FINANCIAL STATEMENT ANALYSIS AND SECURITY VALUATION

P1: FINANCIAL STATEMENT ANALYSIS

LES 1: introduction & financial statements

Introduction

demand for financial information by:

- shareholders
- investment analysts
- etc

supply of financial information for reasons of:

- compliance with public market regulation
- benefit of disclosure because of TRUST:
  - lower cost of equity
  - lower cost of debt
- disclosing information also involves costs:
  - preparation and dissemination
  - competitive disadvantages

Financial Statements

Balance sheet: the accounting equation:

Left hand side: assets (everything company has invested in to make it work)

Right side: how these assets are financed (liabilities and equity)

Income statement:

Reports on operating activities: sales and revenues less all expenses and costs

Equity Statement:

Zooming in on equity part of the balance sheet

Reports on changes in the book value of equity and its components

Two main components:

1. contributed capital (from stock issuances)
2. earned capital (retained earnings or reserves built up from previous periods

Equity Statement 2024	Mln EUR
Total Equity on Jan 1, 2024	92,816
+ Net Income	+ 10,409
- Dividends	- 5,728
+/- Other Equity Movements	-3,867
Total Equity on Dec 31, 2024	93,630

From the income statement

From the cash flow statement

?

Cash Flow Statement:

Reports on cash flows for operating, investing, and financing activities

Balance Sheet:

Assets:

Asset brings along future economic benefit!
assets are ordered in order of liquidity:

- current assets (can be converted or are expected to be converted to cash within a year)
- long-term assets (cannot easily be converted into cash within a year)

current assets:

1. cash and cash equivalents (investments with an original maturity of less than 90 days)
2. marketable securities (short-term investments that can be quickly sold to raise cash, 3-12 month maturity)
3. inventories
4. prepaid expenses (costs paid in advance for rent, insurance, advertising or other services)
5. accounts receivable, net: amounts due to the company from customers

long-term assets:

- tangible: PPE: property plant, equipment
- leased assets
- intangible and other assets: patents, trademarks etc
- goodwill: premium on top of the book/market value paid in acquisition activities
- long term investments

Example Apple:

- *100+ billion in long term, non-current marketable securities*
- *ROA (net income/total assets) doesn't tell us anything! assets have nothing to do with Apple's operations*
- *almost no inventory: we don't care about inventories: irrelevant*

Example Cisco:

- *high Goodwill: almost 40%: company has grown by M&A activities so non organically*
- *AbInbev also has high Goodwill*
- *A lot of cash*

Example Ryanair:

- *two main items: PPE (60%): makes sense for aircraft, and cash (40%)*

Example SAS (not doing very well):

- *pandemic: 2019→2020: huge increase in right-of-use assets (0 → 17m). This is purely accounting principles*
- *in 2023: lots of prepayments as asset: red flag, no trust*

Example Pernod Ricard:

- *high intangible assets (brands) and goodwill*
- *high inventory: usually this would be a red flag, but liquor industry: normal because of ripening of drinks*

Asset Recognition:
How are assets reported on the balance sheet?
2 ways:

1. historical cost: what you paid for it when you bought it minus depreciation: book value of asset (most used)

2. fair value (what is someone currently willing to pay for the asset?)

Firms will usually choose historical value because it's way more predictable
Not all assets that a company has are on the balance sheet because they can't be reliably measured (f.e. employee satisfaction)

Example Disney:

- *Where is Mickey Mouse on the balance sheet? Intangible assets? Goodwill?*
- *not goodwill because they didn't buy Mickey Mouse*
- *not intangible assets: too low*
- *Mickey Mouse is not on the balance sheet because it's an internally created brand. Value can not be estimated accurately.*
- *Iron man is in Goodwill because it was bought through Marvel*
- *2018→2019 goodwill grew enormously because they purchased 21st century fox*

<u>Equity and Liabilities:</u>

Equity:
equity consists of:

- contributed capital
- earned/retained capital

	Beginning retained earnings
+	Net income (or − net loss)
−	Dividends
=	Ending retained earnings

Liabilities:
long-term liabilities:

- long-term debts (loans: public or private)
- operating long-term liabilities (=obligations), pensions (and accounts payable, provisions) that will be settled a year or more from now

short-term/current liabilities:

- accounts payable (credit you receive from your suppliers)
- accrued liabilities: obligations for expenses that have been incurred, but not yet paid (wages, tax, interest)
- unearned revenues
- short term debt
- current maturities of long-term debt: portion of long term debt that needs to be paid within a year

Example Apple:

- Apple has a lot of cash, but a lot of debt → they don't need to pay a lot of interest
- Accounts payable also very high (highest of the world) → power over suppliers, no interest on credit

Net Working Capital - operating cycle
= current assets - current liabilities
Liquidity!

- *Example bulldozer company Caterpillar:*
  Producing bulldozers: takes some time, until sold it remains in the inventory, client wants credit before they actually pay. → how much time between production and cash received?
  → takes a long time (in this time they have to pay wages and other monthly costs) → company needs cash!

- *Carrefour:*
  way lower chance of liquidity problems because there are no accounts receivable in a supermarket

- *Air France:*
  way lower chance of liquidity problems because customers pay days/weeks/months BEFORE the flight

BUT Caterpillar is still the most profitable company out of these 3!

LES 2: financial statements

Comprehensive Income Statement:

	Revenues
–	Cost of goods sold
	Gross profit
–	Operating expenses
	Operating profit
–	Nonoperating expenses (+ Nonoperating revenues)
–	Tax expense
	Income from continuing operations
+/–	Nonrecurring items, net of tax
=	Net income

- COGS: direct expenses of making the product
- Period expenses/Operating expenses (other operating expenses): R&D and SG&A (Selling, General, and Administrative)
- Nonoperating expenses: not directly related to the car (wages of HR, It department etc) (do not hit the balance sheet, expensed when you incur the costs)

after subtracting these, you get EBIT

When are revenues and expenses recognized? Accrual accounting: 2 principles

- revenue recognition principle:
  recognize **revenues** when it makes economic sense
  F.e.: BMW sells, gives you the key of the car → revenue
  even if you haven't actually paid it yet
  Airline company can only recognize revenue when flight happens

- matching principle: recognize **expenses** when the company incurs them (COG**S**) so when the revenues are recognized or when expenses are incurred in absence of such a link

Example Volkwagen:
Crisis in 2015 seen under "other operating expenses" -> footnote "miscellaneous" other operating expenses? look further: "diesel issue"
But you only see the crisis in the cash flows in 2017
→ this is why we do accrual accounting and we focus on earnings per share rather than cash per share

Equity Statement:
Show how equity has evolved from one period to another
Not mandatory everyone, but it is in BEGAAP and IFRS
main equity categories:
- contributed capital
- retained earnings or reserves

other equity categories:
- preference shares
- share premiums
- other comprehensive income: gets a separate income statement

<u>stock issuance <-> stock buy-back</u>
difference buy-back and dividend: much more volatility in stock repurchases. Stock repurchases are not meant to be recurrent. If a firm cuts down on dividend → red flag! But cutting down on buy-backs doesn't matter.

example Apple:
very profitable but why isn't equity growing? Apple is buying back its own shares on the stock market: cash outflow to the shareholders

<u>Other comprehensive income</u>
Very small for Apple.
Net income + other comprehensive income = comprehensive income
four sources of comprehensive income (= shocks to your equity that do not flow through your income statement):

1. change in foreign currency translation, net of tax:
   BMW sells a car in the US, but they don't get paid yet. BMW reports in euros so they put the revenue in euros (at this time 1 dollar = 80 cents). But when the client finally pays, 1 dollar = 90 cents. Bonus (it could also be a loss if the dollar became less valuable in euros). Not a revenue or an expense, but we account for it as other comprehensive income.
2. changes in unrealized gains/losses on derivative instruments, net of tax: (niet zo belangrijk)
   hedge accounting
   realized: you've sold
   unrealized: you're stuck with it

3. change in unrealized gains/losses on marketable debt securities, net of tax: (niet zo belangrijk)
   financial instruments
4. unrealized gains/losses on postretirement benefit plans: companies saving for future retirement payments in a fund: value in fund goes up and down

Cash Flow Statement: belangrijk voor het examen!

the most messy of the statements because every firm has a different structure
What is a cash flow? Several meanings:

- funds from operations?
- operating cash flow?
- free cash flow?
- change in cash balance?

direct or indirect form, we focus on the indirect form because no one uses direct form
the cash flow statement "takes off" all of the accounting

we start with out net income

- adjustments to reconcile net income to cash generated by operating activities:
  - adds back depreciation and amortization
  - adds back share-based compensation expenses
- changes in operating assets and liabilities: changes in working capital:
  - changes in accounts receivable: BMW sells you a car, but you don't pay yet, earnings are up, but cash isn't so **deduct** earnings that you haven't actually received.
  - changes in inventories: costs of iphones in the inventory only get booked when iphones are SOLD, but the investments for inventory have been made already. so we have to **deduct** the increases of inventory.
  - changes in accounts payable: **add** back the credit received from supplier

- CFO = NI + Depr./Amort. – [ΔWORKING CAPITAL] + Interest Exp. + Tax Exp. – Tax Paid
- Interest expenses (and interest income) is not part of a firm's operations… but many firm yet include them in OCF!
- CFO = EBIT + Depr./Amort. – [ΔWORKING CAPITAL] - Tax Paid
- ΔWORKING CAPITAL =
  = Δ Current operating assets - Δ Current operating liabilities
  ≈ Δ Inventories + Δ Receivables - Δ Payables

tax paid = taxes from last year that you pay now

Ricard adds back financial expenses = interest expenses! Apple doesn't!
Interest expense has nothing to do with your operations, but with how you finance your operations!
Ricard deducts interest paid and adds back the interest they receive. But this has nothing to do with operations. Prof disagrees with this method.

Ricard adds back "tax expenses" because you only have to pay them next year and deduct s "taxes paid" for the operating activities because those are the taxes you pay from last year → sensible (Apple didn't do this)

€ millions	30.06.2022	30.06.2023
CASH FLOWS FROM OPERATING ACTIVITIES		
Group share of net profit	1,996	2,262
Non-controlling interests	35	21
Share of net profit/(loss) of associates, net of dividends received	(5)	4
Financial (income)/expenses	260	327
Tax (income)/expenses	676	651
Net profit from discontinued operations	—	—
Depreciation of fixed assets	381	417
Net change in provisions	7	(74)
Net change in impairment of goodwill, property, plant and equipment and intangible assets	10	52
Changes in fair value of commercial derivatives	2	(7)
Changes in fair value of biological assets and investments	(4)	(80)
Net (gain)/loss on disposal of assets	(5)	(74)
Share-based payments	40	44
Self-financing capacity before financing interest and taxes	**3,392**	**3,543**
Decrease/(increase) in working capital requirement	(252)	(568)
Interest paid	(275)	(292)
Interest received	48	4
Tax paid/received	(619)	(654)
Net cash from operating activities	**2,294**	**2,033**

Cash flow statements are so different between companies → don't just compare

Example LVMH:

LVMH's Cash Flow Statement (2024)

(EUR millions)	Notes	2024
I. OPERATING ACTIVITIES		
Operating profit		18,907
(Income)/Loss and dividends received from joint ventures and associates	6	29
Net increase in depreciation, amortization and provisions		1,568
Depreciation of right of use assets	7.1	3,228
Other adjustments and computed expenses		488
Cash from operations before changes in working capital		27,220
Cost of net financial debt: interest paid		(357)
Lease liabilities: interest paid		(483)
Tax paid		(5,531)
Change in working capital	15.2	(1,925)
Net cash from/(used in) operating activities		18,924

QUESTION: What is the "true" operating cash flow of LVMH in 2024?

"My" OCF would be:

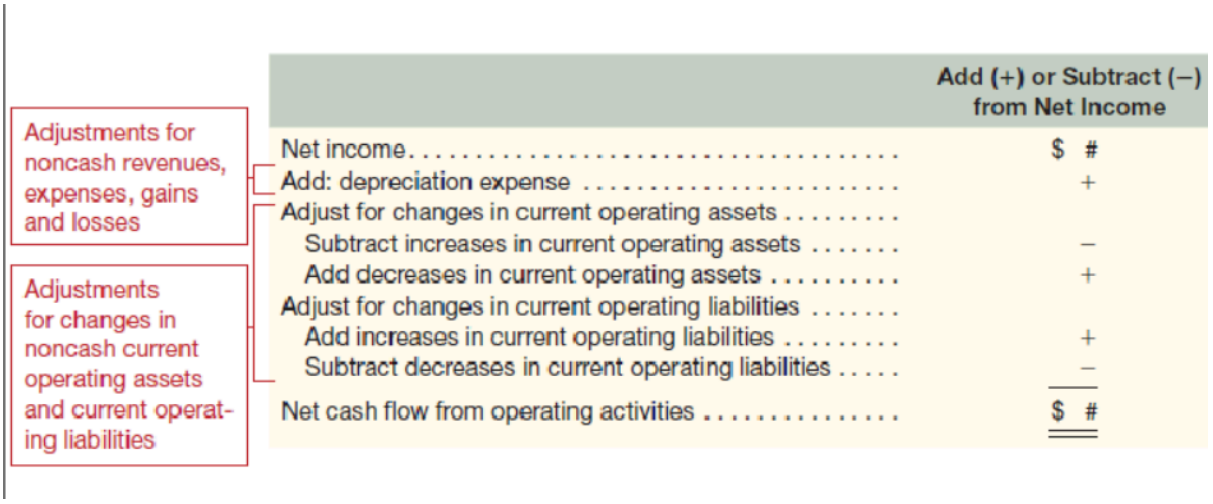
- → 27,220 – 5,531 – 1,925 = **19,764** mln EUR
- → 18,924 + 483 + 357 = **19,764** mln EUR
- → "True" *operating* cash flow excludes interests (on leasing as well) and includes taxes and working capital investments.
- → This approach is up for debate…

they don't start with net income, but with the EBIT!

Apple has "cash generated by/used in investing activities" on their cash flow statement: this is a useless number: mixture of operating and financing activities, completely different things. → neglect this number

Summary of cash flow statement:

cash flow statement indirect method:



	Add (+) or Subtract (−) from Net Income
Net income	$ #
Add: depreciation expense	+
Adjust for changes in current operating assets	
Subtract increases in current operating assets	−
Add decreases in current operating assets	+
Adjust for changes in current operating liabilities	
Add increases in current operating liabilities	+
Subtract decreases in current operating liabilities	−
Net cash flow from operating activities	$ #

working capital accounts:

	Change in account balance...	Means that...	Which requires this adjustment to net income to yield cash profit...
Receivables	Increase	Sales and net income increase, but cash is not yet received	Deduct increase in receivables from net income
	Decrease	More cash is received than is reported in sales and net income	Add decrease in receivables to net income
Inventories	Increase	Cash is paid for inventories that are not yet reflected in cost of goods sold	Deduct increase in inventories from net income
	Decrease	Cost of goods sold includes inventory costs that were paid for in a prior period	Add decrease in inventories to net income
Payables and accruals	Increase	More goods and services are acquired on credit, delaying cash payment	Add increase in payables and accruals to net income
	Decrease	More cash is paid than is reflected in cost of goods sold or operating expenses	Deduct decrease in payables and accruals from net income

relation CF, income statements and balance sheet:

Relation of CF Statement to Income Statement and Balance Sheet

Cash flow section	Information from income statement	Information from balance sheet	
Net cash flows from operating activities. . . .	Revenues – Expenses = Net income	**Current operating assets** Long-term operating and all nonoperating assets	**Current operating liabilities** Long-term operating and all nonoperating liabilities Equity
Net cash flows from investing activities	Revenues – Expenses = Net income	Current operating assets **Long-term operating and all nonoperating assets**	Current operating liabilities Long-term operating and all nonoperating liabilities Equity
Net cash flows from financing activities	Revenues – Expenses = Net income	Current operating assets Long-term operating and all nonoperating assets	Current operating liabilities **Long-term operating and all nonoperating liabilities** **Equity**

Cash Flow Statement: Exercise 1

Petroni Company reports the following selected results for its current calendar year:

Net Income	130
Depreciation expense	25
Accounts receivable increase	10
Accounts payable increase	6
Prepaid expenses decrease	3
Wages payable decrease	4
Stock issuance	1

What is Petroni's Operating Cash Flow?

130 + 25 - 10 + 6 + 3 - 4 = 150
stock issuance: not operational, we don't do anything
prepaid expenses: money you pay now for a service you're getting later

Cash Flow Statement: Exercise 2

Leonidas Company reports the following selected results for its current calendar year:

Net Income	260
Depreciation expense	40
Inventory increase	6
Payment for PPE	10
Tax payable increase	14
Unearned revenue decrease	8
Purchase of marketable securities	30

What is the operating cash flow of Leonidas?

300

260 + 40 - 6 + 14 - 8 = 300
unearned revenue: money that a company gets before doing any work or delivering a product or service.

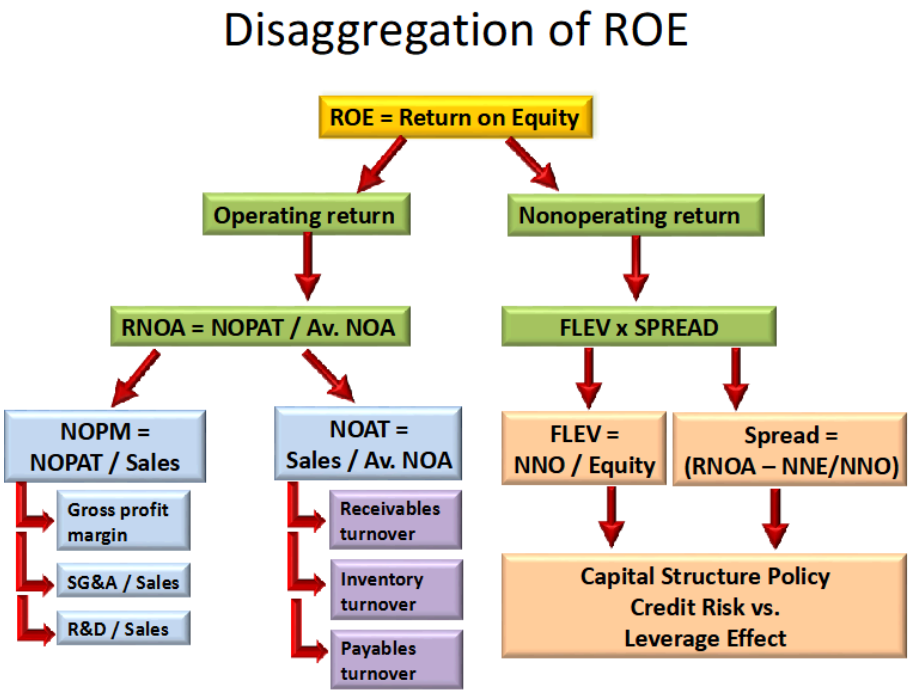
LES 3: profitability

Financial statement analysis has 3 pillars:

1. profitability (important!)
2. solvency
3. liquidity

We will talk about profitability

Disaggerating the ROE:



= profitability = liquidity

ROE:

ROE = net income/average equity

ROE = operating return + nonoperating return

Operating return:

RNOA (return on net operating assets) =

net operating profit after tax (NOPAT)/average net operating assets (NOA)

→ for every 100 euros we invest in the operations, the company realizes an earning after tax of RNOA percent. Or the ROA if the company was fully realized by equity. Used to compare companies in the same field on operational level.

everything that has nothing to do with operations: leave out of RNOA

!!! cash is assumed to be NON-operating !!!

<u>net operating profit after tax (NOPAT):</u>

Operating Items
- Revenues
- Cost of Goods Sold
- **Gross Profit**
- Selling, General and Administrative Expenses
- R&D
- **Operating Profit** = EBIT

Nonoperating Items
- Interest Expenses
+ Interest and Dividend Income
- **Profit Before Tax**

Operating Items
- Tax Expense
- **Net Income**

LVMH example:

Revenue	24	**84,683**
Cost of sales		(27,918)
Gross margin		**56,765**
Marketing and selling expenses		(31,002)
General and administrative expenses		(6,220)
Income/(Loss) from joint ventures and associates	8	28
Profit from recurring operations	24	**19,571**
Other operating income and expenses	25	(664)
Operating profit		**18,907**
Cost of net financial debt		(442)
Interest on lease liabilities		(510)
Other financial income and expenses		160
Net financial income/(expense)	26	**(792)**
Income taxes	27	(5,157)
Net profit before minority interests		**12,958**

Profit before Tax = 18,115

Profit before Tax = 18,907 – 792 = 18,115

Tax on operating profit = tax expense that we would have, in absence of nonoperating expense and revenue items (in case the company was fully financed by equity)
Tax on operating profit = tax expense + (pretax **non**operating expenses x statutory tax rate)
(or "tax shield)

NOPAT calculation for LVMH for 2024:

NOPAT = 18,907 – [5,157 + (792 x 0.30)]

NOPAT = 13,512.4

<u>net operating assets (NOA):</u>
operating assets INCLUDE:
- receivables
- inventories
- intangible assets
- goodwill
- PPE
- lease assets

operating assets EXCLUDE:
- cash & cash-like items
- short-term and long-term investments

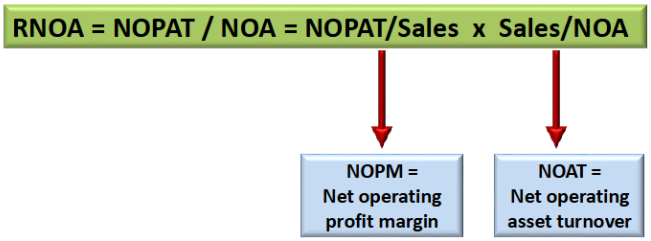
- other financial assets and investments

operating liabilities = all liabilities EXCEPT:

- long term debt
- short term debt
- lease liabilities (!!!)

NOA = operating assets - operating liabilities
we usually consider AVERAGE NOA!

<u>Disaggregation of RNOA:</u>



- NOPM (profitability measure): for each 100 euro of sales at LVMH, the company earns 19.28 euro of profit after all operating expenses and tax.
- NOAT (productivity measure): reveals the level of sales the company realizes from each euro invested in the firm's operating assets. For every 100 euros invested, you have a sale of 86 euros.

Disaggregation is good for comparison and advice:

- Profitability position of LVMH looks like:
  - RNOA = 12.82%
  - NOPM = 15.96%
  - NOAT = 0.80

- What is your advice to the firm under these scenarios?

- Scenario 1 → Luxury industry looks like:
  - Industry RNOA = 12%
  - Industry NOPM = 12%
  - Industry NOAT = 1
- Scenario 2 → Luxury industry looks like:
  - Industry RNOA = 12%
  - Industry NOPM = 25%
  - Industry NOAT = 0.48

Example Aldi & Carrefour:
Carrefour has a higher NOPM because their clients care about quality & brand so they pay a premium. Aldi clients only care about cheap prices so Aldi has a high NOAT.
(Apple scores high on both)

Nonoperating Return:
How does the company use leverage?
Nonoperating return = FLEV x SPREAD

Simple Example:

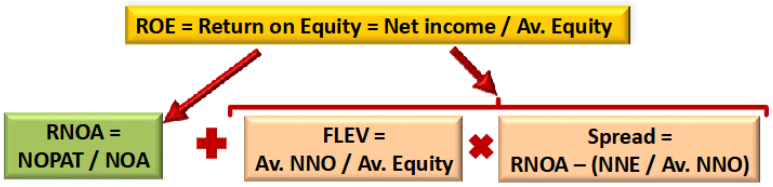
1. Base situation: no debt
Equity = 1000
RNOA = 20%
Profit = 200 (no taxes)

ROE = 200/1000= 20%
ROE = RNOA + [FLEV x SPREAD] = 20% + 0 = 20%

2. We take on 500 of debt against cost of 7%
Equity = 1000
RNOA = 20%
Profit = 300 (20% of 1500) – 35 (7% of 500) = 265
ROE = 265/1000 = 26.5%

ROE = RNOA + [FLEV x SPREAD]
ROE = 20% + [500/1000] x [20%-7%] = 20% + (0.5 x 13%) = 26.5%

FLEV = Debt/Equity
SPREAD = RNOA – Cost of Debt



Nonoperating return definitions:

- **FLEV = Financial Leverage**.....Average NNO / Average equity
- **NNO = Net nonoperating obligations**.....Nonoperating liabilities (debt or financial liabilities) minus nonoperating assets (cash + investments)
- **Spread**.....RNOA – (NNE / Av. NNO)
- **NNE = Net nonoperating expenses**.....Nonoperating expenses (interest expenses), net of tax. *Equals (NOPAT – Net Income)*

Nonoperating Liabilities of LVMH (2024)

Liabilities and equity *(EUR millions)*	Notes	2024	2023
Equity, Group share	16	67,517	61,017
Minority interests	18	1,770	1,684
Equity		**69,287**	**62,701**
Long-term borrowings	19	12,091	11,227
Non-current lease liabilities	7	14,860	13,810
Non-current provisions and other liabilities	20	3,856	3,880
Deferred tax		7,344	7,012
Purchase commitments for minority interests' shares	21	8,056	11,919
Non-current liabilities		**46,207**	**47,848**
Short-term borrowings	19	10,851	10,680
Current lease liabilities	7	2,972	2,728
Trade accounts payable	22	8,630	9,049
Income taxes		1,231	1,148
Current provisions and other liabilities	22	10,012	9,540
Current liabilities		**33,696**	**33,145**
Total liabilities and equity		**149,190**	**143,694**

Debt = Nonoperating Liabilities (2024) = 48,830

Debt = Nonoperating Liabilities (2023) = 50,364

Nonoperating Assets of LVMH (2024)

Assets (EUR millions)	Notes	2024	2023
Brands and other intangible assets	3	26,280	25,589
Goodwill	4	20,307	24,022
Property, plant and equipment	6	29,886	27,331
Right-of-use assets	7	16,620	15,679
Investments in joint ventures and associates	8	1,343	991
Non-current available for sale financial assets	9	1,632	1,363
Other non-current assets	10	1,106	1,017
Deferred tax		4,545	3,992
Non-current assets		**101,719**	**99,984**
Inventories and work in progress	11	23,669	22,952
Trade accounts receivable	12	4,730	4,728
Income taxes		986	533
Other current assets	13	8,455	7,723
Cash and cash equivalents	15	9,631	7,774
Current assets		**47,471**	**43,710**
Total assets		**149,190**	**143,694**

Nonoperating Assets (2024) = 11,263

Nonoperating Assets (2023) = 9,137

- ROE = 12,958 / 65,994 = 0.19635 = 19.635%
- RNOA = 12.82%
- NNO (2024) = 48,830 - 11,263 = 37,567
- NNO (2023) = 50,364 - 9,137 = 41,227

Av. NNO = 39,397

- Av. Equity = 65,994
- NNE = 554.4 = (1 - tax rate) x Nonoperating Expense
  = (1 - 0.30) x (792)
  = (NOPAT - Net Income) = (13,512.4 – 12,958)
- ROE = 0.1282 + $\frac{39,397}{65,994}$ x (0.1282 – $\frac{554.4}{39,397}$)
- ROE = 0.1282 + (0.597 x 0.114) = 0.1282 + 0.0681 = **19.63%**

- CHECK!! → ROE = 12,958 / 65,994 = 0.19635 = **19.635%**
- [DOUBLE CHECK: NOA = Equity + NNO = 105,391 = 65,994 + 39,397]
- Interpretation? Efficient use of leverage despite FLEV being on the low side. Low cost of debt is the main driver of the leverage effect.

BMW's RNOA and ROE (2016)

RNOA = NOPAT/av. NOA = 7,022.27 / 122,969 = **5.71%**

Operating Profit	=		9,827 (9,386 + 441)
Tax expense	=	2,755	
Nonoperating expense	=	162	
Statutory Tax Rate	=	30.7%	
Operating Tax	=		2,755 + (0.307 x 162)
NOPAT	=		**7,022.27**

Operating Assets (2016)	=	170,325 (188,535 – 7,880 – 7,065 – 2,705 – 560)
Operating Liabilities (2016)	=	43,441 (4,587 + 5,039 + 2,795 + 5,357 + 5,879 + 1,074 + 8,512 + 10,198)
NOA (2016)	=	**126,884**
NOA (2015)	=	**119,054**

Av. NOA = 122,969

ROE = Net profit / Av. Equity = 6,910 / 45,063.5 = **15.33%**

huge leverage effect! that means FLEV must be responsible

ROE Disaggregation – Cisco (2017)

- NOPAT = 11,973 – (2,678 + (-314) x 0.35) = 9,404.9
- NOA (2017) = 59,326 – 29,964 = 29,362
- NOA (2016) = 55,896 – 29,424 = 26,472
- Av. NOA = 27,917
- **RNOA** = 0.3369 = **33.7%**

- NNO (2017) = 33,717 – 70,492 = -36,775
- NNO (2016) = 28,643 – 65,756 = -37,113
- Av. NNO = -36,944
- Av. Equity = 64,861
- NNE = (-314)x(1-0.35) = -204.1

- ROE = 0.3369 + $\frac{(-36,944)}{64,861}$ x (0.3369 – $\frac{(-204.1)}{(-36,944)}$)
- ROE = 0.3369 + (-0.18875) = 0.14815 = **14.8%**
- CHECK → ROE = 9,609 / 64,861 = 0.14815 = **14.8%**

Hoarding cash: why? (niet zo belangrijk)

- precautionary motives
- financial flexibility (Microsoft could quickly purchase LinkedIn because they had a lot of money in the bank)
- offset operational leverage/risk
- no attractive investment opportunities
- easier to consume private control benefits
- tax purposes

Profitability Analysis; Ricard vs Diageo:

Profitability Analysis
Pernod Ricard versus Diageo for 2021

Pernod Ricard	• ROE = 1,318/14,643 = 9.0% • NOPAT = 2,423 – [(62+371)*0.3+667] = 1,626.1 • RNOA = 1,626.1/21,943 = 7.4% → NOPM = 1,626.1/8,824 = 18.4% → NOAT = 8,824/21,943 = 0.40 • Leverage effect = small (1.59%) → Firm does not use a lot of debt
DIAGEO	• ROE = 2,799/8,435.5 = 33.2% • RNOA = 3,086.2/21,355 = 14.5% (EBIT=4,065) → NOPM = 3,086.2 /12,733 = 24.2% → NOAT = 12,733/21,355 = 0.60 • Leverage effect = big (18.7%) → Firm uses a lot of debt at a low interest rate

Conclusions?

Ricard's big brands are on the goodwill & intangible assets (in the denominator) because they're not internally made. Diageo has way more internally developed brands.
→ comparison between the two is not fair, Diageo's RNOA and ROE are exaggerated

Additional remarks on profitability analysis:

- "other" items are usually operating items
- joint-ventures is an operating term
- leased assets are operating, but lease liabilities are nonoperating!
- for noncontrolling interests (or minority interest) it is advisable to ignore them so:
  - include in net income
  - include in equity
- ignore discontinued operations: do not treat them as nonoperating if they are immaterial

LES 4: solvency

Pillar: Credit risk or solvency

- Solvency (or credit risk) relates to how a firm is financed, the ability of the firm to meet its debt obligations. Probability that you will fail.
- Private debt: mostly banks
- Public debt: bonds
- A related term is "bankruptcy risk" which is the probability a firm will expire or fail.

Ratios of Solvency:

- Static solvency ratios are based on only liability and equity items:
  - liabilities-to-equity ratio
  - book leverage
  - market leverage
- dynamic solvency ratios are based on a mix of balance sheet items and income statement or cash flow items:
  - times interests and earned ratio
  - (net) debt-to-EBIT(DA)

Liabilities-to-equity: not important:

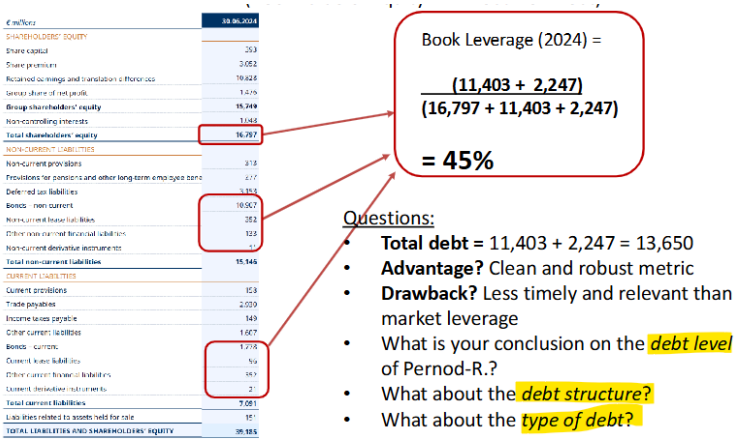
total liabilities/equity
→ threshold: should not be much larger than 2
inverse ratio: equity/(equity+liabilities)
→ should be no less than 30%
equivalent ratios (2):
total liabilities/(equity + liabilities)

Example Apple:
liabilities-to-equity is 4.7 and BMW is 1.7. Does that mean Apple is a worse company? NO!
→ **bad ratio. it adds ALL liabilities in one pot: also accounts payable. Apple has a lot of those because it's very powerful.**

Book leverage: important:

book leverage = (LT debt + ST debt)/(book value of equity + LT debt + ST debt)

advantages:	drawback:
clean (you got rid of accounts payable) and robust metric (because we use book equity instead of market equity)	less timely and relevant than market leverage (because we use book equity instead of market equity)



- debt level: not very high
- debt structure: 14% of total debt in short-term debt. That is relatively low. Average maturity of a loan is 5 years so your short term would then be 20% (100/5). Ricard

can loan more on the long term than the short term compared to other companies. This is a good sign → trust.
- type of debt (2 types: public and private): 90% in public debt → good sign

Market leverage:
market leverage = (LT debt + ST debt)/(market value of equity + LT debt + ST debt)
market value of equity = #shares outstanding x price per share at FYE

advantages:	drawback:
more timely and economically relevant measure	it's more volatile

market value and book value of the debt is the same
the denominator = enterprise/firm value

Diageo has a huge difference between book leverage and market leverage because the stock market values this company very highly.

Apple's market leverage is only 4% (very low) because of a huge market equity → large denominator

Times interest earned:
TIE = operating profit (EBIT) / interest expense
if less than 1 → insolvency may be close-by

the ratio can be low because of:
- high leverage
- high interest rates
- low operating profits

equivalent ratio: fixed charge coverage ratio (including fixed expenses such as lease payments

Debt-to-EBITDA (most used!):
(short-term debt + long-term debt)/EBITDA
- less than 2: very safe
- less than 3: safe
- more than 5: dangerous
- more than 7: very dangerous

related ratios:
- debt/cash flow from operation → bad one! crises show up later than they actually happen
- debt/operating income (NOPAT or EBIT) here you take depreciations and amortizations into account

spikes of debt-to-EBITDA explained by changes in EBITDA, not be debts

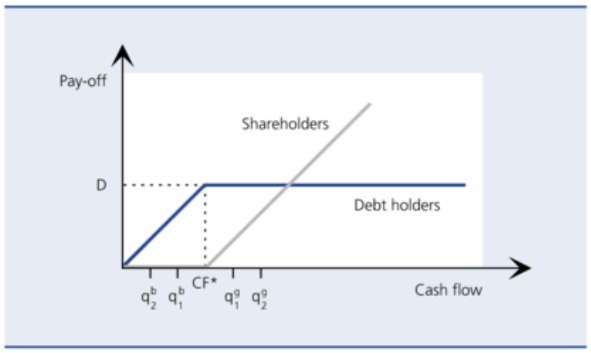
example Ricard:
after the pandemic the debt-to-EQUITY worsened a lot, but banks gave them an upgrade in credit risk (so more trust) after the pandemic. → this ratio doesn't tell us everything

Net Debt:
Net debt is not defined in BEGAAP or IFRS so some companies calculate it differently (some companies add short-term investments to the cash)
Apple has a really high book debt level because we didn't take into account their cash balance.
Net debt = financial liabilities - cash and cash equivalents
can be negative!

widely used credit ratios: **net debt/EBITDA (!!!)**, net debt/CFO, net debt/EBIT

Solvency Problems at Fisker:
is facing solvency risk!
- negative equity
- a lot of debt for a firm with high operating risk
- lost half of the cash in 1 year
- inventory grows enormously

Accounting in debt contracts:
lenders have several options to impose control over the borrower's behavior:
- collateral
- interest rate
- maturity
- covenants (!) = contract terms negotiated between borrowers (firms) and lenders (one or several banks)



risk taking needs to be mitigated:
- shareholders want a firm to be risky so the firm can push to high cash flows and the shareholders can enjoy high pay-offs
- banks want a firm to be safe so they can pay back their loans

→ covenants!

two main types:
1. negative covenants place restrictions on the borrower's actions (to take less risk)
    - dividend restrictions
    - capital expenditure (amount you can invest in every year) restrictions

- limitation on top management salaries
- bringing organizational change in consultation with the bank

2. financial covenants: do not place restrictions but impose financial boundaries:
   - credit rating-based covenants (S&P, Moody's ratings)
   - capital-based covenants (debt-to-equity ratio, book leverage ratio, net worth minimum, tangible net worth minimum…)
   - performance-based covenants (debt-to-EBITDA, interest coverage ratio, fixed charge coverage ratio, gross margin…)

covenants give firms incentives to improve and make sure that the banks don't lose business because firms have to pay high interest rates → win-win situation

Covenants for Pernod Ricard (2022)

(on page 195 of their annual report)

Provisions of the Credit Agreements

The Credit Agreements cLontain customary representations and warranties, as well as the usual restrictive covenants contained in such contracts, notably restricting the ability of some Group companies (subject to certain exceptions) to pledge their assets as security interest, alter the general nature of the Group's activities or carry out certain acquisition transactions.

5.6.2.2 Solvency ratio (total consolidated Net debt/consolidated EBITDA)

The Solvency Ratio must be 5.25 or less. At 30 June 2022, the Group was compliant with this solvency ratio (see "Liquidity risks" in this management report).

QUESTION: What is the covenant "slack" Pernod Ricard is enjoying from its creditors? What is your interpretation?

- Net Debt / EBITDA = 8,672 / 3,392 = 2.56
  Debt = (9,238 + 400 + 179 + 17 + 842 + 107 + 406 + 9) = 11,199
  Cash = 2,527
  EBITDA = 3,392 (self-financing capacity – see CFS)
- Slack of the covenant = 5.25 – 2.56 = 2.69 (about 50%) → a lot of slack
- Pernod Ricard is (very) far from violating (or breaching) the covenant *("2.7 EBITDAs away from breaching the covenant…")*
- Conclusion? It (again) illustrates the confidence creditors have in the company.
- For 2023, Pernod Ricard does not disclose any covenant information. !!!!!!!!!!!!

Credit ratings:

Moody's and S&P are the main firms who calculate credit ratings

Credit Quality	DBRS		Moody's		S&P		
	Long Term	Short Term	Long Term	Short Term	Long Term	Global CP Scale	Canadian CP Scale
Superior	AAA AA high AA AA low	R-1 high R-1 high R-1 mid R-1 mid	Aaa Aa1 Aa2 Aa3	P-1 P-1 P-1 P-1	AAA AA+ AA AA-	A-1+ A-1+ A-1+ A-1+	A-1 (high) A-1 (high) A-1 (high) A-1 (high)
Good	A high A A low	R-1 low R-1 low R-1 low	A1 A2 A3	P-1 P-1 P-2	A+ A A-	A-1 A-1 A-2	A-1 (mid) A-1 (mid) A-1 (low)
Adequate	BBB high BBB BBB low	R-2 high R-2 mid R-2 low	Baa1 Baa2 Baa3	P-2 P-2 P-3	BBB+ BBB BBB-	A-2 A-2 A-3	A-1 (low) A-2 A-3
Speculative	BB high BB BB low	R-3 high R-3 high R-3 high	Ba1 Ba2 Ba3	Not Prime Not Prime Not Prime	BB+ BB BB-	B B B	B B B
Highly Speculative	B high B B low CCC	R-3 mid R-3 mid R-3 low R-3 low	B1 B2 B3 Caa	Not Prime Not Prime Not Prime Not Prime	B+ B B- CCC	C C C C	C C C C

firms want to be above the red line: a lot of investors, firms and banks only want to invest in firms above the red line

correlation: S&P ratings and ratios:

RATIO	S&P Rating
Market Cap	74.4%
Sales	48.6%
Assets	63.0%
Market Cap / Debt	40.1%
Equity / Debt	26.2%
Equity / Liabilities	1.4%
EBITDA / Net Debt	12.6%
EBITDA / Debt	30.1%
EBIT / Debt	35.2%
Cash / Assets	-3.9%
Current Ratio	-20.5%

surprising: size matters. lol. sales, assets, market cap → size!
→ reason for mergers (example Peugeot and Fiat)

Case study: Cineworld vs Kinepolis:
do at home

LES 5: operating income

What do income statements look like?
Example Pfizer:
doubled in sales and costs of sales during covid, although SG&A and R&D barely change
→ economies of scale

Example Pirelli:
income statement is different: by nature of expenses rather than by their function (like in BEGAAP, allowed under IFRS, but not under US GAAP

Revenues from sales and services
Other income
Changes in inventories of unfinished, semi-finished and finished products
Raw materials and consumables used (net of change in inventories)
Personnel expenses
- *of which non-recurring events*
Amortisation, depreciation and impairment
Other costs
Net impairment loss on financial assets
Increases in fixed assets due to internal works
Operating income/(loss)

no way of knowing what the COGS is

Example Diageo:
gives us expense items BY NATURE in their footnotes, and BY FUNCTION in income statement

- where are depreciation expenses? cashflow statement
- where are the personnel (staff) expenses? footnote (in the income statement, we find this in COGS, marketing and other operating items costs)

Revenues:
recognized when the seller has performed its duties (when they are economically earned)
3 models of revenue recognition:

- unearned revenues (bv airlines)
- accounts receivable (bv mercedes)
- no accrual (bv carrefour)

some firms deal with all 3 different revenue streams: bv Kinepolis:

- retail cinema sales: no accrual
- kinepolis gift boxes: unearned revenues
- film and food service operations to big clients: accounts receivable

Long-term sales contracts:
construction business for example
example DEME: account revenues as **estimates** of percentages of completion

example of percentage of completion method:

- LT contract of a building with revenue 2 million
- expected time to finish is 24 months, starting on 1/1/2022
- how much revenues will we recognize on 31/12/2022
- when this 2 million is paid is completely irrelevant!
- estimate of completion: (how much money has been spent on the building so far)/(ESTIMATE of total costs needed for the building)
- Suppose costs incurred are 900,000 and we expect to finish the building by spending an additional 900,000 in 2023 → percentage of completion = 50% → 50% of the 2,000,000 will be recognized in 2022 so 1mil revenue, 100k profit
- What if the true additional amount of expenses is not 900,000, but 1,000,000? → we will not recognize any profits in 2023, because we under(over)-estimated the additional expenses → revenue is the other 1 mil, no profit

→ showing bad news AND volatility
firms with long term contracts have more volatility

Unearned revenues:
advance payments are not recorded as revenue until the company performs the services until then, the company's balance sheet shows the advance payment as a LIABILITY (unearned revenue or deferred revenue) → effects their liquidity in a goos way (free credit from clients)

R&D expenses:

general accounting rule: ALL R&D expenditures and investments are expensed as they are incurred. Immediately hit the income statement, instead of being an “asset”
because:

- depreciation/amortization R&D costs doesn’t have a set timeline
- future economic benefits are highly uncertain

<u>R&D costs on balance sheet:</u>
R&D accounting under IFRS (not in US GAAP):
R&D cut into parts:

- Research expenses → income statement
- Development expenses:
  - certainty that there will be a future economic profit → balance sheet
  - others → income statement

when comparing firms: look at where the R&D is out : before gross profit line or after

R&D expenditure =/= R&D expenses
R&D expenditure: all the money a firm has put into R&D

in € million	2023
Research and development expenditure	7,755
New expenditure for capitalised development costs	– 2,604
Amortisation	2,387
Research and development expenses	**7,538**

new expenditure for capitalised development costs: R&D costs that go to the balance sheet
amortisation: of the activated R&D costs

US companies need to expense everything, European companies can put some of their R&D costs in their balance sheet → in growing, R&D strong industries European companies will look more profitable

Selling, General and Administrative Expenses (SG&A): (!!!)
= period expenses, doesn’t economically have to do with producing the product
example LVMH:
spends more money on marketing and sales than on producing the handbags

example Pfizer:

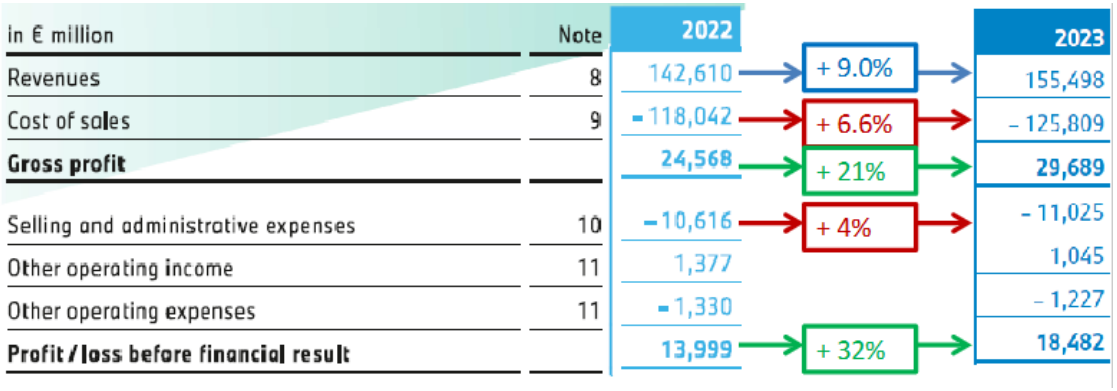
- economies of scale: sales double, but SG&A remains the same

cost of sales are largely a variable (avoidable) expense (for efficient companies)

- if sales go down by 20%, your cost of sales should decrease about 20% too
  but for most companies this isn’t going to occur for SG&A: in the short term this behaves more as a fixed (unavoidable) expense

if a firm spends 35% of sales on SG&A and the rest spends less → red flag, because cost cutting will be more difficult for them

cost analysis example BMW



in € million	Note	2022		2023
Revenues	8	142,610	+ 9.0%	155,498
Cost of sales	9	- 118,042	+ 6.6%	- 125,809
Gross profit		24,568	+ 21%	29,689
Selling and administrative expenses	10	- 10,616	+ 4%	- 11,025
Other operating income	11	1,377		1,045
Other operating expenses	11	- 1,330		- 1,227
Profit / loss before financial result		13,999	+ 32%	18,482

- increase in revenue AND a decrease in costs of sales: makes a big difference in gross profits
- 9%+ more revenues, and only 4% increase of SG&A

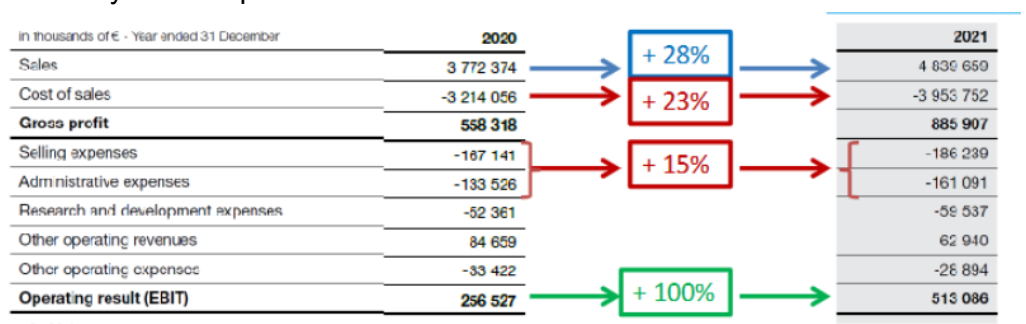
economies of scale

Cost Analysis: BMW (2024)

in € million	2023		2024
Revenues	155,498	- 8.4%	142,380
Cost of sales	- 125,809	- 5.0%	- 119,485
Gross profit	29,689	- 23%	22,895
Selling and administrative expenses	- 11,025	+ 2.5%	- 11,296
Other operating income	1,045		1,411
Other operating expenses	- 1,227		- 1,501
Profit/loss before financial result	18,482	- 37.7%	11,509

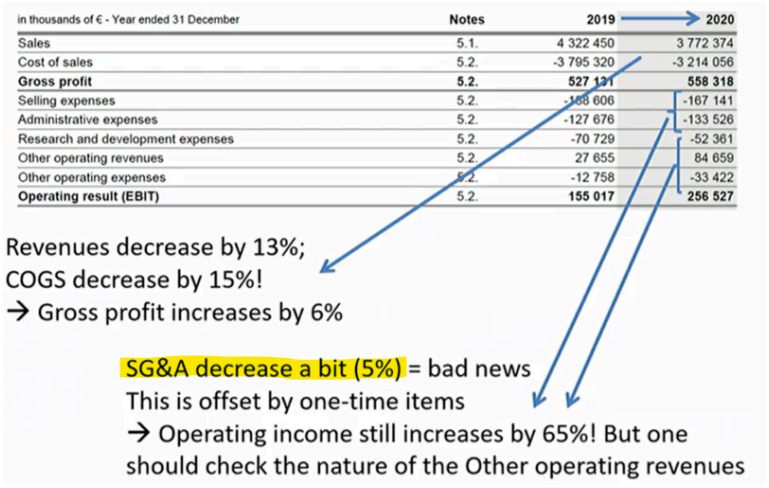
- Revenues decrease;
- COGS decrease less!
- Result? Gross profit decreases by a quarter… (23%), the previously observed efficiency gains are gone.
- SG&A continue to increase while sales decrease…
- SG&A = unavoidable in the short-run…

cost analysis example Bekaert:



in thousands of € - Year ended 31 December	2020		2021
Sales	3 772 374	+ 28%	4 839 659
Cost of sales	-3 214 056	+ 23%	-3 953 752
Gross profit	**558 318**		**885 907**
Selling expenses	-167 141	+ 15%	-186 239
Administrative expenses	-133 526		-161 091
Research and development expenses	-52 361		-59 537
Other operating revenues	84 659		62 940
Other operating expenses	-33 422		-26 894
Operating result (EBIT)	**256 527**	+ 100%	**513 086**

economies of scale = operating leverage !!!: bigger increases in sales than in expenses have exponential effects on earnings/EBIT



in thousands of € - Year ended 31 December	Notes	2019	2020
Sales	5.1.	4 322 450	3 772 374
Cost of sales	5.2.	-3 795 320	-3 214 056
Gross profit	**5.2.**	**527 131**	**558 318**
Selling expenses	5.2.	-188 606	-167 141
Administrative expenses	5.2.	-127 676	-133 526
Research and development expenses	5.2.	-70 729	-52 361
Other operating revenues	5.2.	27 655	84 659
Other operating expenses	5.2.	-12 758	-33 422
Operating result (EBIT)	5.2.	**155 017**	**256 527**

example BARCO: (bas case):

IN THOUSANDS OF EURO	NOTE	2020	2019
Sales	3	770,083	1,082,570
Cost of goods sold	3	-486,300	-653,274
Gross profit	3	283,783	429,295
Research and development expenses	3(a)	-102,610	-119,389
Sales and marketing expenses	3(b)	-112,329	-142,517
General and administration expenses	3(c)	-50,362	-57,632
Other operating income (expense) - net	3(d)	-8,302	280
Adjusted EBIT (a)	3	10,180	110,038

revenues: -29%
COGS: -26% (not bad!)
SG&A: -18% (unavoidable on short term)
operating income EBIT sinks by 90%

non-controlling interests:
= relates to shares held by other shareholders than the mother company's shareholders (e.g.through acquisitions), usually in companies with complicated group structures
on balance sheet

Liabilities and equity *(EUR millions)*	Notes	2024
Equity, Group share	16	67,517
Minority interests	18	1,770
Equity		69,287

example: you have not taken over 100% of a company, but between 50 and 100% → there are still small owners (f.e. 2%) (= non controlling interest/minority interests) of the subsidiary that aren't part of the mother company, but are part of the entire group of the company

!!! use net profit number that includes the non controlling interests !!!

Earnings per share:

firms will show 2 earnings per share:

- basic EPS: net income/shares outstanding
- diluted EPS: net income/shares outstanding + shares that could come to exist, but don't exist just yet (for example convertible bonds (= holder can exchange bonds for shares), or options)

diluted EPS is the EPS when all options and convertible bonds actually get exercised → fiction, will never happen, but it's the minimum EPS possible

Then why do we provide this? because some firms have a lot of bonus option plans

LES 6: current assets, liquidity analysis

Inventories:

example of accrual accounting : inventories do not hit your income statement until they are sold

which expenses get into inventories and COGS?:

- raw materials
- labor cost
- overhead costs(electricity, water, plant supervisory personnel etc → can not divide in individual products)

raw materials and manufacturing supplies → work in progress → finished goods, spare parts and products held for resale

example Mercedes:

		At 31 December	
		2023	2022
	In millions of euros		
1.	Raw materials and manufacturing supplies	**2,651**	2,909
2.	Work in progress	**3,070**	3,491
3.	Finished goods, spare parts and products held for resale	**21,216**	19,058
	Advance payments to suppliers	**357**	163
		27,294	25,621

holds most of the inventories in finished goods: overcapacity!!! problem in car industry (can make lots of cars, but can't sell as many)

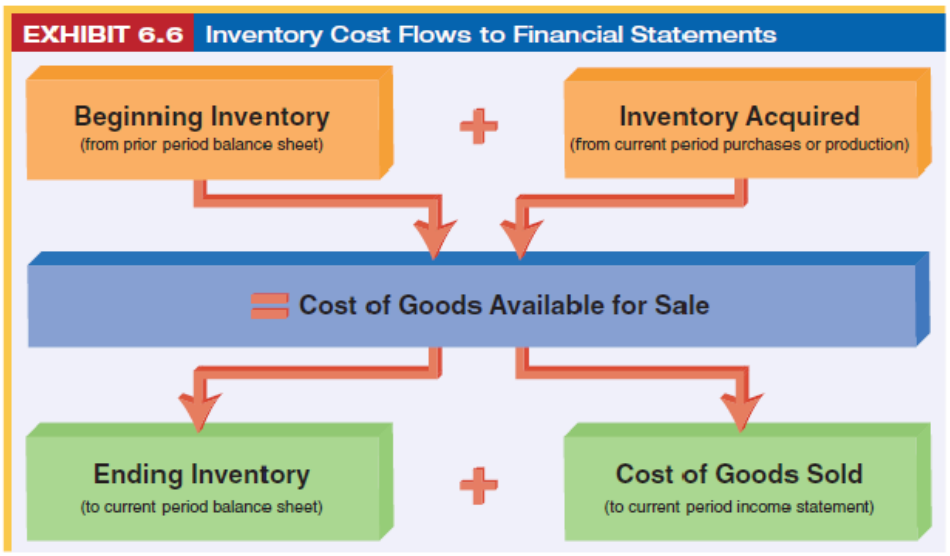
example Ricard:

- holds most of inventory in WIP: ripening process of liquor
- has an extra subaccount in inventories: raw materials, WIP, **goods in inventory**, finished products
  GII = empty bottles and barrels that will be used again (not important for exam)

Principle of lower of cost or market:

- companies must write down the carrying amount of inventories on the balance sheet if its current value is higher than the estimated market value
- inventory write-downs or inventory impairments are reflected as a non-cash expense in the income statement
- example:
  Assume that a company has inventory on its balance sheet at a cost of EUR 27,000. Management learns that these goods will only be able to be sold for EUR 23,000 (in other words, the inventory's replacement cost is only EUR 23,000).
  Inventory is written down (impaired) by 4,000, which is a non cash expense.
- Inventory write-downs are rare primarily because goods are sold with a profit margin

Inventory cost flow to financial statements:



beginning inventory + produced inventory = COGS + ending inventory

Inventory Costing Methods:

- FIFO
- LIFO
- weighted average

if costs stay constant over time: methods don't matter, but inflation/deflation almost always play a role
if there is inflation: FIFO provides us with the lowest COGS → highest pretax operating income → highest tax expense

Inventory costing effects on cash flows:

LIFO is not allowed under IFRS, but it is in USGAAP and widely used (because of tax reasons)!
LIFO doesn't make sense: oldest cars staying in inventory
solution: firms that report under LIFO need to report a **LIFO reserve**: difference between value of inventories with LIFO and FIFO to show investors the economic reality

example Ford (American so US GAAP):

	2016	2017
Raw materials, work-in-process, and supplies	$ 3,843	$ 4,397
Finished products	5,943	6,779
Total inventories under FIFO	9,786	11,176
LIFO adjustment	(888)	(899)
Total inventories	$ 8,898	$ 10,277

interpretation of LIFO adjustment/reserve:
pretax operating income would be 900mil higher if FIFO was used, but Ford would have needed to pay tax on this 900mil → interpretation: tax saved on 900mil dollars

Ford switched from LIFO to FIFO because Trump cut taxes for companies that year → investors didn't notice a difference (dampening volatility for tax cut but also if LIFO were to ever get removed from USGAAP)

Analysis: inventory turnover:

- inventory turnover = cost of goods sold / average inventory
  measures the number of times you sell your inventory per year
  the higher, the more efficient
- average inventory days outstanding = inventory / average daily COGS (= COGS/365)
  also 365/IT

example Apple:

- IT = 38 times
- AIDO = 10 days (between start of production to sale are 10 days)

example Ricard:

- IT = 0.63 times
- AIDO = 577 days (between start of production to sale are 577 days because of ripening)

example Pirelli:

- reports income statement by nature so we can't calculate this

example Mercedes:

- IT = 4,49
- AIDO = 81 days

example BMW:

- IT = 5,74
- AIDO = 63 days

example Renault:

- IT = 8,17
- AIDO = 45 days

example Tesla:

- IT = 5.98
- AIDO = 61 days

Tesla is not prone to overcapacity but we don't see this in the numbers: pretty high AIDO, but when we look at the structure of the inventory, Tesla only has most of their inventory in raw materials (more than the industry). Tesla's strategy is keeping a lot of raw materials to avoid bottle necks → different strategy

Analysis: gross profit margin:
gross profit margin = (sales - COGS)/sales (how profitable are we on our core activities)

GPM of Mercedes:

	2023	2022
Revenue	153,218	150,017
Cost of sales	-118,839	-115,997
Gross profit	34,379	34,020
GPM =	22%	23%

GPM of BMW:

in € million	Note	2023	2022
Revenues	7	155,498	142,610
Cost of sales	8	- 125,809	- 118,042
Gross profit		29,689	24,568
GPM=		19%	17%

Is Mercedes performing better than BMW?

NO! higher gross profit because they put R&D costs under gross profit line!!!!!
→ correction: subtracting the R&D expense out of COGS for BMW

in € million	Note	2023	2022
Revenues	7	155,498	142,610
Cost of sales	8	118,271	111,418
Gross profit		37,227	31,192
GPM=		24%	22%

Accounts Receivable:

- when companies sell to other companies, they offer credit terms, which are calles sales on credit
- accounts receivable are reported on the balance sheet of the seller at net realizable value, which is the net amount the seller **expects to collect.**
  Usually calculated with an aging analysis (f.e. each customer is categorized by the period the underlying invoices have remained outstanding)
- two accounts come into play:
  - allowance for uncollectible accounts (what we estimate we will lose because of clients who don't pay)
  - bad debt expense (change in the allowance for uncollectable accounts)

Journal entries:	*DEBET*	*CREDIT*
Bad debt expense	*300*	
@ Allowance for Uncollectibles		*300*

example BMW:
massive amount of credit outstanding to clients

Home exercise: BMW's Receivables Footnote (2023)

in € million	Total
Impairment allowances at 1 January 2023	2,145
Reclassification to Stage 1	– 43
Reclassification to Stage 2	172
Reclassification to Stage 3	159
Derecognition and origination of receivables	62
Write-off of receivables	– 124
Changes in risk parameters	– 16
Other changes	– 166
Impairment allowances at 31 December 2023	2,189

in € million	31.12.2023	31.12.2022
Credit financing for retail customers and dealerships*	65,733	64,382
Finance lease receivables	21,622	21,326
Receivables from sales financing	**87,355**	**85,708**

36,838 in current assets (within the year)

50,517 in non-current assets (within 5 years)

- Total amount of client credit outstanding = (87,355 + 2,189) = 89,544
- Allowance for uncollectibles = (2,189 / 89,544) = **2.4%**
- Bad Debt Expense (2023) = (2,189 – 2,145) = 44

Interpretation? Pretax income decreases by 44 million of noncash expense

Does 2.4% make sense?

- Image it's 5% → 5% of clients will fail on payment → 5 billion loss → 20% of earnings BIG DEAL
- if client doesn't pay for car, BMW just takes back and sells the car to recoup lost money

this percentage can be used to play around with tax etc

Analysis Receivable Turnover:

- accounts receivable turnover ART = sales/accounts receivable
- ART measures the number of times one crashes in on its clients or receivables are collected from clients per year
- average collection period (ACP) = accounts receivable/average daily sales (=365/ART)
- ACP measures the average number of days of credit you provide to your customers and clients

Example Ricard:

- ART = 7.6
- ACP = 48 days

Example Diageao:

- ART = 5.9
- ACP = 62 days

For LVMH:

- ART = 19.2
- ACP = 19 days

For BMW and Mercedes:

- ART is very low, ACP is very high because BMW provides credit in short and long term so sales from previous periods also count → hard to calculate (not so important)

Analysis: Accounts Payable Turnover

- accounts payable turnover (APT) = cost of goods sold / accounts payable
- APT measures how many times suppliers are paid per year
- other operating expenses such as SG&A also involve credit received
- average payable days outstanding (APDO) = accounts payable / daily cost of sales
- APDO measures the average number of days of credit you receive from suppliers

Example Mercedes:

- APT = 9,49
- APDO = 38 days

Example Apple:

- APT = 3,38
- APDO = 108 days

Example Ricard:

- APT = 1,51
- APDO = 242 days

Liquidity Analysis:

refers to your access to cash, your operating activities, and the short run
two widely considered liquidity ratios:

- current ratio:
  = current assets/current liabilities
  measures the extent to which a firm has working capital
  threshold value = 1 (larger than 1: no liquidity risk)
- quick ratio (acid test ratio), more conservative
  = (current assets - inventories - prepaid expenses)/current liabilities

current ratio for Apple isn't that great… why?
company 1: 10 cash, 90 inventory
company 2: 90 cash, 10 inventory
→ same liquidity risk, but company 1 faces more liquidity risk

<u>Cash conversion cycle:</u>
current ratio is silent on a firm's NEED for working capital
how long does a product stay in inventory + how long do clients stay in accounts receivable - how long do we stay in accounts payable? = cash conversion cycle = period to bridge (between the time I need to cash out and cash in on operations)
high period to bridge → high liquidity need

Example Apple:
10 days inventory + 28 days in receivables - 108 days in payables = -70 days to bridge (NEGATIVE) → apple cashes in on the sale of an iphone before it cashed out on the components
Apple is the most cash rich company in the world, but it doesn't even need cash

- need for working capital measured as a euro or dollar number instead of in days
  = operating current assets - operating current liabilities

- net cash position (NCP)
  = working capital - need for working capital
  boils down to cash (and equivalents) - short term debt
  positive: no immediate liquidity problems
  negative: your firm needs access to cash
  → THIS RATIO TELLS THE FULL LIQUIDITY STORY

- Net cash position for our focus companies (2024 for Ryanair and Diageo):
  - NCP (Ryanair) = 3.875.4 – (39.4+50.0+178.8) = **3,607**
  - NCP (Bekaert) = 632 – 252 = **380**
  - NCP (Pernod Ricard) = 1,624 – 1,641 = **-17**
  - NCP (Diageo) = 1,130 – 2,885 – 348 = **-2,103 (mUSD)**
  - NCP (BMW) = 17,327 – 42,130 = **-24,803**
  - NCP (Mercedes) = 15,962 – 50,390 = **-34,428**

- Conclusions?
  - Ryanair does not have any liquidity risk *whatsoever* (– despite its "low" current ratio!!!).
  - Despite having a high need for liquidity, Bekaert suffers no (immediate) liquidity concerns.
  - Pernod Ricard has a "just okay" liquidity position despite their long operating cycles (mainly because of high inventories). For Diageo, NCP is negative. Diageo needs bank overdrafts to fill the hole ("bridge the gap") in its operating cycle. Liquidity risk is higher than for its French competitor.
  - Mercedes and BMW face substantial liquidity risk and need to *continuously* find resources to finance their operations (i.e., to bridge the gap in their operating cycle) → They both require continuous working capital loans from banks. If these are willing to extend these loans , there is no (immediate) liquidity problem. If these loans disappear, these firms are in immediate trouble.

LES 7: long-term assets

PPE:

Property, plant and equipment (PPE)
comes with depreciation costs
depreciation process typically involves:

- useful life: period over which the asset is expected to generate cash
- salvage value: expected disposal amount for the asset at the end of its useful life
- depreciation rate: estimate of how the asset will be consumed over its useful life

methods:

- straight-line
- accelerated methods (often chosen by managers for tax purposes)

Where do we find depreciation & amortization? cashflow statement

Sale of long-term assets: example:

- Suppose we sell one of our buildings with the following data:
  - Book value = 10 mio (= Historical Cost – Accumulated Depreciation)
  - Sale Price = 15 mio (paid in cash by the buyer)
- How does the accounting occur for this transaction?

Journal entries:	*DEBET*	*CREDIT*
Cash	*15*	
@ Property		*10*
Gain on Sale		*5*

important: please note that we actually CASH IN this economic gain

Intangible Assets:

brand names, trade names etc

- internally generated brands and other intangibles are not recognized on the balance sheet
- we often don't write down intangible assets, but some we do (licensing, franchising : we know these will end) : amortization
- we don't write down brands, trade names etc but they are subject to impairment tests: see if the value is still the same or higher as when we purchased them → impairment expense if it's worth less now (unpredictable)

Goodwill:

- always relates to M&A activities
- goodwill is NOT just the money you pay on top of the assets of the company you acquire
- purchase pricing: all the assets of the target (for m&a) are recorded for at **market/fair value** (a third person has estimated the value)
- goodwill is the difference between **fair value** of assets and cost paid for M&A
- NOT amortized, but impairment test

Microsoft purchases Nokia's cell phone division, with these data:

- Sales Price of 5.4 bn Euro (paid in cash)
- Net (fair) value on Nokia's assets on the books for (merely) 2 bn Euro.
- How does the accounting in Nokia's statements occur?

Journal entries:	*DEBET*	*CREDIT*
Cash	*5.4*	
@ Assets (Held-for-Sale)		*2*
Gain on Sale		*3.4*

- How does the accounting in Microsoft's statements occur?

Journal entries:	*DEBET*	*CREDIT*
Assets (in entire Balance Sheet)	*2*	
Goodwill	*3.4*	
@ Cash		*5.4*

Why are premiums on M&A (goodwill) so high sometimes? Intangible assets suspected to be worth a lot

Financial Interests in other entities:

3 types of stakes:

- more than 50% of shares: everywhere in the balance sheet
- less than 5%: in balance sheet as “other financial assets”
- 5%-50%: "investments in associates and joint ventures” or ”investments accounted for using the equity method”

Special topic: fair value accounting:

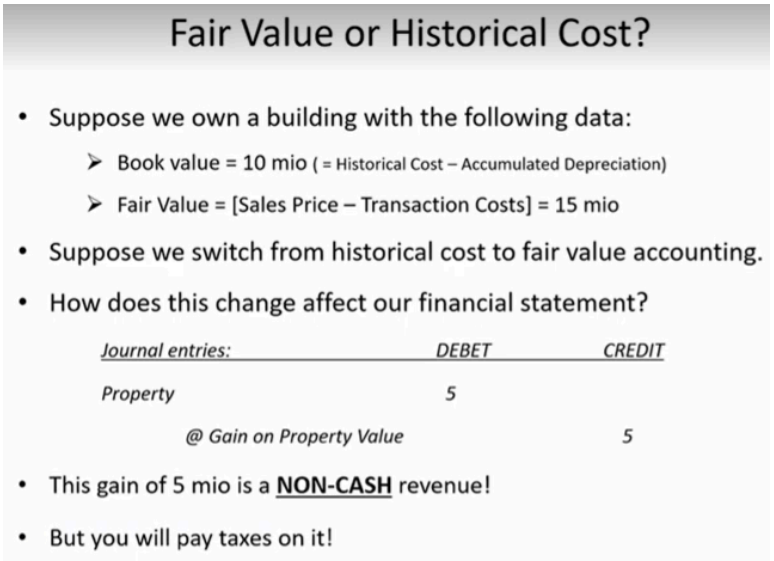
Advantages:

- reflects current information
- consistent measurement criteria
- not subject to conservatism or value understatements
- more useful for equity analysis

Disadvantages:

- less persistent and predictable
- induces more volatility
- lack of conservatism not always beneficial

Fair value accounting is allowed for long-term assets for IFRS.
Most firms report at historical cost instead of fair value because of taxes, except for f.e. real estate companies
Firms don’t want to switch to fair value accounting because of tax reasons + volatility



Accounting for Leasing:

how is leasing recognized in financial statements?
there used to be a difference (under IAS17) between operating lease (not on the balance sheet) and capital lease (on the balance sheet) but since 2019 under IFRS: ALL THE leasing has to be on the balance sheet: as an operating liability on the left hand side (“right of use assets”, as a non operating/financial liability on the right hand side

Case Carrefour:

- the impact of the switch to IFRS 16 on:
    - assets, equity and debt
    - book leverage (debt/equity ratio)
- impact of the switch to IFRS 16 on solvency position?
- how did the solvency position of Carrefour change between 2018 and 2019?
- is IFRS 16 a welcome regulation?

see slides (not hard)

P2: SECURITY VALUATION

PART 1: valuation basics

Accounting Adjustments:

why? to make accounting closer to economic reality, to compare etc

Exercise: Capitalization of R&D expenses:

zie excel

Forecasting financial statements 4-step procedure:

not important!!!

1. forecast revenues
2. forecast operating expenses
3. forecast operating and nonoperating assets, liabilities and equity
4. adjust short-term investments or short-term debt to balance the balance sheet

Forecasting Revenues:

use historical growth rates in sales, use industry growth rates

Forecasting other things:

- COGS: expect to grow/sink with revenues, except for SG&A
- cash: changes in cash is usually the result of everything else and used as the plug
- accounts receivable and payable and unearned revenues: expected to grow/sink at the same rate as sales

Concepts of Valuation:

Value of the firm = sum of all future payoffs

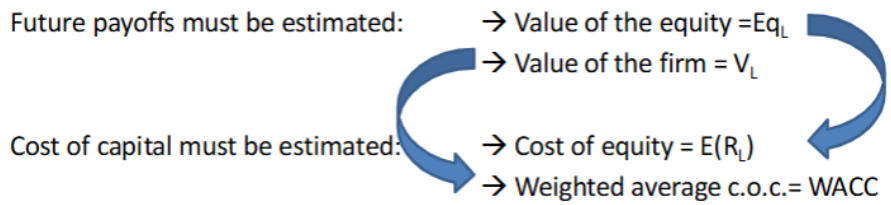
value of the firm = payoffs for shareholders (dividends) + payoffs for debtholders (interests)

value of the firm = value of the equity (Eq_L) + value of debt (D)

value of the firm = sum of all future (firm) free cash flows

FCF = dividends + interests

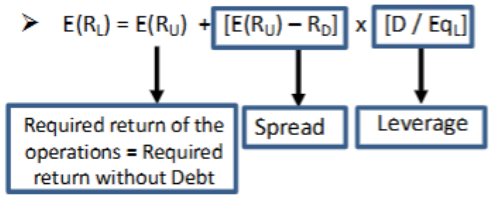
Value of the firm = $V_L = Eq_L + D$



cost of equity: the required rate of return investors require to invest
WACC: weighted average cost of capital

Miller Modigliani Part 1 MM1:
$V_L = Eq_L + D$
V_U = value of the operations, assuming no debt, unlevered
$V_U = FCF/E(R_U)$ in which $E(R_U)$ = cost of the operations
$E(R_U) = R_F + \beta_U[E(R_m) - R_f]$
in perfect capital markets: $V_L = V_U$
V_L is not affected by the capital structure
and therefore WACC = $E(R_U)$

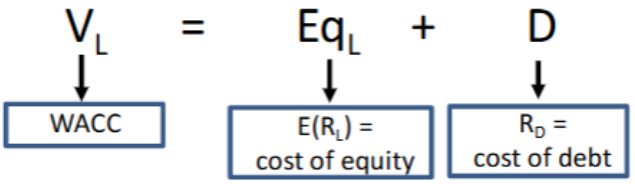
MM2:
finance with more and more debt (size of pie doesn't change, MM1), but $E(R_L)$ will increase
$E(R_L) = E(R_U) + [E(R_U) - R_D] \times [D/Eq_L]$



→ $E(R_U)$ = WACC

Introducing Taxes:
in favor of debt users since interest expenses are tax deductible

- Tax benefits in perpetuity: $\zeta_c D$
- $V_L = V_U + \zeta_c D$ → (Recall that $V_L = V_U$ in the absence of Debt or Taxes)
- Implication: WACC < E(RU)
- $WACC = E(R_L)(Eq_L/V_L) + R_D(D/V_L)(1-\zeta_c)$



- $WACC = E(RU)(1 - \zeta_c \frac{D}{V_L})$

Risk:

- We can also think about risk in terms of betas. CAPM has taught us:
  - Risk = Risk-free rate + individual firm risk premium
  - $E(R_i) = R_f + [E(R_m) - R_f] \times \beta_i$
  - in which: $\beta_i = \frac{COV(Ri,Rm)}{\sigma^2(R_m)}$
  - Weighted sum of all betas equals 1.
- $\beta_L = \beta_U + (1- \zeta_C)(\beta_U - \beta_D) D/Eq_L$
- β_D is usually close to zero
- $\beta_L = \beta_U [1+ (1- \zeta_C)(D/Eq_L)]$
- To "unlever" the beta: $\beta_U = \beta_L / (1+ (1- \zeta_C)(D/Eq_L))$

betas will be available on exam
when betas are given, just fill unlevered beta in for $E(R_U)$ and levered beta for $E(R_L)$

PART 2: DCF: cashflow based valuation

Dividend Discount Model:

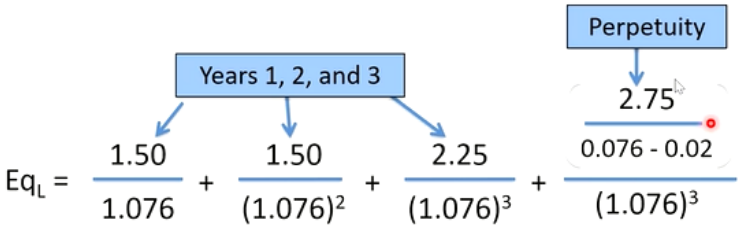
two methods to forecast future dividends:

- perpetuity model → assumes no growth
- constant growth model → Gordon growth model

$$Eq_L = \frac{D_1}{1 + ER_L} + \frac{D_2}{(1 + ER_L)^2} + \frac{D_3}{(1 + ER_L)^3} + \frac{D_4}{(1 + ER_L)^4} + \dots$$

Example: Gordon Growth Model

A company has an expected dividend for the next 2 years of 1.50, followed by a 2.25 dividend in year 3, and 2.75 in year 4. Thereafter, dividends are forecasted to grow at 2%. The cost of equity capital is estimated at 7.6%. What is according to the DDM or Gordon model today's equity value?



problems with dividend discount model:

- some companies don't pay out dividends
- some companies have unusually high dividend payouts given their profit levels, may not be sustainable
- difficult to find analysts' forecasts of dividends than forecast of earnings
- does not consider stock buybacks

Discounted Cash Flow (DCF) Model:

Discounted Cash Flow (DCF) Model

Basic DCF model:

$$V_L = \frac{FCF_1}{1+r} + \frac{FCF_2}{(1+r)^2} + \frac{FCF_3}{(1+r)^3} + \frac{FCF_4}{(1+r)^4} + \dots$$

DCF model with a FCF growing at a constant rate (g):

$$V_L = \frac{FCF_1}{r-g}$$

FCF = Free cash flows to the firm
r = WACC
g = growth rate of FCF

DCF model with a limited forecast horizon:

$$V_L = \frac{FCF_1}{1+r} + \frac{FCF_2}{(1+r)^2} + \frac{FCF_3}{(1+r)^3} + \frac{FCF_4}{(1+r)^4} + \frac{FCF_5}{[(1+r)^4 \cdot (r-g)]}$$

the DCF valuation involves 5 steps:

1. estimate FCF for the horizon period
2. forecast the WACC

   $$E(RU)(1 - \zeta_c \frac{D}{V_L})$$

3. forecast and discount FCF
4. sum the present values of the horizon and terminal periods to yield firm value V_L
5. subtract the net debt Dto get Eq_L
   divide Eq_L by shares outstanding to estimate stock price
   → undervalued/overvalued

Free Cash Flow:

not verplicht om te delen

FCF = cash that becomes available to be distributed to shareholders or to debtholders

- FCF to the firm = FCFF = goes to dividends and interests
- FCF to equity (FCFE) = goes to dividends

most would assess or calculate FCFF as operating cash flow (OCF) - capex

capex = funds a company spends on acquiring, upgrading, or maintaining long-term physical assets

in which OCF = EBIT - taxes - changes in working capital + depreciation and amortization

example Adidas:

EBIT (2024)	=	1,337
– (Taxes + tax shield @27.4%)	=	- 356.2
– Δ in Operating Working Capital*	=	- (-772)
+ Depreciation and Amort.	=	+ 1,208
– Capex	=	- 540
FCFF for Adidas (2024) =		**2,421**

this calculation has a few issues:

- operating cash flow starts with net income. nonoperating expenses may already have been subtracted.
- tax expense is not the same as the tax you pay
- some cash flow statements include dividend payables as operating items

Alternative (better) way to derive FCFs:

NOPAT		Operating Income (EBIT)
	-	Taxes on EBIT (= Tax Expense + Tax Shield)
- Δ NOA	-	Net Capex (= Capex – Depreciation/Amortization)
	-	Changes in Working Capital
	=	**Free cash flow to the Firm (FCFF)**

1. *Free cash flows to equity (FCFE)*
   Net income
   + Depreciation/Amortization
   - Capex
   - Changes in Working Capital
   - (Principal Debt Repayments – New Debt)
   = Free Cash Flow to Equity (FCFE)

2. *Free cash flows to the firm (FCFF)*
   FCFE
   + Interest Expense (1 – Tax Rate)
   + (Principal Debt Repayments – New Debt)
   = Free cash flow to the Firm (FCFF)

3. *Free cash flows to the firm (FCFF)*
   Net Income
   + Depreciation/Amortization
   - Capex
   - Changes in WC
   + Interest Expense (1 – Tax Rate)
   = Free cash flow to the Firm (FCFF)

$FCFF_t = NOPAT_t - (NOA_t - NOA_{t-1})$

Changes/growth in NOA capture:
- New Investments (CAPEX)
- Depreciation / Amortization
- Changes in Working Capital

!!!

Example DCF Adidas:

- short term forecast period: 2025-2028 (4 years)
- terminal value period starts as of 2029

- DCF 1: FCF forecasting through EBIT, capex, D&A…
- DCF 2: parsimonious forecasting with constant NOPM and NOAT
- DCF 3: using sales forecasts done by analysts
- DCF 4: using sales forecasts done by management
- Extra: For DCF 1-2-3-4:
  1. NOPM of 4% or 7% (instead of 5.38%).
  2. Long-term growth rates of 1.5% (instead of 2.5%)
- Current V_L = 34,724 → Current Eq_L = 32,924 and Net Debt D = 1,800

PART 3: ROPI, operating income based valuation

Residual Operating Income (ROPI) Model:

- $V_L = Eq_L + D$ = Value of the operations
- V_L = Market value of the operations
- NOA = Book value (accounting value) of the operations
- NOA = Book Equity + NNO = Book Equity + (Debt – Cash)
- NOA = Book Equity + Net Debt
- V_L = NOA + Present Value of Residual Operating Income (ROPI)

$$V_{L(0)} = \text{NOA}_0 + \sum_{t=1}^{n} \frac{NOPAT_t - (r\ NOA_{t-1})}{(1+r)^t}$$

geel = residual operating income

r = WACC

ROPI shifts the focus from income statement and cashflow statement to balance sheet

ROPI is what we need to generate vs what we actually generate

with the same assumptions this model is equivalent to the DCF model!

- One conclusion could be that Adidas is currently accurately valued. A second conclusion could be that, given that Adidas is accurately valued (and given that we trust the ROPI valuation model), our maintained assumptions are indeed sensible and close to what the market expects or assumes.
- One could also draw a third conclusion: *given* that we trust our assumptions and *given* that we assume the current value of Adidas is correct, we find evidence of the "quality" or "ability" of the ROPI valuation model to very closely approach the current value.

Implied cost of capital (implied WACC):
until now our objective was to estimate V_L
now V_L is given and we estimate the WACC or the long-term growth rate
trial and error met WACC to get as close to V_L as possible to find the implied WACC
same thing for long-term growth

Advantages and Drawbacks of DCF and ROPI Valuation Models			
Model	**Advantages**	**Drawbacks**	**Performs best:**
DCF	• Popular and intuitive valuation model • Cash flows are unaffected by accrual accounting and its potential manipulation	• Cash investments in assets are treated as cash outflows even though they create shareholder value (negative FCFF) • Cut backs on investments in working capital (inventories and receivables) may have ST benefits but higher LT costs. • Much harder for firms with (longer periods of) negative FCFFs (e.g. BMW in 2016-2018)	• When the firm reports positive FCFFs • When volatility in FCFFs is limited
ROPI	• Focuses on key value drivers including NOAT and NOPM. • Uses balance sheet and income statement items, including accrual accounting principles. • Still usable when FCFFs are negative. • Reduces the weight put on the terminal period value	• Somewhat less intuitive than DCF • When a lot of assets (e.g. brands and R&D) are not recognized in NOA, ROPI will underestimate the true value.	• When most economic assets and liabilities are reported on the balance sheet. • Performs better than DCF when firms have losses (and/or negative FCFFs).

if most assets are on the balance sheet: use ROPI, but if there are a lot of itnernally developed brands (not on balance sheet), maybe use DCF

PART 4: market based valuation

(dit deel vd samenvatting is niet heel volledig, want heb geen zin meer dus beter met ppt studeren)
most useful for nonlisten firms (f.e. private equity) and when valuing divisions/parts of firms
Relative Valuation, valuation using multiples:
compare with other peers

easy, but has some issues
selection of peers will partly determine the valuation estimation
two main types:

- valuation using income statement multiples
- valuation using balance sheet multiples

two basic components (to sets of choices to make):

1. standardization of market prices. prices are converted into a multiple of earnings, book values, sales etc → which one to choose?
2. similar or comparable firms → how to select peers?

three steps:

- choose peers
- converting these values into standardized values (scaling)
- compare

How to select comparable firms?
most important: same industry and same size
industry classifications:
→ standard industry classification (SIC): 4 digits

- Example: Pernod Ricard is in **SIC 2084** – Diageo in **SIC 2085**
  - SIC 20 = Food and Beverage
  - SIC 208 = Beverage
    - ? SIC 2082 = Beer
    - ✓ SIC 2084 = Wines, Brandy, Spirits
    - ✓ SIC 2085 = Distilled liquors
    - X SIC 2086 = Soft drinks
- Example: BMW is in **SIC 3711**, as are all car manufacturers.
  - SIC 37 = Transportation
  - SIC 371 = Motor vehicles and equipment
  - SIC 3711 = Passenger cars

issues:

- arbitrary choices are unavoidable
- selecting peers for diversified firms is a challenge
- peers are not necessarily competitors f.e. starbucks and mcdonalds
- what about monopolies? or powerful firms?

earnings multiples:
widely used, intuitive

- cash flow multiples are useless because present cashflows don't tell you much about future cashflows
- sales multiples are also pointless across industries because f.e. pharmaceutical companies don't need many sales to be valuable, but could be useful within industries

3 types of earnings multiples:

- NOPAT multiple → firm value V_L → V_L/NOPAT
- EBITDA → firm value V_L → V_L/EBITDA
- NI → equity value Eq_L → P/E-ratio (Eq_L/NI)

V_L / EBITDA or V_L / NOPAT ?

- What are the issues with an EBITDA multiple?
  - EBITDA neglects taxes.
  - EBITDA neglects D&A. However, assets need to be renewed at some point. Future capex is not captured in EBITDA.
- What are potential issues with the NOPAT multiple?
  - Different tax rates between peers affect NOPAT, but not EBITDA.
  - Different D&A policies between peer firms affect NOPAT reducing comparability (unlike EBITDA).
- (My) conclusion: V_L / NOPAT is the preferred multiple (or V_L / EBIT, so solve the potential tax issue).

book value multiples:

- NOA → firm value V_L → V_L/NOA
- BVE → equity value Eq_L → market-to-book

$$\frac{V_L}{NOA} = \frac{Market\ value\ of\ Equity + Debt}{Book\ Value\ of\ Equity + Debt} = \text{Tobin's Q}$$