



Recording Transactions on Financial Statements

01.

Constructing a Balance Sheet

Session objectives



In this session we will:

01.

Explain the format of the balance sheet

02.

Record transactions

03.

Prepare a simple balance sheet

The three key financial statements

The **financial statements** are a record of the financial activities of a business.



1. Balance sheet

Assets

Liabilities

Equity



2. Income statement

Revenues

Expenses

Profit or loss



3. Statement of cash flows

Operating

Investing

Financing

The balance sheet



Total Assets

Current assets
Used within one year

e.g. cash, inventory, accounts receivable

Non-current assets
Last more than a year

*e.g. property, plant and equipment,
technology, patents, trademarks*

=

Total liabilities & equity

Current liabilities
Due within one year

e.g. accounts payable

Non-current liabilities
Due in more than a year

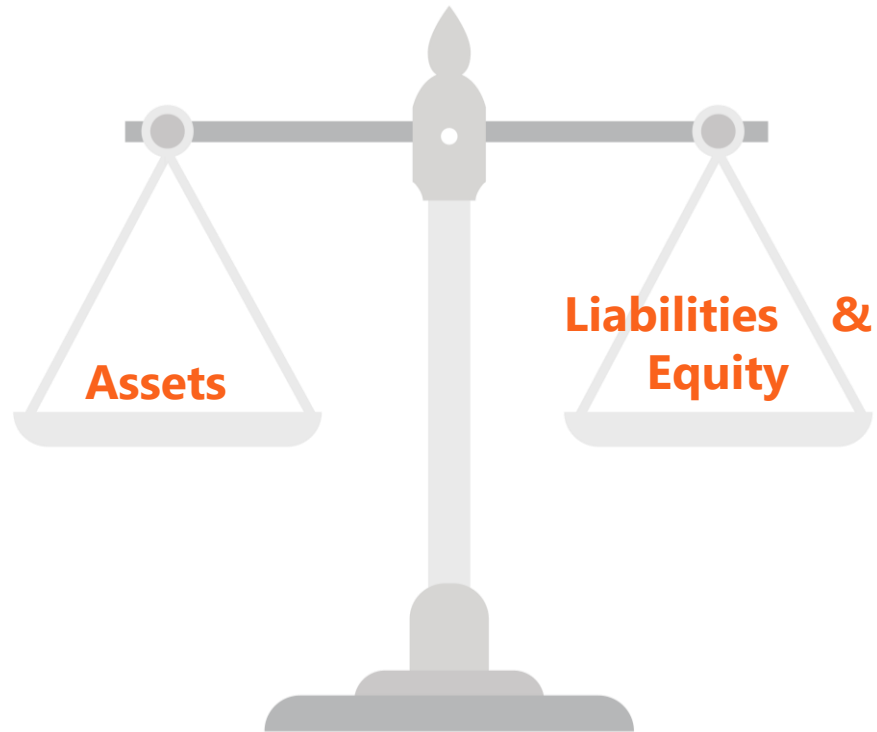
e.g. long-term debt

Shareholders' equity

e.g. common shares and retained earnings

Balancing the balance sheet

A balance sheet **must always balance**



To ensure this is the case, all transactions are recorded in **the balance sheet in two places.**

Double Entry Accounting

Debit

Credit

Balancing the balance sheet

Two options:

01.

Record the transaction on both sides of the balance sheet (e.g. debit (DR) an asset and credit (CR) a liability)

Assets	
Current assets	
Cash	(100)
Non current assets	
<hr/>	
Total Assets	(100)

Liabilities & Shareholders' Equity	
Current liabilities	
Short-term debt	(100)
Non current liabilities	
Shareholders' equity	
<hr/>	
Total Liabilities & SE	(100)

02.

Record the transaction twice on the same side of the balance sheet as both positive and negative number (e.g. debit (DR) and credit (CR) two different asset accounts)

Assets	
Current assets	
Cash	(100)
Non current assets	
Equipment	100
<hr/>	
Total Assets	0

Liabilities & Shareholders' Equity	
Current liabilities	
Non current liabilities	
Shareholders' equity	
<hr/>	
Total Liabilities & SE	0

Recording transactions

A company engaged in the following transactions:

- **Issued shares** for 100 in cash
- **Took out a four year bank loan** of 50
- **Bought equipment and machinery** for 80
- **Bought inventory** for 60
- **Sold all the inventory** for 90
- **Paid salaries** of 20
- **Paid interest** of 3

How would they be recorded in the balance sheet?



Issuing shares for 100 in cash

Assets	
Current assets Cash	↑ 100
Non current assets	
Total	↑ 100

Liabilities & Shareholders' Equity	
Current liabilities	
Non current liabilities	
Shareholders' equity Common stock	↑ 100
Total	↑ 100

Taking out a 4 year bank loan

Assets	
Current assets Cash [100 + 50]	↑ 150
Non current assets	
Total	↑ 150

Liabilities & Shareholders' Equity	
Current liabilities	
Non current liabilities	↑ 50
Shareholders' equity Common stock	100
Total	↑ 150

Buying a property for 80

Assets	
Current assets Cash $[100 + 50 - 80]$	↓ 150
Non current assets Equipment	↑ 80
Total	150

Liabilities & Shareholders' Equity	
Current liabilities	
Non current liabilities	50
Shareholders' equity Common stock	100
Total	150

Buying inventory for 60

Assets	
Current assets	
Cash $[100 + 50 - 80] - 60$	↓ 70
Inventory	↑ 60
Non current assets	
Equipment	80
Total	150

Liabilities & Shareholders' Equity	
Current liabilities	
Non current liabilities	50
Shareholders' equity	
Common stock	100
Total	150

Selling all inventory for 90

Assets	
Current assets	
Cash $[100 + 50 - 80 - 60] + 90]$	↑ 100
Inventory $[60 - 60]$	↓ 60
Non current assets	
Equipment	80
Total	↑ 180

Liabilities & Shareholders' Equity	
Current liabilities	
Non current liabilities	
Bank loan	50
Shareholders' equity	
Common stock	100
Retained earnings	↑ 30
Revenues	90 ↑
Cost of sales	(60) ↓
Total shareholders' equity	130
Total	↑ 180

Paying salaries of 20

Assets	
Current assets	
Cash [100 + 50 – 80 – 60 + 90]– 20]	↓ 180
Inventory [60 – 60]	0
Non current assets	
Equipment	80
Total	↓ 160

Liabilities & Shareholders' Equity	
Current liabilities	
Non current liabilities	
Bank loan	50
Shareholders' equity	
Common stock	100
Retained earnings	↓ 30
Revenues	90
Cost of sales	(60)
Salaries	(20) ↓
Total shareholders' equity	↓ 130
Total	↓ 160



Paying interest of 3

Assets	
Current assets	
Cash $[100 + 50 - 80 - 60 + 90 - 20] - 3$	↓ 80
Inventory $[60 - 60]$	0
Non current assets	
Equipment	80
Total	↓ 160

Liabilities & Shareholders' Equity	
Current liabilities	
Non current liabilities	
Bank loan	50
Shareholders' equity	100
Common stock	
Retained earnings	↓ 10
Revenues	90
Cost of sales	(60)
Salaries	(20)
Interest	(3) ↓
Total shareholders' equity	↓ 100
Total	↓ 160

Defining accounts receivable and payable

Assets	
Current assets	
Cash $[100 + 50 - 80] - 60 + 90]$	↑ 100
Inventory $[60 - 60]$	↓ 60
Non current assets	
Equipment	80
Total	↑ 180

Liabilities & Shareholders' Equity	
Current liabilities	
Non current liabilities	
Bank loan	50
Shareholders' equity	
Common stock	100
Retained earnings	↑ 30
Revenues	90 ↑
Cost of sales	(60) ↓
Total shareholders' equity	130
Total	↑ 180

Defining accounts receivable and payable



Accounts receivable – amounts owed by customers to the company



Accounts payable – amounts owed by the company to suppliers

- Bought inventory for 60 on **credit** rather than using cash?
- Sold all the inventory for 90 on **credit** rather than for cash?

How would our balance sheet look different if the company...



Buying and selling on credit

Assets	
Current assets	
Cash $[100 + 50 - 80 - 20 - 3]$	47
Accounts receivable	↑ 90
Inventory $[60 - 60]$	✦ 0
Non current assets	
Equipment	80
	217

Liabilities & Shareholders' Equity	
Current liabilities	
Accounts payable	60
Non current liabilities	
Bank loan	50
Shareholders' equity	
Common stock	100
Retained earnings	<u>7</u>
Revenues	90 ↑
Cost of sales	(60)
Salaries	(20)
Interest	(3)
	217

Balance sheet exercise

Now it's your turn...

01.

Click on the link
"Vadero Inc exercise"
with instructions

02.

Once you've had a go,
click on the attachment link
"Vadero Inc solution"



02.

Constructing an Income Statement

Session objectives

The background of the slide is a dark blue gradient. Overlaid on this are faint, semi-transparent images of a laptop, several sheets of paper, and a pen, suggesting a professional or academic setting.

In this session we will:

01.

Explain the format of the income statement

02.

Record transactions

03.

Prepare a simple Income statement

The role of the income statement

Income
Statement

Statement of
Operations

Statement of
Profit and Loss

In principle, it is only necessary for a company to produce a balance sheet.

However in practice, the detailed items that make up the retained earnings for the year are shown in the income statement.



The income statement

Revenues

Direct operating cost

(e.g. Cost of goods sold)

Indirect operating cost

(e.g. R&D, administration,
selling, distribution,
depreciation & amortization)

Cost of debt financing

(e.g. Interest, bank charges)

Tax

Gross profit

Operating income
= Earnings Before Interest
and Taxes (EBIT)

Net income



Creating a full income statement

Balance sheet extract	
Shareholder equity	
Common stock	100
Retained earnings	7
Revenues	90
Cost of sales	(60)
Salaries	(20)
Interest	(3)

Income statement	
Revenues	90
Cost of sales	(60)
Gross profit	30
SG&A expenses	(20)
Operating profit	10
Interest expenses	(3)
Tax	(0)
Net profit	7
Salaries	(20)
Interest	(3)

Recording income and expenses

The income statement includes only the revenues and expenses that relate to the accounting year.

Example

During the last month of the year the company buys insurance for 12 months at a cost of 12,000.

How much insurance would be included in the income statement?



Prepayments

Month 1....

...Month 12

1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

One month of insurance expense on the income statement is 1,000

A

What happens to the remaining 11,000?

?

Balance sheet - current asset

- Prepaid expense 11,000

Prepayments result if payments are made in **advance**

Recording income and expenses

Another example

2,000 worth of office supplies were used in the current year but were not paid for until the following year.



How much of this expense should be included in the income statement for the current year?



Accrued expenses



The full expense of 2,000 as this is the value of the office supplies used in the current year.



Since we haven't paid for the office supplies, how do we record the second half of the transaction?



Balance sheet – current liabilities

- Accrued expense 2,000

Accrued expenses have been reflected on the income statement, but not yet paid for.

Accrual and prepayment exercise

Now it's your turn...

01.


Click on the file
"Luton Inc. exercise"
with instructions

02.

Once you've had a go,
open the file "Luton Inc.
solution"



Depreciation

Assets	
Current assets	
Cash $[100 + 50 - 80 - 20 - 3]$	47
Accounts receivable	90
Inventory $[60 - 60]$	0
Non current assets	
Equipment	 80
	217

Liabilities & Shareholders' Equity	
Current liabilities	
Accounts payable	60
Non-current liabilities	
Bank loan	50
Shareholders' equity	
Common stock	100
Retained earnings	<u>7</u>
Revenues	90
Cost of sales	(60)
Salaries	(20)
Interest	(3)
	217

Depreciation



Let's assume that the useful life of this equipment is **4 years**, that we can allocate that usefulness evenly over the years of use, and that after 4 years the equipment has a **salvage value of 30**.

Year 1 | Year 2 | Year 3 | Year 4

How would we account for the reduction in value of the equipment as we use it in our operations?



We record an expense called "depreciation".



The impact of depreciation

$$\text{Depreciation} = \frac{\overset{\text{Purchase price}}{80} - \overset{\text{Salvage value}}{30}}{\underset{\text{\# of useful life}}{4}} = 12.5$$

Income statement – the depreciation expense is calculated by taking the purchase price (80), deducting the salvage value (30) and dividing the difference by 4 years. This gives us a depreciation expense of 12.5 a year.



The impact of depreciation

PP&E =	Purchase price	80.0	67.5	55.0	42.5
	(Depreciation expense)	(12.5)	(12.5)	(12.5)	(12.5)
	Closing balance	67.5	55.0	42.5	30.0

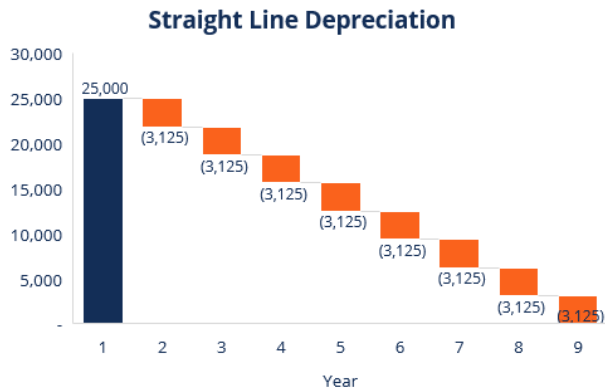
Balance sheet – the balance sheet value of the equipment would start at 80 but would reduce by 12.5 a year for the next 4 years. At the end of 4 years, the equipment would be valued on the balance sheet at 30 (the expected salvage value).



Different depreciation methods

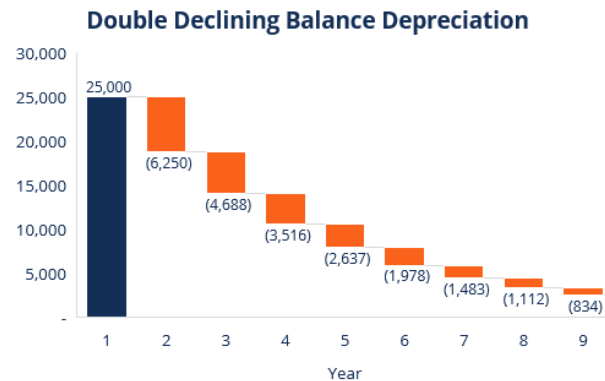
There are various depreciation methods companies can use:

Straight-line



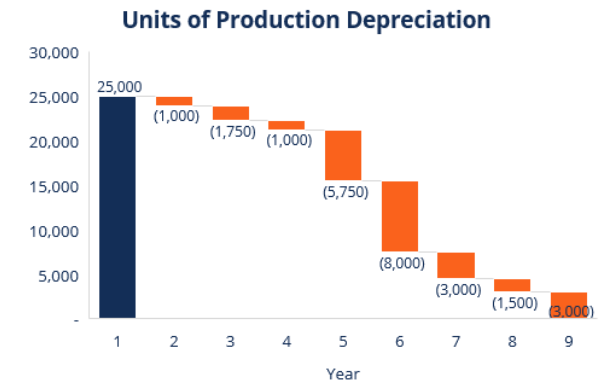
$$= \frac{\text{Cost} - \text{Salvage value}}{\text{Useful life of asset}}$$

Double Declining Balance



$$= \frac{100\%}{\text{Useful life of asset}} \times 2 \times \text{Beginning period book value}$$

Units of Production



$$= \frac{\text{\# of units produced}}{\text{Lifetime \# of units}} \times (\text{Cost} - \text{Salvage value})$$

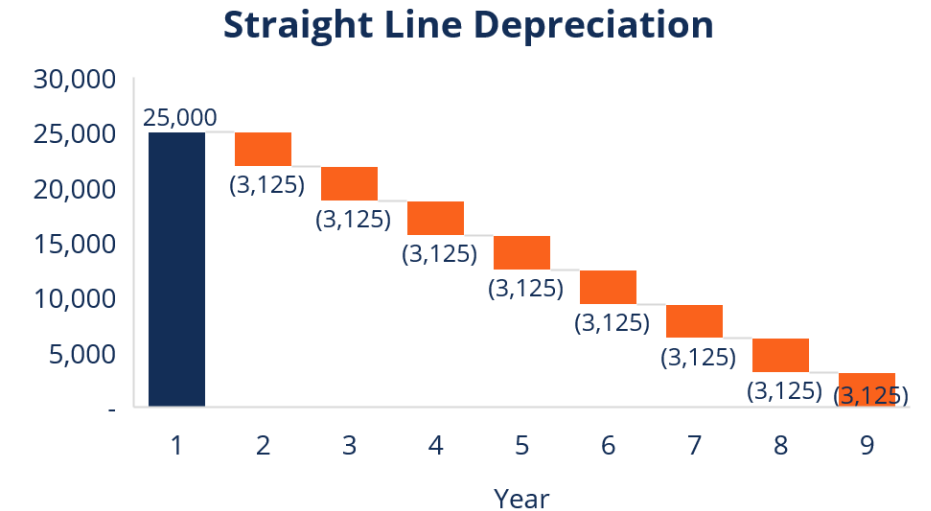
Different depreciation methods

Straight-line approach: an equal amount of depreciation is applied every year for the asset's useful life.

Straight-line depreciation is the most commonly used depreciation method and assumes that an asset will lose the same amount of value for the duration of its service life. It is calculated by simply dividing the cost of an asset, less its salvage value, by the useful life of the asset.

Depreciation Expense =

$$\frac{\text{Cost} - \text{Salvage value}}{\text{Useful life of asset}}$$



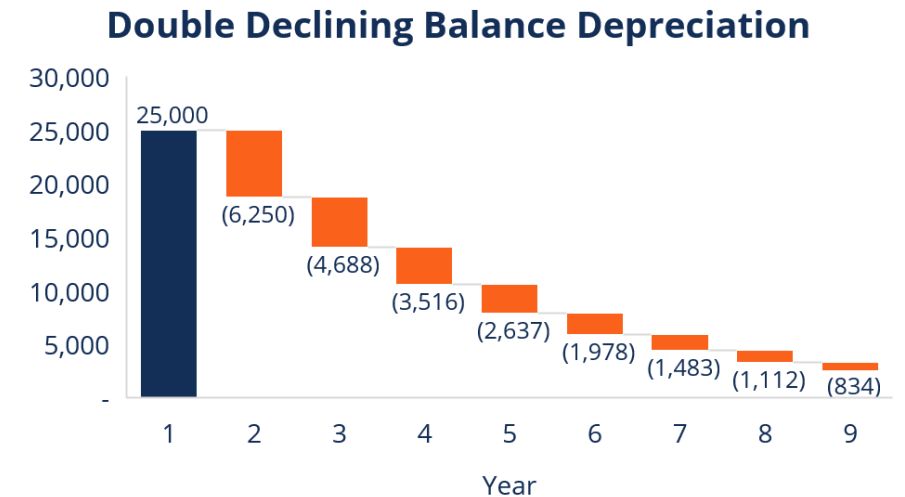
Different depreciation methods

Double Declining Balance approach: a form of accelerated depreciation where the depreciation expense is greater in the first few years and smaller in the later years.

The double-declining balance method is frequently used when an asset's economic value is being consumed at a more rapid rate early on in its useful life (for example a vehicle). Because depreciation is higher in the early years, this could result in a deferral of income taxes.

Depreciation Expense =

$$\frac{100\%}{\text{Useful life of asset}} \times 2 \times \text{Beginning period book value}$$



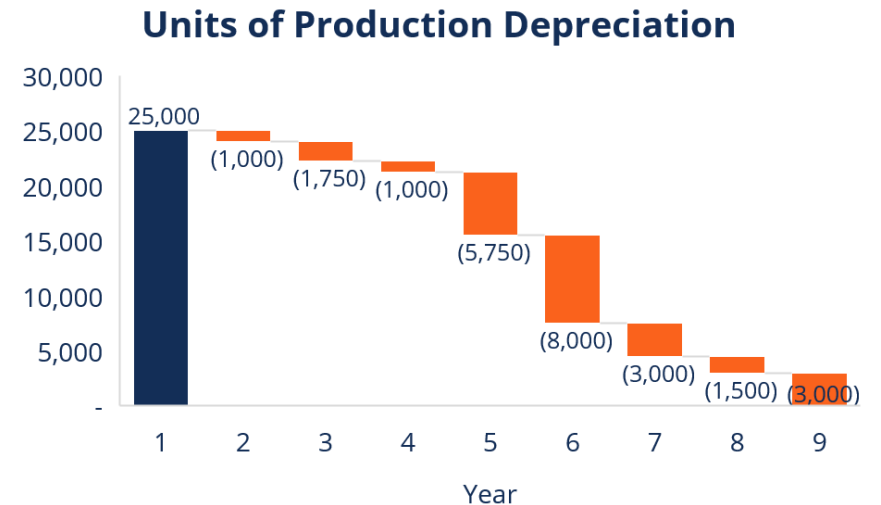
Different depreciation methods

Units of Production approach: depreciation expense varies each year and is based on the output that the assets produce.

The units of production method may be appropriate when usage of an asset varies over time and is dependent on the asset's output. It is often the most accurate method of depreciation since it reflects the actual wear and tear of an asset.

Depreciation Expense =

$$\frac{\text{\# of units produced}}{\text{Lifetime \# of units}} \times (\text{Cost} - \text{Salvage value})$$



Depreciation exercise

Now it's your turn...

01.

Click on the link
"Jenga Inc exercise"
with instructions

02.

Once you've had a go,
open the file "Jenga Inc.
solution"



03.

Constructing a Cash Flow Statement

Session objectives



In this session we will:

01.

Explain the format of the cash flow statement

02.

Explain the difference between the cash flow statement and the income statement

03.

Build a cash flow statement using the income statement and balance sheet

The three key financial statements

The financial statements are a record of the financial activities of a business.



1. Balance sheet

Assets

Liabilities

Equity



2. Income statement

Revenues

Expenses

Profit or loss



3. Statement of cash flows

Operating

Investing

Financing

The role of the cash flow statement



In theory, it is not necessary to have a cash flows statement as all cash items could be recorded in the balance sheet.



However, in practice just the closing cash balance is recorded on the balance sheet and all the details are shown in the cash flow statement.

FINANCIAL STATEMENTS	Historical Results				
	2012	2013	2014	2015	2016
Balance Sheet Check	OK	OK	OK	OK	OK
Balance Sheet					
Assets					
Cash	167,971	181,210	183,715	211,069	239,550
Accounts Receivable	5,100	5,904	6,567	7,117	7,539
Inventory	7,805	9,601	9,825	10,531	11,342
Property & Equipment	45,500	42,350	40,145	38,602	37,521
Total Assets	226,376	239,065	240,252	267,319	295,951
Liabilities					
Accounts Payable	3,902	4,800	4,912	5,265	5,671
Debt	50,000	50,000	30,000	30,000	30,000
Total Liabilities	53,902	54,800	34,912	35,265	35,671
Shareholder's Equity					
Equity Capital	170,000	170,000	170,000	170,000	170,000
Retained Earnings	2,474	14,265	35,340	62,053	90,280
Shareholder's Equity	172,474	184,265	205,340	232,053	260,280
Total Liabilities & Shareholder's Equity	226,376	239,065	240,252	267,319	295,951
Cash Flow Statement					
Operating Cash Flow					
Net Earnings	2,474	11,791	21,075	26,713	28,227
Plus: Depreciation & Amortization	19,500	18,150	17,205	16,544	16,080
Less: Changes in Working Capital	9,003	1,702	775	903	827
Cash from Operations	12,971	28,239	37,505	42,354	43,480
Investing Cash Flow					
Investments in Property & Equipment	15,000	15,000	15,000	15,000	15,000
Cash from Investing	15,000	15,000	15,000	15,000	15,000
Financing Cash Flow					
Issuance (repayment) of debt	-	-	(20,000)	-	-
Issuance (repayment) of equity	170,000	-	-	-	-
Cash from Financing	170,000	-	(20,000)	-	-
Net Increase (decrease) in Cash	167,971	13,239	2,505	27,354	28,480
Opening Cash Balance	-	167,971	181,210	183,715	211,069
Closing Cash Balance	167,971	181,210	183,715	211,069	239,550

The cash flow statement

Cash flows are organized based on...

Cash flows from OPERATING ACTIVITIES

(e.g. revenues, operating expenses)

Operating cash flows

Cash flows from INVESTING ACTIVITIES

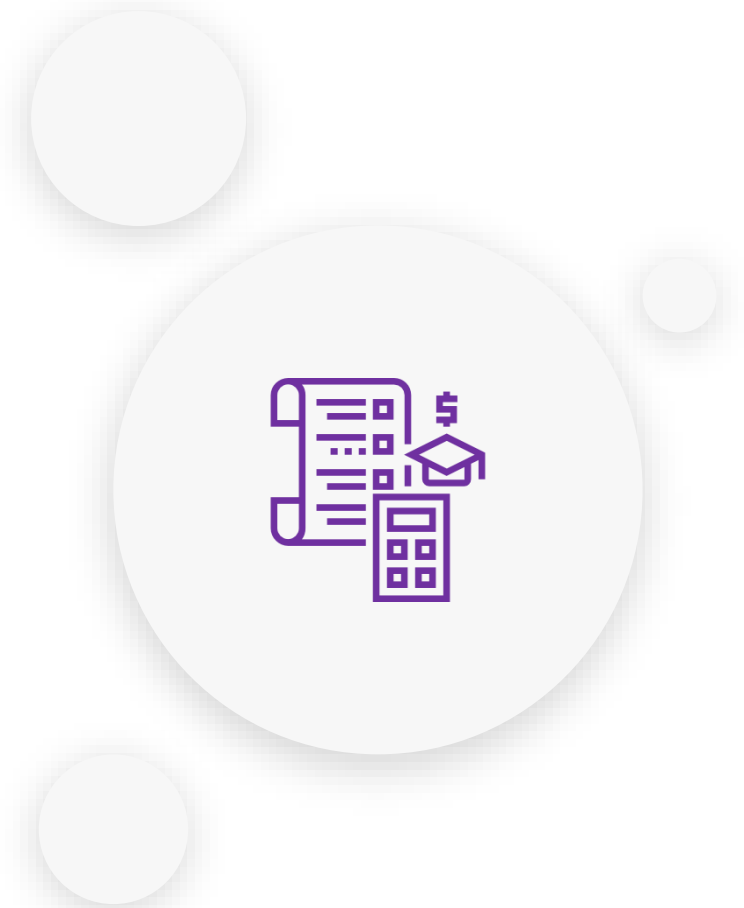
(e.g. sale/purchase of assets)

Cash before financing

Cash flows from FINANCING ACTIVITIES

(e.g. issuing shares, raising debt)

Net cash movement



The difference between profit and cash

The accrual concept recognizes revenues and costs as a business earns or incurs them, not as it receives or pays money. It includes them in the relevant period's income statement, and as far as possible matches them with each other.



Income statement

- 01. Earned
- 02. Incurred



Statement of cash flows

- 01. Received
- 02. Paid

The idea of matching over time



A **five day** transit pass costs **\$40** and is paid in cash on **Monday**.

How much is the **daily cost of travel on Thursday...**



- On a **cash flow** basis?
- On a **matching / accrual** basis?

Which **basis...**



- ...better reflects the **cost of an individual journey?**
- ...better helps you **plan your personal cash flow?**

The idea of matching over time

The daily cost of travel on **Thursday**

A

On a cash flow basis:

\$0, because the cash expense happened on Monday

Better for planning actual **cash inflows and outflows**

On a matching basis:

$\$40 / 5 \text{ days} = \text{\$8}$ expense per day

Better for planning the **daily cost**

Both approaches provide valuable information

PP&E and depreciation recap

ABC Inc. buys a truck for \$45,000, will use it in the business for 5 years, and in 5 years expects to sell it for \$15,000 (expected salvage value).



Two additional assumptions to make:

1. The company uses straight line depreciation method.
2. The company charges a full year of depreciation expense in the year it makes the purchase.

What do we show in the

- Cash flow statement?
- Income statement?
- Balance sheet?



Depreciation and the three financial statements

Balance sheet

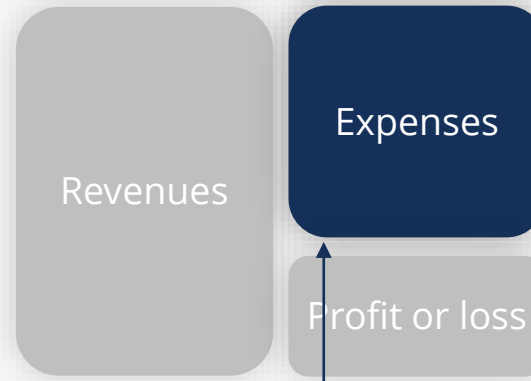


Property, plant and equipment:
\$39,000

$= \$45,000 \text{ [initial purchase price]} - \$6,000 \text{ [depreciation expense]}$

The value reduces by \$6,000 per year.

Income statement

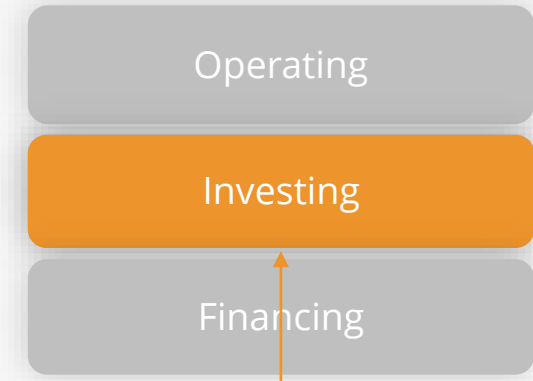


Depreciation expense:
\$6,000

$= (\$45,000 \text{ [purchase price]} - \$15,000 \text{ [salvage value]}) / 5 \text{ [useful years]}$

\$6,000 will be charged as an expense for 5 years.

Statement of cash flows



Cash outflow from investing activities (capex):
\$45,000

Calculating operating cash flows - direct method

The most obvious way of showing operating cash flows would be:

Operating cash inflows	X
Less: Operating cash outflows	(X)
= Net operating cash flows	X

This method is rarely used in practice.



3. Statement of cash flows

01. Operating

02. Investing

03. Financing

Operating cash flows – indirect method

The operating cash flows begin with the net income number. If all the items in the income statement were cash items, this would be the only item in this section.

Adjustments are required if:

- Some of the sales would have been on credit
- Some of the purchases would have been on credit
- Some of the inventory that had been bought would not have been sold
- Some other income statement items are not cash items e.g. depreciation, stock-based compensation, and unrealized gains/losses

Therefore, adjustments are made to correct for these.



Operating cash flows – indirect method

Calculating operating cash flows with the indirect method:

Net income	X
+ Depreciation	X
Changes in working capital	
+ (Increase) / decrease in inventory	(X)/X
+ (Increase) / decrease in receivables	(X)/X
+ Increase / (decrease) in payables	X/(X)
Net operating cash flows	X



3. Statement of cash flows

01. Operating

02. Investing

03. Financing

Operating cash flows example – period 1

Below is a list of transactions and balances for Johannes Inc:

- Cash purchases 250
- Cash sales 370
- Cash expenses 40
- Depreciation 55

There was no inventory at the year end.



Operating cash flows example – period 1

Income Statement	
Revenue	370
Purchases	(250)
Expenses	(40)
Depreciation	(55)
Net income	25

Cash flow direct	
Cash from sales	370
Cash on purchases	(250)
Cash on expenses	(40)
Change in cash	80

Cash flow indirect	
Net income	25
Depreciation	55
Change in cash	80

Operating cash flows example – period 2

In the next period, the following transactions took place:

• Cash purchases	280
• Cash sales	300
• Sales on credit	170
• Cash expenses	50
• Receipts from receivables	140
• Depreciation	55

Again, there was no inventory at the year end.



Operating cash flows example – period 2

Income Statement	
Revenue 300 + 170	470
Purchases	(280)
Expenses	(50)
Depreciation	(55)
Net income	85

Cash flow direct	
Cash from sales	440
Cash on purchases	(280)
Cash on expenses	(50)
Change in cash	110

Cash flow indirect	
Net income	85
- Increase in A/R	(30)
+ Depreciation	55
Change in cash	110

Operating cash flows example – period 3

In the third period, the following transactions took place:

• Cash purchases	150
• Cash sales	320
• Sales on credit	310
• Purchases on credit	180
• Receipts from receivables	260
• Payments to payables	140
• Cash expenses	70
• Depreciation	55



Again, there was no inventory at the year end.

Operating cash flows example – period 3

Income Statement	
Revenue	
Purchases	
Expenses	
Depreciation	
Net income	

Cash flow direct	
Cash from sales	
Cash on purchases	
Cash on expenses	
Change in cash	

Cash flow indirect	
Net income	
- Increase in A/R	
+ Increase in A/P	
+ Deprecation	
Change in cash	

Johannes operating cash flow exercise

Now it's your turn...

01.

Open the file

"Johannes period 4 exercise".

02.

Once you've had a go,

open the attachment
"Johannes period 4 solution".



Deriving the complete cash flow statement

It is possible to derive the cash flow statement using:

This year's
balance sheet

Last year's
balance sheet

This year's
income
statement

Usually, financial analysts forecast future income statements and balance sheets and derive cash flows using the method described over the next few slides.

This approach is used extensively in CFI's financial modeling and valuation courses.



Stage one - compare the balance sheets

For every item in the balance sheet, calculate the difference between this year's figure and last year's figure.

If **assets have increased**, this will have resulted in a **cash outflow** and therefore record the difference as a negative amount.

If **liabilities have increased**, this will have resulted in a **cash inflow** and therefore record the difference as a positive amount.

Add up the total of all the differences and it should equal the increase or decrease in cash.

**Last
Year**



Assets
=
Cash outflow

**This
Year**

**Last
Year**



Liabilities
=
Cash inflow

**This
Year**

Comparing assets and liabilities

ABC Inc. balance sheet extract

Current assets	Year 1	Year 2	Difference
Accounts receivable	80	150	-70 (cash outflow)
Inventory	60	80	-20 (cash outflow)
Current liabilities			
Accounts payable	30	50	20 (cash inflow)

Stage two – classifying the cash flows

Put each of the differences into the cash flow statement classifying them as either:



Operating cash flows



Investing cash flows



Financing cash flows

How should we classify ABC Inc.'s cash flows related to changes in accounts receivable, accounts payable, and inventories?



Classifying working capital cash flows

If we assume ABC Inc.'s net income is 8 and its depreciation expense is 90, the operating cash flows would be:

Net Income	8
Depreciation	90
Increase in receivables	(70)
Increase in inventory	(20)
Increase in payables	20
Total operating cash flows	28

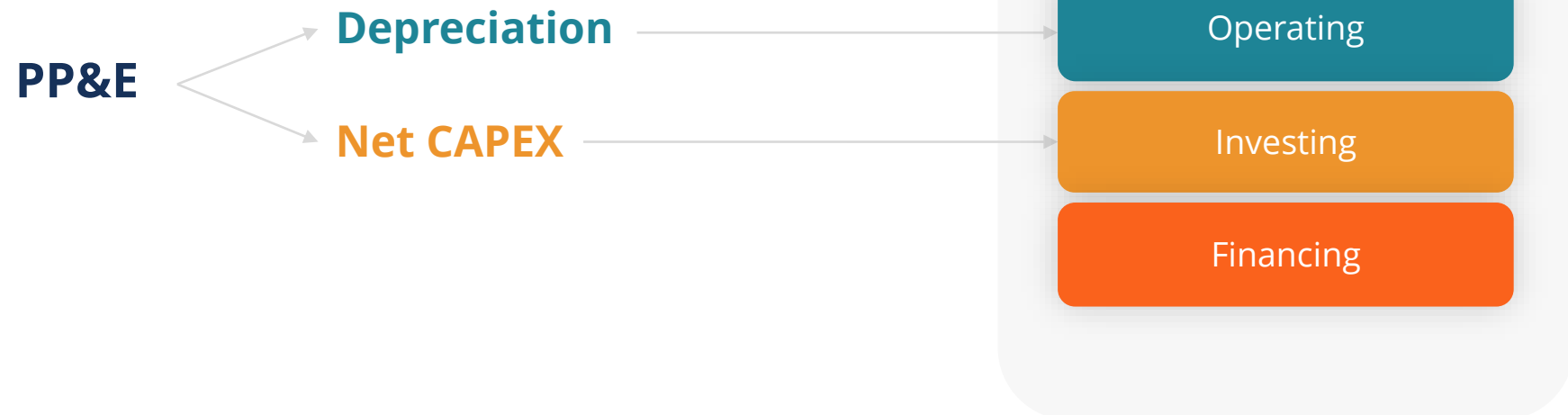
They are all classified under operating activities



Dealing with property, plant and equipment

There are usually two reasons why a difference PP&E might have occurred:

- **Depreciation expense** lowering PP&E
- **Net capital expenditure (a.k.a. CAPEX)** increasing PP&E



Calculating net capital expenditures

We can calculate net capital expenditure as long as we have the following three items:

- Opening net book value of PP&E from the balance sheet
- Closing net book value of PP&E from the balance sheet
- Depreciation expense from the income statement

If ABC Inc.'s depreciation expense is 90 and PP&E in the balance sheet is as follows:

	Year 1	Year 2
PP&E	810	730

What is ABC Inc.'s net capital expenditure?



Calculating net capital expenditure

Net capital expenditure is...



Opening
PP&E

+

Net
CAPEX

-

Depreciation

=

Closing
PP&E

810

10

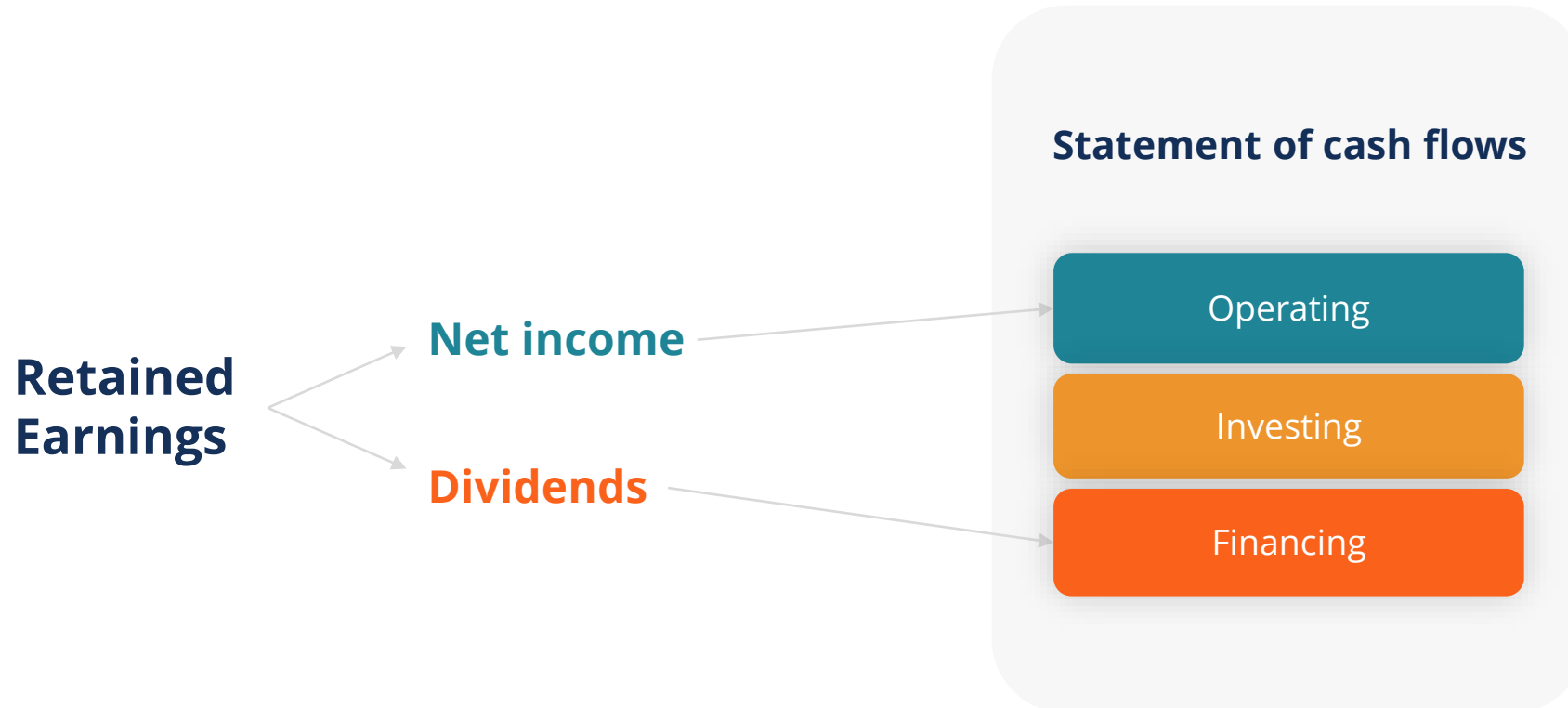
90

730

Dealing with retained earnings

Changes in retained earnings are usually due to two factors:

- + **Net income**
- **Dividends**



Preparing a cash flow statement exercises

Now it's your turn...

01.

There are two exercises for you to try – “Jenga cash flow exercise” and “Candor cash flow exercise”.

02.

Once you've had a go, click on the appropriate solution – “Jenga cash flow solution” or “Candor cash flow solution”

