year	Cost Value	Beg BV	DepExp	AccDep	Ending BV
1	$60,000	$60,000	$4,800	$4,800	$55,200
2	$60,000	$55,200	$4,800	$9,600	$50,400
3	$60,000	$50,400	$4,800	$14,400	$45,600
4	$60,000	$45,600	$4,800	$19,200	$40,800
5	$60,000	$40,800	$4,800	$24,000	$36,000
6	$60,000	$36,000	$4,800	$28,800	$31,200
7	$60,000	$31,200	$4,800	$33,600	$26,400
8	$60,000	$26,400	$4,800	$38,400	$21,600
9	$60,000	$21,600	$4,800	$43,200	$16,800
10	$60,000	$16,800	$4,800	$48,000	$12,000

Table: Depreciation Schedule for Straight-Line Method

Beg BV= Last year's Ending BV.
Ending BV= Cost - AccDep.

Tangible assets: Depreciation - Double-declining

Double-declining balance method

- Allocates a **higher** depreciation expense in the earlier years of the asset's useful life and a lower expense in the later years.
- Annual DepExp $= \frac{2}{\text{Useful Life}} \times$ (Cost - AccDep)

Cost - The total acquisition cost of the asset.
AccDep - The AccDep at the beginning of the year.
Useful life - The estimated period over which the asset will be used.
Annual DepExp - The annual DepExp for the current year.

Note: In this course, you are expected to calculate the DepExp for Year 1 & 2 only.

Tangible assets: Depreciation - Double-declining

Double-declining balance method

- Annual DepExp $= \frac{2}{\text{Useful Life}} \times$ (Cost - AccDep)
- AccDep **increases** over time.
- (Cost - AccDep) **decreases** over time.
- DepExp **decreases** over time.

Straight-line method

- Annual DepExp $= \frac{\text{Cost} - \text{Residual Value}}{\text{Useful Life}}$
- DecExp is **constant** over time.

EX. A company purchases equipment on Jan 1, 2026, for $40,000. The equipment has a residual value of $4,000 and a useful life of 4 years. Calculate the depreciation expense for Year 1 and Year 2 using the double-declining balance method.

1. Depreciation rate:

$$\frac{2}{4} = 50\%$$

2. Year 1 depreciation expense:

$$50\% \times (\$40,000 - \$0) = \$20,000$$

3. Year 2 depreciation expense:

$$50\% \times (\$40,000 - \$20,000) = \$10,000$$

Year	Cost Value	Beg BV	DepExp	AccDep	Ending BV
1	$40,000	$40,000	$20,000	$20,000	$20,000
2	$40,000	$20,000	$10,000	$30,000	$10,000

Table: Depreciation Schedule for Double-Declining Balance Method

Beg BV= Last year's Ending BV.
Ending BV= Cost - AccDep.

Intangible assets

Non-physical assets that are expected to provide future economic benefits for more than one year.

- Patents
- Copyrights
- Trademarks
- Goodwill

Intangible assets

- Intangible assets are recorded at their **acquisition cost**.
- Intangible assets
  - with a **finite useful life** are amortized over their useful life.
  - with an **indefinite useful life** are not amortized but are tested for impairment annually.

Amortization Expense (AmortExp, Expense)

The amount of the intangible asset's cost that is allocated to the current accounting period.

Accumulated Amortization (AccAmo, Contra Asset, xA)

The total amount of amortization expense that has been recorded against the asset since it was acquired.

EX. Cedar Fair purchased a patent for a water-coaster for $800,000 and intends to use it for 20 years. The patent has no residual value.

1. Annual amortization expense:

$$\frac{\$800{,}000}{20} = \$40{,}000$$

2. Journal entries at the end of year 1:

Amortization Expense (+E)	40,000	
Accumulated Amortization (+xA, -A)		40,000

3. BV of the patent after the 1st year: $\$800{,}000 - \$40{,}000 = \$760{,}000$

Fixed-asset turnover ratio

Fixed-asset turnover ratio

A measure of how efficiently a company uses its fixed assets to generate sales.
Calculated as: $\frac{\text{Net Sales}}{\text{Average Net Fixed Assets}}$

- A higher ratio indicates better **utilization** of **fixed assets**.
- A lower ratio may indicate **inefficiency** in using **fixed assets** to generate sales.

EX. A company has net sales of \$500,000 and average net fixed assets of \$200,000. Calculate the fixed-asset turnover ratio.

1. Fixed-asset turnover ratio: $\frac{\$500{,}000}{\$200{,}000} = 2.5$
2. Interpretation: The company generates **\$2.50** in sales for every dollar invested in fixed assets.

Fixed-asset turnover ratio

EX. Analyze the fixed-asset turnover ratio for Cedar Fair and Six Flags for 2021 using the given information.

Metric	2021	2020
Cedar Fair - Revenue	$1,340	$180
Cedar Fair - Fixed Assets	$1,710	$1,800
Six Flags - Revenue	$1,495	$360
Six Flags - Fixed Assets	$1,250	$1,250

Table: Net Revenues and Fixed Assets for Cedar Fair and Six Flags

1. Cedar Fair: $\frac{\$1,340}{\frac{\$1,710+\$1,800}{2}} = \frac{\$1,340}{\$1,755} \approx 0.76$

2. Six Flags: $\frac{\$1,495}{\frac{\$1,250+\$1,250}{2}} = \frac{\$1,495}{\$1,250} \approx 1.20$

3. Which company is more efficient in using its fixed assets to generate sales?

   $\rightarrow$ Six Flags is more efficient.

Fixed-asset turnover ratio

Table: PPE (Property, Plant, and Equipment) at the end of Fiscal Year

fyear tic	2018	2019	2020	2021	2022	2023
COST	19,681	20,890	25,187	27,382	29,040	30,722
TGT	27,498	28,519	29,106	30,737	34,169	36,458
WMT	111,395	127,049	109,848	112,624	119,234	130,338

Table: Sales by Fiscal Year

fyear tic	2018	2019	2020	2021	2022	2023
COST	141,576	152,703	166,761	195,929	226,954	242,290
TGT	75,356	78,112	93,561	106,005	109,120	107,412
WMT	511,729	521,426	556,933	569,962	608,481	645,737

Note: Unit: $ million; COST: Costco; TGT: Target; WMT: Walmrt.

Fixed-asset turnover ratio

Calculate Fixed-asset turnover ratio for Costco, Target, and Walmart for 2023.

1. Costco: $\frac{\$242{,}290}{\frac{\$30{,}722+\$29{,}040}{2}} = \frac{\$242{,}290}{\$29{,}881} \approx \underline{8.11}$

2. Target: $\frac{\$107{,}412}{\frac{\$36{,}458+\$34{,}169}{2}} = \frac{\$107{,}412}{\$35{,}314} \approx \underline{3.04}$

3. Walmart: $\frac{\$645{,}737}{\frac{\$130{,}338+\$119{,}234}{2}} = \frac{\$645{,}737}{\$124{,}786} \approx \underline{5.17}$

Which company is more efficient in using its fixed assets to generate sales?