

FINANCIAL STATEMENT ANALYSIS AND SECURITY VALUATION

THE BASICS: FUNDAMENTALS OF FINANCIAL STATEMENTS

1. INTRODUCTION TO FINANCIAL STATEMENTS

Financial Information: Demand & Supply

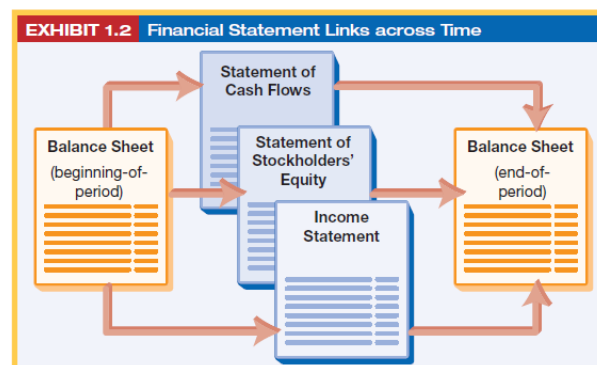
Demand for financial information by:

- Shareholders
- Investment analysts
- Lenders and bondholders: are interested in solvency
- Employees
- Customers, suppliers, and other partners
- Regulators and tax authorities: interested in liquidity

Supply of financial information for reason of:

- Compliance with public market regulation
- Benefit of disclosure:
 - 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

Investing = Nonowner Financing + owner financing

Assets = Liabilities + Equity

Example: Mercedes' Balance Sheet (2021 – mIn EUR)

Assets		Liabilities and Equity	
Long-term assets	101,796	Equity	73,167
Inventories	21,466	Debt	125,843
Accounts receivable	88,298	Accounts payable	10,655
Other assets	25,151	Other liabilities	50,166
Cash	23,120		
ASSETS	259,831	LIABILITIES + EQUITY	259,831

Accounts receivable: credits to your client.

→ Most people buy their cars by a loan. If this is high and the core of the company has nothing to do with cars or anything else, then it will be a huge problem.

→ It is a characteristic of the industry: that's why it's important to know the industry

Income Statement

- An income statement reports on operating activities.
- It lists amounts for sales (and revenues) less all expenses (and costs) over a period of time.
- Sales less expenses yields the "bottom-line" net income amount.

Revenues	
- Cost of goods sold	Cost of materials, labor and overhead
= Gross profit	Revenues less cost of goods sold
- Expenses	
= Net income (loss)	Expenses other than cost of good sold

Cost of goods sold = cost that you have spent on the production of the goods during that period. Goods that **have been sold**.

→ When it's not sold it is on the balance sheet in the inventories

Mercedes' income statement

Income Statement 2021	MIn EUR
Revenues	133,893
Cost of sales	103,218
Other operating expenses	14,647
<i>Operating income</i>	<i>16,028</i>
Financial expenses	217
Tax expense	4,761
<i>Net income from cont. oper.</i>	<i>11,050</i>
<i>Net income</i>	<i>23,396</i>

Equity statement

- The statement of stockholders' equity reports on changes in the book value of equity and its components
- Its two main components are:
 - o Contributed capital (from stock issuances: brought in by shareholders)
 - o Earned capital (retained or reserves built up from previous periods)

$$BVE_t = BVE_{t-1} + NI_t - DIV_T$$

BVE : bookvalue, NI = net income, DIV = dividend

Mercedes' equity statement

Equity Statement 2021	Mln EUR	
Total Equity on Jan 1, 2021	62,248	
Net Income	+ 23,396	From the income statement
Dividends	- 1,810	
Other Equity Movements	- 10,667	?
Total Equity on Dec 31, 2021	73,167	

Cash flow statement

- The statement of cash flows reports on cash flows for operating, investing, and financing activities over the FY
- We have different type of cash-flow:
 - o Operating: anything that flows in with respect of their operations
 - o Investing:
 - Can be negative: if it is negative: it is OK, it means that you keep going on investment.
 - If it is positive: it means that you sell parts of the firm, it has maybe a bad effect. (divest)
 - o Financing: everything that has to do with incoming and outgoing financing

Mercedes' cash flow statement:

Cash Flow Statement 2021	Mln EUR
Operating Cash Flow	24,549
Investing Cash Flow	-6,226
Financing Cash Flow	-19,059
Currency effect	870
Change in Cash	134

On the balance sheet!

2. FINANCIAL STATEMENTS

The 5 key financial statements:

- Balance sheet
- Income statement
- Equity statement
- Comprehensive statement
- Cash flow statement

A. The balance sheet

The Balance sheet: Assets

- To be reported on a balance sheet an asset must:
 - o Be owned (or controlled) by the company
 - o Possess expected future economic benefits
- Assets are listed in order of liquidity:

- **Current assets** comprise assets that can be converted or are expected to be converted to cash within a year.
- **Long-term assets** cannot easily be, are not expected to be, converted into cash within a year.

Current Assets

- **Cash and Cash equivalents** – currency, bank deposits, and investments with an original maturity of 90 days or less
- **Marketable securities** – short-term investments that can be quickly sold to raise cash, typically with a maturity between 3 and 12 months.
- **Accounts receivable, net** – amounts due to the company from customers arising from the sale of products and services on credit;
- **Inventories** – goods purchased or produced for sale to customers, including raw materials and work-in-progress.
- **Prepaid expenses** – costs paid in advance for rent, insurance advertising or other services.

Long-term Assets

- **Property, plant and equipment (PPE), net** – land, factory buildings, warehouses, office buildings, machinery, motor vehicles, office equipment and other items used in operating activities (“net” refers to subtraction of accumulated depreciation).
- **Leased assets** – all leased assets must be shown on the balance sheet.
- **Intangible and other assets** – assets without physical substance, such as patents, trademarks, franchise rights and other costs the company incurred that provide future benefits.
- **Goodwill** – the premium on top of the book value paid in acquisition activities. Has to do with mergers and acquisitions.
- **Long-investments** - in

Apple's Assets

	September 25, 2021	September 26, 2020
ASSETS:		
Current assets:		
Cash and cash equivalents	\$ 34,940	\$ 38,016
Marketable securities	27,699	52,927
Accounts receivable, net	26,278	16,120
Inventories	6,580	4,061
Vendor non-trade receivables	25,228	21,325
Other current assets	14,111	11,264
Total current assets	134,836	143,713
Non-current assets:		
Marketable securities	127,877	100,887
Property, plant and equipment, net	39,440	36,766
Other non-current assets	48,849	42,522
Total non-current assets	216,166	180,175
Total assets	\$ 351,002	\$ 323,888

- Marketable securities on short term can also be seen as cash.
- LT: marketable securities (investments)
 - Half of the balance has nothing to do with production, it's an investment. Return on asset is not useful for Apple because it doesn't have anything to do with the core business.
- Inventories less than 2%

- PPE : 40 000 on itself it's a lot but it is droved by it financial investment.

FIRST EYEBOLL THE NUMBERS!

Cisco assets

	July 31, 2021	July 25, 2020
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 9,175	\$ 11,809
Investments	15,343	17,610
Accounts receivable, net of allowance of \$109 at July 31, 2021 and \$143 at July 25, 2020	5,766	5,472
Inventories	1,559	1,282
Financing receivables, net	4,380	5,051
Other current assets	2,889	2,349
Total current assets	39,112	43,573
Property and equipment, net	2,338	2,453
Financing receivables, net	4,884	5,714
Goodwill	38,168	33,806
Purchased intangible assets, net	3,619	1,576
Deferred tax assets	4,360	3,990
Other assets	5,016	3,741
TOTAL ASSETS	\$ 97,497	\$ 94,853

- No long-term investments (difference with apple)
- Goodwill is the big difference with apple. It represents 44% of the balance sheet. Apple doesn't have goodwill (only 2% of total asset, insignificant) Cisco has engaged in a lot of mergers and acquisitions in the past
- Short term investment (like apple as a percentage of the balance sheet 1/4)

SAS's Assets

ASSETS, MSEK	Note	31 Oct 2020	31 Oct 2019
Non-current assets			
Intangible assets	10	1,273	1,416
Aircraft and spare engines/parts	11	15,630	11,696
Other tangible assets	11	736	802
Prepayments for aircraft	12	2,495	3,071
Right-of-use assets	13	17,264	-
Participations in affiliated companies	6	19	14
Other participations	14	9	9
Pension funds, net	15	3,172	2,004
Long-term receivables	14	2,863	2,519
Deferred tax assets	9	1,640	750
Total non-current assets		45,101	22,281
Current assets			
Inventories and expendable spare parts	16	510	346
Accounts receivable	17	318	1,233
Receivables from affiliated companies	18	0	0
Other receivables	19	800	543
Prepaid expenses and accrued income	20	473	846
Cash and cash equivalents	21	10,231	8,763
Total current assets		12,332	11,731
TOTAL ASSETS		57,433	34,012

- Accounts receivable has gone down
- Total asset almost doubled even if there was covid
 - o It has to do with: Right of use assets = leasing (aircraft)
 - o Change in the rule: All the leasing must be on the balance sheet
 - ⇒ What you find on the balance sheet is just part of what is going on in the company. What you find on the balance sheet is heavily depended on the accounting regulating (IFRS rules).
- Prepayment for aircraft has lowered

- The cash went down for 60%. (See more recent numbers) The long-term asset has decreased. So, the firm hasn't invested. The company is doing very bad.
 - ⇒ Airbus and aircraft are not stupid: they only provide aircraft to SAS if they are some prepayments.

ASSETS, MSEK	Note	Oct 31, 2021	Oct 31, 2020
Non-current assets			
Intangible assets	10	709	679
Aircraft and spare engines/parts	11	14,417	15,630
Other tangible assets	11	586	736
Prepayments for aircraft	12	2,966	2,495
Right-of-use assets	13	16,959	17,264
Participations in affiliated companies	6	24	19
Other participations	14	9	9
Pension funds, net	15	6,593	3,172
Long-term receivables	14	1,539	2,863
Deferred tax assets	9	1,126	1,767
Total non-current assets		44,928	44,634
Current assets			
Inventories and expendable spare parts	16	412	510
Accounts receivable	17	1,068	318
Receivables from affiliated companies		0	0
Other receivables	18	1,443	800
Prepaid expenses and accrued income	19	593	473
Cash and cash equivalents	20	4,268	10,231
Total current assets		7,784	12,332
TOTAL ASSETS		52,712	56,966

Ryanair's assets

	Note	At March 31,		
		2022 €M	2021 €M	2020 €M
Non-current assets				
Property, plant and equipment	2	9,095.1	8,361.1	9,438.0
Right of use assets	3	133.7	188.2	236.8
Intangible assets	4	146.4	146.4	146.4
Derivative financial instruments	12	185.1	111.3	378.5
Other assets	6	72.1	48.7	—
Deferred tax	13	42.3	14.0	53.6
Total non-current assets		9,674.7	8,869.7	10,253.3
Current assets				
Inventories	5	4.3	3.6	3.3
Other assets	6	401.1	179.8	178.7
Current tax	13	—	—	44.5
Assets held for sale	7	—	—	98.7
Trade receivables	8 & 12	43.5	18.6	67.5
Derivative financial instruments	12	1,400.4	106.0	293.2
Restricted cash	9 & 12	22.7	34.1	34.4
Financial assets: cash > 3 months	12	934.1	465.5	1,207.2
Cash and cash equivalents	12	2,669.0	2,650.7	2,566.4
Total current assets		5,475.1	3,458.3	4,493.9
Total assets		15,149.8	12,328.0	14,747.2

- PPE: aircraft and cash
 - Cash: before the pandemic high and after the pandemic or even during the pandemic has risen. Ryanair is doing very well
- Right of use asset: very low, Ryanair doesn't lease, has cash to pay
- Doesn't have to prepaid (because of their credit quality)

Pernod Ricard's Assets

€ million	30.06.2020	30.06.2021
Net amounts		
Non-current assets		
Intangible assets	10,965	10,725
Goodwill	5,611	5,505
Property, plant and equipment	3,095	3,177
Non-current financial assets	522	685
Investments in associates	28	36
Non-current derivative instruments	54	65
Deferred tax assets	1,678	1,623
TOTAL NON-CURRENT ASSETS	21,953	21,816
Current assets		
Inventories and work in progress	6,167	6,555
Trade receivables and other operating receivables	906	1,126
Income taxes receivable	142	141
Other current assets	323	413
Current derivative instruments	12	8
Cash and cash equivalents	1,935	2,078
TOTAL CURRENT ASSETS	9,485	10,321
Assets held for sale	87	11
TOTAL ASSETS	31,525	32,147

- Intangible assets: brands are important for liquor business
- Inventories and work in progress also important
- Some of the products need to have to age, that's why there is a huge inventory

Diageo's Assets (2021)

	Notes	30 June 2021	
		€ million	€ million
Non-current assets			
Intangible assets	9	10,764	
Property, plant and equipment	10	4,849	
Biological assets		66	
Investments in associates and joint ventures	6	3,308	
Other investments	12	40	
Other receivables	14	36	
Other financial assets	15	327	
Deferred tax assets	7	100	
Post employment benefit assets	13	1,018	
			20,508
Current assets			
Inventories	14	6,045	
Trade and other receivables	14	2,385	
Corporate tax receivables	7	145	
Other financial assets	15	121	
Cash and cash equivalents	16	2,749	
			11,445
Total assets			31,953

- Comparable with Ricard's Assets

Asset Recognition

- In general, assets are reported on the balance sheet under the principle of historical cost, also referred to as "amortized cost".
- Historical cost accounting means you are recording the value of the asset at the historical cost price
- Historical cost accounting is prevailing because it is:
 - o Objective
 - o Verifiable
 - o Predictable
- There is an important alternative: Fair value accounting
- Only include items that can be reliably measured.
 - o Considerable amount of "economic assets" may not be reflected on a balance sheet
 - o Examples include a strong management team, attractiveness for new employees, a well-designed supply chain, or superior technology.

Disney's assets

	September 28, 2019	
ASSETS		
Current assets		
Cash and cash equivalents	\$ 5,418	
Receivables	15,481	
Inventories	1,649	
Television costs and advances	4,597	
Other current assets	979	
Total current assets	28,124	
Film and television costs	22,810	
Investments	3,224	
Parks, resorts and other property		
Attractions, buildings and equipment	58,589	
Accumulated depreciation	(32,415)	
	26,174	
Projects in progress	4,264	
Land	1,165	
	31,603	
Intangible assets, net	23,215	
Goodwill	80,293	
Other assets	4,715	
Total assets	\$ 193,984	V

	September 28, 2019	September 29, 2018
ASSETS		
Current assets		
Cash and cash equivalents	\$ 5,418	\$ 4,150
Receivables	15,481	9,334
Inventories	1,649	1,392
Television costs and advances	4,597	1,314
Other current assets	979	635
Total current assets	28,124	16,825
Film and television costs	22,810	7,888
Investments	3,224	2,899
Parks, resorts and other property		
Attractions, buildings and equipment	58,589	55,238
Accumulated depreciation	(32,415)	(30,764)
	26,174	24,474
Projects in progress	4,264	3,942
Land	1,165	1,124
	31,603	29,540
Intangible assets, net	23,215	6,812
Goodwill	80,293	31,269
Other assets	4,715	3,365
Total assets	\$ 193,984	\$ 98,598

- Mickey mouse is a representative of Disney but brand that are internally generated are not/never on the balance sheet.
 - o You can see on the balance sheet what people are willing to pay for Disney (the value of Disney: if you want to put it on a t-shirt) in the revenues! But not on the balance sheet.
- Iron man: will be on the balance sheet because marvel has been taken over by Disney
- 2019: Disney has done a huge take-over

LVMH's intangibles

The breakdown of brands and trade names by business group is as follows:

(EUR millions)	2020		
	Gross	Amortization and impairment	Net
Wines and Spirits	905	(131)	774
Fashion and Leather Goods	8,807	(361)	8,445
Perfumes and Cosmetics	688	(69)	619
Watches and Jewelry	3,698	(92)	3,606
Selective Retailing	3,566	(1,437)	2,130
Other activities	462	(171)	292
Total	18,127	(2,260)	15,866

- It's all about brands: so, before you analyze the balance sheet you have to know which brands are on the balance sheet and which are not.
 - o LVMH'S gives you alle the information in the footnote

Equity and liabilities

- Other side of the balance sheet = equity + liabilities
- Equity consists of:
 - o Contributed capital (cash raised from the issuance of shares with current and new shareholders)
 - o Earned capital (retained earnings or capital reserves built up from prior fiscal periods).
 - o Retained earnings is updated each period as follows:

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

Liabilities

Long-term (or non-current) liabilities:

- **Long-term debt** – borrowings from creditors to be repaid more than one year from now, including bank loans, bonds, and other loans
- **Operating long-term liabilities** – obligations, such as accounts payable, pensions and provisions, that are expected to be settled a year or more from now.

Short-term (or Current) liabilities:

- **Accounts payable** – amounts owed to suppliers for purchases on credit
- **Accrued liabilities** – obligations for expenses that have been incurred but not yet paid; examples are wages payable, interest payable, tax payable.
- **Unearned revenues** – obligations created when the company accepts payment in advance for goods or services it will deliver in the future.
- **Short-term debt** – short-term debt to banks or other creditors.
- **Current maturities of long-term debt** – principal portion of long-term debt that is due to be paid within one year.

Apple's Liabilities and Equity

LIABILITIES AND SHAREHOLDERS' EQUITY:			
Current liabilities:			
Accounts payable	\$	54,763	\$ 42,296
Other current liabilities		47,493	42,684
Deferred revenue		7,612	6,643
Commercial paper		6,000	4,996
Term debt		9,613	8,773
Total current liabilities		125,481	105,392
Non-current liabilities:			
Term debt		109,106	98,667
Other non-current liabilities		53,325	54,490
Total non-current liabilities		162,431	153,157
Total liabilities		287,912	258,549
Commitments and contingencies			
Shareholders' equity:			
Common stock and additional paid-in capital, \$0.00001 par value: 50,400,000 shares authorized; 16,426,786 and 16,976,763 shares issued and outstanding, respectively		57,365	50,779
Retained earnings		5,562	14,966
Accumulated other comprehensive income/(loss)		163	(406)
Total shareholders' equity		63,090	65,339
Total liabilities and shareholders' equity	\$	351,002	\$ 323,888

- Accounts payable it's a huge liability but it's good news because they are credit that they get from their suppliers for free! They don't have to pay any interest for that.

This means that when you buy an iPhone there is a high probability that apple has not pay for the pieces that are in your phone. High cash in but not cash out.

Apple's Income Statement

Homework: Why has Apple's equity not increased despite record profits?

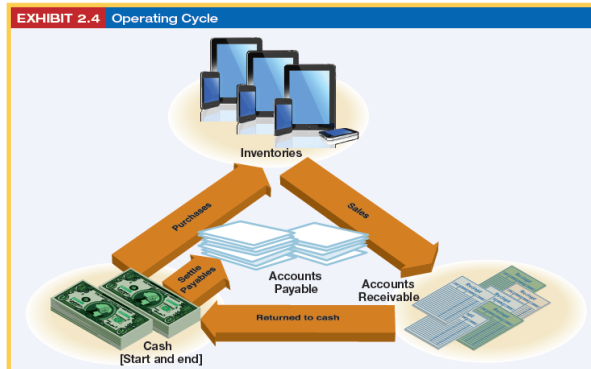
	September 25, 2021
Net sales:	
Products	\$ 297,392
Services	68,425
Total net sales	365,817
Cost of sales:	
Products	192,266
Services	20,715
Total cost of sales	212,981
Gross margin	152,836
Operating expenses:	
Research and development	21,914
Selling, general and administrative	21,973
Total operating expenses	43,887
Operating income	108,949
Other income/(expense), net	258
Income before provision for income taxes	109,207
Provision for income taxes	14,527
Net income	\$ 94,680

Mercedes' Liabilities and Equity

	Note	2021	2020
In millions of euros			
Equity and liabilities			
Share capital		3,070	3,070
Capital reserves		11,723	11,551
Retained earnings		56,190	47,111
Other reserves		968	-1,041
Equity attributable to shareholders of Mercedes-Benz Group AG		71,951	60,691
Non-controlling interests		1,216	1,557
Total equity	21	73,167	62,248
Provisions for pensions and similar obligations	23	5,359	12,070
Provisions for other risks	24	7,909	11,116
Financing liabilities	25	73,543	86,539
Other financial liabilities	26	1,808	1,971
Deferred tax liabilities	10	4,488	3,649
Deferred income	27	1,175	1,567
Contract and refund liabilities	28	3,980	5,787
Other liabilities	29	727	981
Total non-current liabilities		98,989	123,680
Trade payables		10,655	12,378
Provisions for other risks	24	8,053	9,334
Financing liabilities	25	52,300	59,303
Other financial liabilities	26	5,997	6,627
Deferred income	27	1,486	1,594
Contract and refund liabilities	28	5,929	7,169
Other liabilities	29	3,086	3,404
Liabilities held for sale	3	169	-
Total current liabilities		87,675	99,809
Total equity and liabilities		259,831	285,737

Net working capital – Operating Cycle

- Net working capital = Current assets – Current liabilities



The cash in and cash out of people are not at the same moment for example

- Caterpillar clients pay 1 year later but they must pay immediately their salaries....
 - Carrefour cash in immediately but have a lot of power on their supplier so they can pay later
 - Air fly receive their cash in months before the flights
- ➔ Make a difference between profitability and liquidity!!

B. 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

- Operating profit = EBIT

Apple's income statement

	Years ended		
	September 29, 2012	September 24, 2011	September 25, 2010
Net sales	\$156,508	\$108,249	\$ 65,225
Cost of sales	87,846	64,431	39,541
Gross margin	68,662	43,818	25,684
Operating expenses:			
Research and development	3,381	2,429	1,782
Selling, general and administrative	10,040	7,599	5,517
Total operating expenses	13,421	10,028	7,299
Operating income	55,241	33,790	18,385
Other income/(expense), net	522	415	155
Income before provision for income taxes	55,763	34,205	18,540
Provision for income taxes	14,030	8,283	4,527
Net income	\$ 41,733	\$ 25,922	\$ 14,013
Earnings per share:			
Basic	\$ 44.64	\$ 28.05	\$ 15.41
Diluted	\$ 44.15	\$ 27.68	\$ 15.15
Shares used in computing earnings per share:			
Basic	934,818	924,258	909,461
Diluted	945,355	936,645	924,712
Cash dividends declared per common share	\$ 2.65	\$ 0.00	\$ 0.00

	Years ended		
	September 26, 2015	September 27, 2014	September 28, 2013
Net sales	\$ 233,715	\$ 182,795	\$ 170,910
Cost of sales	140,089	112,258	106,606
Gross margin	93,626	70,537	64,304
Operating expenses:			
Research and development	8,067	6,041	4,475
Selling, general and administrative	14,329	11,993	10,830
Total operating expenses	22,396	18,034	15,305
Operating income	71,230	52,503	48,999
Other income/(expense), net	1,285	980	1,156
Income before provision for income taxes	72,515	53,483	50,155
Provision for income taxes	19,121	13,973	13,118
Net income	\$ 53,394	\$ 39,510	\$ 37,037
Earnings per share:			
Basic	\$ 9.28	\$ 6.49	\$ 5.72
Diluted	\$ 9.22	\$ 6.45	\$ 5.68

	Years ended		
	September 26, 2015	September 27, 2014	September 28, 2013
Net sales	\$ 233,715	\$ 182,795	\$ 170,910
Cost of sales	140,089	112,258	106,606
Gross margin	93,626	70,537	64,304
Operating expenses:			
Research and development	8,067	6,041	4,475
Selling, general and administrative	14,329	11,993	10,830
Total operating expenses	22,396	18,034	15,305
Operating income	71,230	52,503	48,999
Other income/(expense), net	1,285	980	1,156
Income before provision for income taxes	72,515	53,483	50,155
Provision for income taxes	19,121	13,973	13,118
Net income	\$ 53,394	\$ 39,510	\$ 37,037
Earnings per share:			
Basic	\$ 9.28	\$ 6.49	\$ 5.72
Diluted	\$ 9.22	\$ 6.45	\$ 5.68

	Years ended		
	September 29, 2018	September 30, 2017	September 24, 2016
Net sales	\$ 265,595	\$ 229,234	\$ 215,639
Cost of sales	163,756	141,048	131,376
Gross margin	101,839	88,186	84,263
Operating expenses:			
Research and development	14,236	11,581	10,045
Selling, general and administrative	16,705	15,261	14,194
Total operating expenses	30,941	26,842	24,239
Operating income	70,898	61,344	60,024
Other income/(expense), net	2,005	2,745	1,348
Income before provision for income taxes	72,903	64,089	61,372
Provision for income taxes	13,372	15,738	15,685
Net income	\$ 59,531	\$ 48,351	\$ 45,687

	September 25, 2021	September 26, 2020	September 28, 2019
Net sales:			
Products	\$ 297,392	\$ 220,747	\$ 213,883
Services	68,425	53,768	46,291
Total net sales	365,817	274,515	260,174
Cost of sales:			
Products	192,266	151,286	144,996
Services	20,715	18,273	16,786
Total cost of sales	212,981	169,559	161,782
Gross margin	152,836	104,956	98,392
Operating expenses:			
Research and development	21,914	18,752	16,217
Selling, general and administrative	21,973	19,916	18,245
Total operating expenses	43,887	38,668	34,462
Operating income	108,949	66,288	63,930
Other income/(expense), net	258	803	1,807
Income before provision for income taxes	109,207	67,091	65,737
Provision for income taxes	14,527	9,680	10,481
Net income	\$ 94,680	\$ 57,411	\$ 55,256

- The sales of Apple have increased a lot these decade
- In the later 3 years makes a distinction between products and services which they didn't do before.
 - o Huge margin for the services (benefit), apple music and cloud
- Apple doesn't spend a lot on research and development, on itself is it a big amount but in terms of sales is not that big.
- **SG&A** (verry important): selling, general administrative expenses or the period expenses, also less than 10% of apple's sales and which is not a lot.
 - o Apple does not do a lot of advertising

Cisco's Income Statement

Years Ended	July 31, 2021	July 25, 2020	July 27, 2019
REVENUE:			
Product	\$ 36,014	\$ 35,978	\$ 39,005
Service	13,804	13,323	12,899
Total revenue	49,818	49,301	51,904
COST OF SALES:			
Product	13,300	13,199	14,863
Service	4,624	4,419	4,375
Total cost of sales	17,924	17,618	19,238
GROSS MARGIN	31,894	31,683	32,666
OPERATING EXPENSES:			
Research and development	6,549	6,347	6,577
Sales and marketing	9,259	9,169	9,571
General and administrative	2,152	1,925	1,827
Amortization of purchased intangible assets	215	141	150
Restructuring and other charges	886	481	322
Total operating expenses	19,061	18,063	18,447
OPERATING INCOME	12,833	13,620	14,219
Interest income	618	920	1,308
Interest expense	(434)	(585)	(859)
Other income (loss), net	245	15	(97)
Interest and other income (loss), net	429	350	352
INCOME BEFORE PROVISION FOR INCOME TAXES	13,262	13,970	14,571
Provision for income taxes	2,671	2,756	2,950
NET INCOME	\$ 10,591	\$ 11,214	\$ 11,621

- Gross margin = revenue - cost of sales

- Cisco's has a very big gross margin.
- R&D 13% of the sales , which is a lot
- SG&A: also very big (more than 20%), important to remark when you analyse an income statement
- Cisco has a lot of debt and investment in other companies

Mercedes' Income statement

	Note	2021	2020
In millions of euros			
Revenue	5	133,893	121,778
Cost of sales	6	-103,218	-101,592
Gross profit		30,675	20,186
Selling expenses	6	-9,194	-8,966
General administrative expenses	6	-2,808	-2,507
Research and non-capitalised development costs	6	-5,467	-4,839
Other operating income	7	2,888	2,384
Other operating expense	7	-1,735	-591
Profit on equity-method investments, net	14	1,352	747
Other financial income/expense, net	8	317	-323
Earnings before interest and taxes (EBIT)	35	16,028	6,091
Interest income	9	212	224
Interest expense	9	-429	-358
Profit of continuing operations, before taxes		15,811	5,957
Income taxes	10	-4,761	-1,926
Profit of continuing operations		11,050	4,031
Profit/loss of discontinued operations, after taxes		12,346	-22
Net profit		23,396	4,009

- Mercedes is bigger than BMW based on the revenue, so Mercedes has sold more cars than BMW
- The costs of sales are very very large for both. 80% of the revenue. You need to spend a lot of money before you can crunch out technological cars. But these companies are still profitable.
- SG&A: 10% of the sales
- 1 Giant difference between BMW: for BMW we don't see R&D => BMW doesn't spend money on R&D but we know that they spend on R&D. so they are included in cost of sales. But R&D is not included for Mercedes on R&D so we cannot compare the gross profit of both companies.

BMW's Income Statement

in € million	Note	2021	2020
Revenues	7	111,239	98,990
Cost of sales	8	-89,253	-85,408
Gross profit		21,986	13,582
Selling and administrative expenses	9	-9,233	-8,795
Other operating income	10	1,702	916
Other operating expenses	10	-1,055	-873
Profit / loss before financial result		13,400	4,830
Result from equity accounted investments	24	1,520	920
Interest and similar income	11	135	116
Interest and similar expenses	11	-165	-458
Other financial result	12	1,170	-186
Financial result		2,660	392
Profit / loss before tax		16,060	5,222
Income taxes	13	-3,597	-1,365
Net profit / loss		12,463	3,857

When are Revenues and expenses recognized?

- Net income does not necessarily correspond to a net cash flow. A firm could have “good income” but “poor cash flow” or vice versa
- Earnings often differ from cash flows as they go back to the fundamental economics of what defines what a company earns?
- **Revenue recognition principle** – revenues are recognized when they are earned, not-necessarily-when the cash inflow occurs
- **Matching principle** – recognize expenses when the companies incur them

The principles of accrual accounting

1. The recognition of revenues when they are economically earned

- Even if they have not yet been received in cash or
- Even if they have already been received in cash

2. The matching of expenses

- When the revenues are recognized, in case there is an economic link with them
- When the expenses are incurred, in absence of such a link
- The cash outflow of the cost is irrelevant for its recognition

VW's income statement of 2015

€ million	Note	2015	2014'
Sales revenue	1	213,292	202,458
Cost of sales	2	-179,382	-165,934
Gross profit		33,911	36,524
Distribution expenses	3	-23,515	-20,292
Administrative expenses	4	-7,197	-6,841
Other operating income	5	12,905	10,298
Other operating expenses	6	-20,171	-6,992
Operating result		-4,069	12,697
Share of profits and losses of equity-accounted investments	7	4,387	3,988
Finance costs	8	-2,393	-2,658
Other financial result	9	773	767
Financial result		2,767	2,097
Earnings before tax		-1,301	14,794
Income tax income/expense	10	-59	-3,726
Current		-2,859	-3,632
Deferred		2,800	-94
Earnings after tax		-1,361	11,068
of which attributable to			
Noncontrolling interests		10	84
Volkswagen AG hybrid capital investors		212	138
Volkswagen AG shareholders		-1,582	10,847

6. Other operating expenses

€ million	2015	2014
Valuation allowances on receivables and other assets	1,674	1,150
Losses from foreign currency hedging derivatives	5,083	1,003
Foreign exchange losses	3,260	1,972
Expenses from cost allocations	695	566
Expenses for termination agreements	502	193
Losses on disposal of noncurrent assets	106	105
Miscellaneous other operating expenses	8,853	2,004
	20,171	6,992

The year-on-year increase in miscellaneous other operating expenses is due largely to the litigation expenses of €7.0 billion in connection with the diesel issue. The expenses for termination agreements result primarily from the restructuring expenses for the South American market and at MAN. In addition, the changes in the currency hedging derivatives are due to the exchange rate changes between the trade price and the price on realization; this applies in particular to the US dollar, the Chinese renminbi and sterling.

Footnot 6

VW'S Cash Flow Statement 2015

€ million	2015	2014
Cash and cash equivalents at beginning of period	18,634	22,009
Earnings before tax	-1,301	14,794
Income taxes paid	-3,238	-4,040
Depreciation and amortization of, and impairment losses on, intangible assets, property, plant and equipment, and investment property ¹	9,743	8,761
Amortization of and impairment losses on capitalized development costs ¹	3,262	3,006
Impairment losses on equity investments ¹	37	172
Depreciation of and impairment losses on lease assets ¹	6,651	5,024
Gain/loss on disposal of noncurrent assets and equity investments	-1,581	-153
Share of profit or loss of equity-accounted investments	297	-990
Other noncash expense/income	2,102	-174
Change in inventories	-3,149	-2,214
Change in receivables (excluding financial services)	-1,807	-1,433
Change in liabilities (excluding financial liabilities)	2,807	4,764
Change in provisions	18,329	562
Change in lease assets	-10,808	-8,487
Change in financial services receivables	-7,663	-8,807
Cash flows from operating activities	13,679	10,784

€ million	2017	2016
Cash and cash equivalents at beginning of period	18,833	20,462
Earnings before tax	13,913	7,292
Income taxes paid	-3,664	-3,315
Depreciation and amortization of, and impairment losses on, intangible assets, property, plant and equipment, and investment property ¹	10,562	10,100
Amortization of and impairment losses on capitalized development costs ¹	3,734	3,586
Impairment losses on equity investments ¹	136	130
Depreciation of and impairment losses on lease assets ¹	7,734	7,107
Gain/loss on disposal of noncurrent assets and equity investments	-25	-222
Share of the result of equity-accounted investments	274	377
Other noncash expense/income	-480	716
Change in inventories	-4,198	-3,637
Change in receivables (excluding financial services)	-1,660	-2,155
Change in liabilities (excluding financial liabilities)	5,302	5,048
Change in provisions	-9,443	5,966
Change in lease assets	-11,478	-12,074
Change in financial services receivables	-11,891	-9,490
Cash flows from operating activities	-1,185	9,430

- Other operating expenses is very big in 2015 comparing to 2014. -20000€
- Miscellaneous (=other) other operating expenses: 9000€, don't 7000€ regarding the diesel issue. So, these 20000€ is negative because Volkswagen 7000€ future legal expenses are not paid yet because trial hasn't occurred yet, but how-which is estimates that has going to pay, **provision is nice example of accrual accounting, you foresee the future.**
- Cash-flow statement: operating cashflow is **up but as his biggest crisis!**
 - o How? That's why we do accrual accounting
 - o Earnings tell you much more what is currently going on in the company and cash-flows do not.

C. Equity statement

- Statement of equity is a reconciliation of the beginning and ending balances of stockholder's equity accounts.
- Main equity categories are
 - o Contributed capital
 - o Retained earnings or reserves
 - o Other equity categories may include
 - o Preferences share
 - o Share premiums
- Other comprehensive income

$$BVE_t = BVE_{t-1} + NI_t - DIV_t + \text{issuing stock} + \text{repurchasing stock}$$

Terminology differences:

U.S. GAAP	IFRS
Common stock	Share capital
Preferred shares	Preference shares
Additional paid-in capital	Share premium
Retained earnings	Reserves
Accumulated other comprehensive income	Other equity or Other components of equity
—	Revaluation surplus or Revaluation reserve*

Apple's statement of stockholders' equity (2021)

	September 25, 2021	September 26, 2020	September 28, 2019
Total shareholders' equity, beginning balances	\$ 65,339	\$ 90,488	\$ 107,147
Common stock and additional paid-in capital:			
Beginning balances	50,779	45,174	40,201
Common stock issued	1,105	880	781
Common stock withheld related to net share settlement of equity awards	(2,627)	(2,250)	(2,002)
Share-based compensation	8,108	6,975	6,194
Ending balances	57,365	50,779	45,174
Retained earnings:			
Beginning balances	14,966	45,898	70,400
Net income	94,680	57,411	55,256
Dividends and dividend equivalents declared	(14,431)	(14,087)	(14,129)
Common stock withheld related to net share settlement of equity awards	(4,151)	(1,604)	(1,029)
Common stock repurchased	(85,502)	(72,516)	(67,101)
Cumulative effects of changes in accounting principles	—	(136)	2,501
Ending balances	5,562	14,966	45,898
Accumulated other comprehensive income/(loss):			
Beginning balances	(406)	(584)	(3,454)
Other comprehensive income/(loss)	569	42	2,781
Cumulative effects of changes in accounting principles	—	136	89
Ending balances	163	(406)	(584)
Total shareholders' equity, ending balances	\$ 63,090	\$ 65,339	\$ 90,488

D. Comprehensive Income statement

- Comprehensive income equals net income plus other comprehensive income
- Other comprehensive income (OCI) contains changes (gains or losses) in the value of the equity which are not captured in net income
- There are 4 main sources of OCI:
 - o Foreign currency translation adjustments
 - o Unrealized gain and losses on hedging derivatives
 - o Unrealized gains and losses on available for sale financial securities
 - o Unrealized gain/losses on postretirement benefits plans
- Put differently, comprehensive income consists of all of the revenue, gains, expenses, and losses that create a shock to the value of the equity of the firm
- $NI + OCI = CI$

Apple's Comprehensive Income statement

	September 25, 2021	September 26, 2020	September 28, 2019
Net income	\$ 94,680	\$ 57,411	\$ 55,256
Other comprehensive income/(loss):			
Change in foreign currency translation, net of tax	501	88	(408)
Change in unrealized gains/losses on derivative instruments, net of tax:			
Change in fair value of derivative instruments	32	79	(661)
Adjustment for net (gains)/losses realized and included in net income	1,003	(1,264)	23
Total change in unrealized gains/losses on derivative instruments	1,035	(1,185)	(638)
Change in unrealized gains/losses on marketable debt securities, net of tax:			
Change in fair value of marketable debt securities	(694)	1,202	3,802
Adjustment for net (gains)/losses realized and included in net income	(273)	(63)	25
Total change in unrealized gains/losses on marketable debt securities	(967)	1,139	3,827
Total other comprehensive income/(loss)	569	42	2,781
Total comprehensive income	\$ 95,249	\$ 57,453	\$ 58,037

Other comprehensive income/loss (Roar: exeptions)

- Change in foreign currency translation, net of tax
- 50000\$ client pays a BMW car at some time t
- BMW is going to translate it into €, suppose at that time 1\$ = 0.99€, the amount that BMW will recognize is 45000€. Suppose the client has to pay not now but in the next period f.e. time t 2, 50000\$. Suppose currency rate has changed 1\$=1€, then the amount of e BMW is going to cash in is 50000€. You have a gain of 5000€. But the revenues will stay 45000, this 5000 will not occur in the net income, but we will account it in other comprehensive income.
 - o If the dollar would have depreciates: there would be a loss and will go negatively in the OCI and the net income will be exactly the same.
- Change in unrealized gains/losses on derivate instrument net of tax
- Change in unrealized gain/losses on marketable debt securities net of tax

Pernod Ricard's Comprehensive Income (2021)

€ million	30.06.2020	30.06.2021
Net profit for the period	350	1,318
Non-recyclable items		
Actuarial gains/(losses) related to defined benefit plans	(758)	114
Amounts recognised in shareholders' equity	(919)	125
Tax impact	161	(11)
Equity instruments	(119)	143
Unrealised gains and losses recognised in shareholders' equity	(120)	144
Tax impact	1	(1)
Recyclable items		
Net investment hedges	10	18
Amounts recognised in shareholders' equity	13	27
Tax impact	(4)	(9)
Cash flow hedges	5	7
Amounts recognised in shareholders' equity ⁽⁶⁾	8	10
Tax impact	(3)	(3)
Translation differences	(65)	(7)
Other comprehensive income for the period, net of tax	(927)	275
COMPREHENSIVE INCOME FOR THE PERIOD	(577)	1,593

- Interpretation of PR's OCI in 2020? PR is loss-making (CI<0)
- Homework: Interpret OCI for SAS Airlines

Total comprehensive income = net income + the sum of the other comprehensive income

E. Cash flow statement

- The cash flow statement reports on cash inflows and outflows during the fiscal period
- Cash flows are reported based on the three business activities of a company:
- Cash flows from **operating** activities – cash flows from the company's transactions and events that relate to its operations
- Cash flows from **investing** activities – cash flows from acquisition and divestitures of investments and long-term assets
- Cash flows from **financing** activities – cash flows from issuances of and payments toward borrowings and equity

Apple's Cash flow statement

	September 25, 2021	September 26, 2020	September 28, 2019
Cash, cash equivalents and restricted cash, beginning balances	\$ 39,789	\$ 50,224	\$ 25,913
Operating activities:			
Net income	94,680	57,411	55,256
Adjustments to reconcile net income to cash generated by operating activities:			
Depreciation and amortization	11,284	11,056	12,547
Share-based compensation expense	7,906	6,829	6,068
Deferred income tax benefit	(4,774)	(215)	(340)
Other	(147)	(97)	(652)
Changes in operating assets and liabilities:			
Accounts receivable, net	(10,125)	6,917	245
Inventories	(2,642)	(127)	(289)
Vendor non-trade receivables	(3,903)	1,553	2,931
Other current and non-current assets	(8,042)	(9,588)	873
Accounts payable	12,326	(4,062)	(1,923)
Deferred revenue	1,676	2,081	(625)
Other current and non-current liabilities	5,799	8,916	(4,700)
Cash generated by operating activities	104,038	80,674	69,391

- The cash flow statement starts where the net income starts, so where the income statement end
- Net income + add back depreciation and immortalization – changes in working capital
 - o We undo the accrual and go back to cash accounting
- Changes WC = changes inventories + changes in accounts receivable – changes accounts payable

Investing activities:			
Purchases of marketable securities	(109,558)	(114,938)	(39,630)
Proceeds from maturities of marketable securities	59,023	69,918	40,102
Proceeds from sales of marketable securities	47,460	50,473	56,988
Payments for acquisition of property, plant and equipment	(11,085)	(7,309)	(10,495)
Payments made in connection with business acquisitions, net	(33)	(1,524)	(624)
Purchases of non-marketable securities	(131)	(210)	(1,001)
Proceeds from non-marketable securities	387	92	1,634
Other	(608)	(791)	(1,078)
Cash generated by/(used in) investing activities	(14,545)	(4,289)	45,896
Financing activities:			
Proceeds from issuance of common stock	1,105	880	781
Payments for taxes related to net share settlement of equity awards	(6,556)	(3,634)	(2,817)
Payments for dividends and dividend equivalents	(14,467)	(14,081)	(14,119)
Repurchases of common stock	(85,971)	(72,358)	(66,897)
Proceeds from issuance of term debt, net	20,393	16,091	6,963
Repayments of term debt	(8,750)	(12,629)	(8,805)
Proceeds from/(Repayments of) commercial paper, net	1,022	(963)	(5,977)
Other	(129)	(126)	(105)
Cash used in financing activities	(93,353)	(86,820)	(90,976)
Increase/(Decrease) in cash, cash equivalents and restricted cash	(3,860)	(10,435)	24,311
Cash, cash equivalents and restricted cash, ending balances	\$ 35,929	\$ 39,789	\$ 50,224
Supplemental cash flow disclosure:			
Cash paid for income taxes, net	\$ 25,385	\$ 9,501	\$ 15,263
Cash paid for interest	\$ 2,687	\$ 3,002	\$ 3,423

- The first 3 elements has nothing to do with Apple selling iPhone but with the banking part of apple: cash management
- Items 4 and 5 have everything to do with Apple's operations
 - ⇒ It's a combination of operation and non-operating items of Apple and so tells you nothing.
 - ⇒ You are mixing apples and oranges

Where do we find repurchase of stocks?

- Equity statement
- Cash flow statements

Pernod Ricard's Cash flow statement

€ million	30.06.2020	30.06.2021
Cash flow from operating activities		
Group net profit	329	1,305
Non-controlling interests	21	13
Share of net profit/(loss) of associates, net of dividends received	0	4
Financial (income)/expenses	366	371
Tax (income)/expenses	258	667
Net profit from discontinued operations	3	0
Depreciation of fixed assets	350	367
Net change in provisions	97	(80)
Net change in impairment of goodwill, property, plant and equipment and intangible assets	1,007	78
Changes in fair value of commercial derivatives	0	4
Changes in fair value of biological assets and investments	(3)	(4)
Net (gain)/loss on disposal of assets	(27)	(16)
Expenses related to share-based payments	23	28
Self-financing capacity before financing interest and taxes	2,423	2,738
Decrease/(increase) in Working Capital Requirements	(433)	(54)
Interests paid	(371)	(350)
Interests received	36	35
Tax paid/received	(474)	(371)
NET CHANGE IN CASH FLOW FROM OPERATING ACTIVITIES	1,181	1,999

- Interest expense: how you finance your expenses (not about the operations)
- In the Pernod Ricard's cash flow statement, we see the financial expenses but with apple not.
- Net change in impairment of goodwill, property, plant, and equipment is positive. But this is bad news it means that you have written off your assets.
- Changes in working capital:
 - o Tax items are visible for Pernod Ricard, tax expenses
 - o Tax paid/received not equal to tax expenses: tax expenses is added back to net income because it is an estimate of the tax that you will pay for this year. You haven't paid it yet.
 - o Tax paid pay taxes on the income that you have generated last year

Diageo's Cash Flow Statement

	Notes	Year ended 30 June 2020	
		£ million	£ million
Cash flows from operating activities			
Profit for the year		1,454	
Taxation		589	
Share of after tax results of associates and joint ventures		(282)	
Net finance charges		353	
Non-operating items		23	
Operating profit			2,137
Increase in inventories		(366)	
Decrease/(increase) in trade and other receivables		523	
(Decrease)/increase in trade and other payables and provisions		(485)	
Net increase in working capital			(328)
Depreciation, amortisation and impairment		1,839	
Dividends received		4	
Post employment payments less amounts included in operating profit		(109)	
Other items		(14)	
			1,720
Cash generated from operations			3,529
Interest received		185	
Interest paid		(493)	
Taxation paid		(901)	
			(1,209)
Net cash inflow from operating activities		2,320	

"True" OFC for Diageo?

You need to pay attention: the terminology has changed! But it's the same as for Pernod Ricard.

Calculation of Diageo's calculating income:

- Interest received and paid have nothing to do with operations: 308 not an operating cash flow but a financing cash flow. So I would add back to the ultimate cash flow
- Tax are an operating item so they should be subtracted.

2,628 BGP min

= 2,320 + 308

= 3,529 - 901

LVMH's Cash Flow Statement

(EUR millions)	Notes	2019	2018 ^(a)	2017 ^(a)
I. OPERATING ACTIVITIES				
Operating profit		11,273	9,877	8,113
(Income)/loss and dividends received from joint ventures and associates	8	(10)	5	25
Net increase in depreciation, amortization and provisions		2,700	2,302	2,376
Depreciation of right-of-use assets	7.1	2,408	-	-
Other adjustments and computed expenses		(266)	(219)	(109)
Cash from operations before changes in working capital		16,105	11,965	10,405
Cost of net financial debt: interest paid		(124)	(113)	(129)
Lease liabilities: interest paid		(239)	-	-
Tax paid		(2,940)	(2,275)	(2,790)
Change in working capital	15.2	(1,154)	(1,087)	(514)
Net cash from operating activities		11,648	8,490	6,972

What is the "true" operation cash flow of LVMH ?

→ $16,105 - 2,940 - 1,154 = \mathbf{12,011}$ mln EUR

→ $11,648 + 239 + 124 = \mathbf{12,011}$ mln EUR

They start with the operating profit / EBIT: taxes and interest has already been added back !

Cash flows statement – indirect method

	Add (+) or Subtract (-) from Net Income
Adjustments for noncash revenues, expenses, gains and losses	
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	<u>\$ #</u>

Working Capital in Changes

	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

Relations 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 exam stuff

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?

Net income 130

+depreciation 25

- ARI 10

+ API 6

+ PPED 3

- WPD. 5

Stock issuance 0, doesn't influence your operation cashflow

Total 150

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

- Exercise 2: 300 (answer)
- Ppe 0
- Urd 0
- Pms 0

Nokia: A history

Income statement of nokia (2007)

Financial year ended December 31	Notes	2007 EURm	2006 EURm	2005 EURm
Net sales		51 058	41 121	34 191
Cost of sales		-33 754	-27 742	-22 209
Gross profit		17 304	13 379	11 982
Research and development expenses		-5 647	-3 897	-3 825
Selling and marketing expenses		-4 380	-3 314	-2 961
Administrative and general expenses		-1 180	-666	-609
Other income	6	2 312	522	285
Other expenses	6, 7	-424	-536	-233
Operating profit	2-9	7 985	5 488	4 639
Share of results of associated companies	14, 31	44	28	10
Financial income and expenses	10	239	207	322
Profit before tax		8 268	5 723	4 971
Tax	11	-1 522	-1 357	-1 281
Profit before minority interests		6 746	4 366	3 690
Minority interests		459	-60	-74
Profit attributable to equity holders of the parent		7 205	4 306	3 616

Income statement of nokia (2018)

For the year ended December 31	Notes	2018 EURm	2017 EURm	2016 EURm
Net sales	5, 8	22 563	23 147	23 641
Cost of sales	9	(14 117)	(14 008)	(15 117)
Gross profit		8 446	9 139	8 524
Research and development expenses	9	(4 620)	(4 916)	(4 997)
Selling, general and administrative expenses	9	(3 463)	(3 615)	(3 767)
Other income	11	290	363	117
Other expenses	9, 11	(712)	(955)	(977)
Operating (loss)/profit		(59)	16	(1 100)
Share of results of associated companies and joint ventures	34	12	11	18
Financial income and expenses	12	(313)	(537)	(287)
Loss before tax		(360)	(510)	(1 369)
Income tax (expense)/benefit	13	(189)	(927)	457
Loss for the year from Continuing operations		(549)	(1 437)	(912)
Loss for the year from Continuing operations attributable to:				
Equity holders of the parent		(554)	(1 473)	(751)
Non-controlling interests		5	36	(161)
Loss for the year from Continuing operations		(549)	(1 437)	(912)
Profit/(loss) for the year from Discontinued operations attributable to:				
Equity holders of the parent		214	(21)	(15)
Non-controlling interests		-	-	-
Profit/(loss) for the year from Discontinued operations	7	214	(21)	(15)
Loss for the year attributable to:				
Equity holders of the parent		(340)	(1 494)	(766)
Non-controlling interests		5	36	(161)
Loss for the year		(335)	(1 458)	(927)

Cash flow statement of Nokia (2018)

For the year ended December 31	Notes	2018 EURm	2017 ⁽²⁾ EURm	2016 ⁽²⁾ EURm
Cash flow from operating activities				
Loss for the year		(335)	(1 458)	(927)
Adjustments, total	31	2 093	3 676	2 387
Change in net working capital ⁽¹⁾				
Decrease/(increase) in receivables		246	(421)	18
(Increase)/decrease in inventories		(544)	(296)	533
(Decrease)/increase in non-interest bearing liabilities		(645)	1 221	(2 738)
Cash from/(used in) operations		815	2 722	(727)
Interest received		68	53	85
Interest paid		(159)	(409)	(309)
Income taxes paid, net		(364)	(555)	(503)
Net cash from/(used in) operating activities		360	1 811	(1 454)

Income statement of nokia (2013)

Financial year ended December 31	Notes	2013 EURm	2012 ⁺ EURm	2011 ⁺ EURm
Continuing operations				
Net sales		12 709	15 400	15 968
Cost of sales		-7 364	-9 841	-10 408
Gross profit		5 345	5 559	5 560
Research and development expenses		-2 619	-3 081	-3 334
Selling and marketing expenses		-974	-1 372	-1 608
Administrative and general expenses		-697	-690	-735
Impairment of goodwill	9	—	—	-1 090
Other income	8	272	276	151
Other expenses	8, 9	-808	-1 513	-332
Operating profit (+)/loss (-)	2-11, 25	519	-821	-1 388
Share of results of associated companies	16, 32	4	-1	-23
Financial income and expenses	9, 12	-280	-357	-131
Profit (+)/loss (-) before tax		243	-1 179	-1 542
Income tax	13	-202	-304	-73
Profit (+)/loss (-) from continuing operations		41	-1 483	-1 615
Profit (+)/loss (-) from continuing operations attributable to equity holders of the parent		186	-771	-1 272
Loss from continuing operations attributable to non-controlling interests		-145	-712	-343
		41	-1 483	-1 615
Loss (-)/profit (+) from discontinued operations	3	-780	-2 303	128
Loss (-)/profit (+) from discontinued operations attributable to equity holders of the parent		-801	-2 324	109
Profit from discontinued operations attributable to non-controlling interests		21	31	19
		-780	-2 303	128
Loss for the year		-739	-3 786	-1 487

Income statement of nokia (2012)

Financial year ended December 31	Notes	2012 EURm	2011 EURm	2010 EURm
Net sales		30 176	38 659	42 446
Cost of sales		-21 786	-27 300	-29 456
Gross profit		8 390	11 359	12 990
Research and development expenses		-4 782	-5 584	-5 844
Selling and marketing expenses		-3 205	-3 769	-3 856
Administrative and general expenses		-959	-1 085	-1 039
Impairment of goodwill	8	—	-1 090	—
Other income	7	403	221	476
Other expenses	7, 8	-2 150	-1 125	-657
Operating loss (-)/profit (+)	2-10, 24	-2 303	-1 073	2 070
Share of results of associated companies	15, 31	-1	-23	1
Financial income and expenses	8, 11	-340	-102	-285
Loss (-)/profit (+) before tax		-2 644	-1 198	1 786
Tax	12	-1 145	-290	-443
Loss (-)/profit (+)		-3 789	-1 488	1 343

- Numbers in 2007 look very good
- Didn't managed to catch up on the smartphone business, merged with alacatel,... the company is still half in terms of sales comparing with 2007.
- Net sales in the income statemen of NOKIA in 2013 and 2012 is different in both statement for the year 2012. What's going on? IAFRS1 Comparability. In 2013 Nokia put its biggest business for sale but they didn't sell it yet only in 2014. In 2013 the management decided to put it bussines in sale in 2013. So as soon you decide to put parts of your business to sale, iafrs tells you to report it as

discontinued operation. IAFRS tells you also: You need to provide comparative figures with the previous years. 15.4 is a fictious number. It is the sale that NOKIA would have realised in 2011 if the cell phone business will already be taken out of the core business of Nokia in 2012 but it wasn't. because in 2012 the cell phone business was still part of the business.

THE CORE I: FINANCIAL STATEMENT ANALYSIS

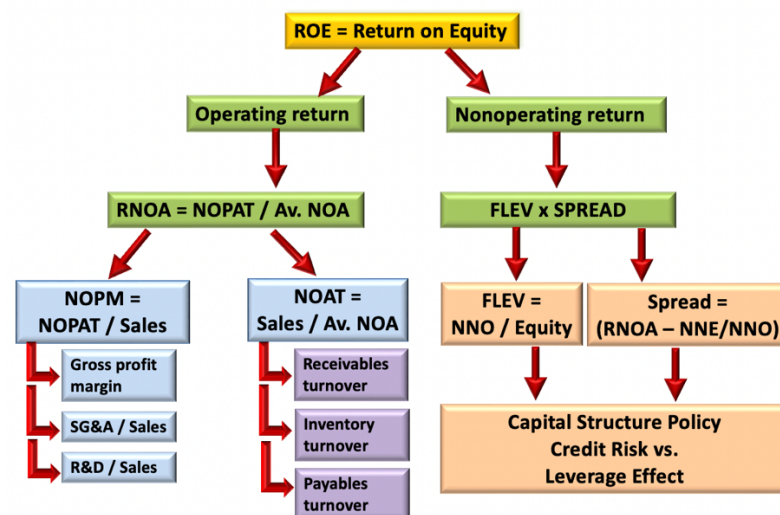
3. FINANCIAL STATEMENT ANALYSIS : 3 PILLARS

- **Profitability**
- Solvency: has to do with credit risk, how you finance your products
- Liquidity

Very important chapter !

A. Profitability analysis and interpretation

Disaggregation of ROE



If you want to compare how profitable 2 companies are you need to make a distinction between the operating return and the nonoperating (how the management decided to finance the operations) return.

Bleu → profitability

Purple → liquidity

Orange → Solvency risk

Return on Equity

ROE = Net income / average equity

ROE = operating return + nonoperating return

Operating return: RNOA

RNOA = return on net operating assets

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

- The income statement reflects operating activities through revenues, costs of goods sold (COGS), R&D and selling, general and administrative expenses (SG&A)
- The balance sheet contains both operating assets and liabilities, as well as nonoperating items
- **Cash is assumed to be NON-operating!**
 - o Most cash are a result of their operations and not their to support the manufacturing of their operations
 - o Cash is negative debt

Operating items in the Income Statement

Interest expenses has to do with how you finance your operations.

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's Income statement

(EUR millions, except for earnings per share)	Notes	2020	2019
Revenue	24-25	44,651	53,670
Cost of sales		(15,871)	(18,123)
Gross margin		28,780	35,547
Marketing and selling expenses		(16,792)	(20,207)
General and administrative expenses		(3,641)	(3,864)
Income/(loss) from joint ventures and associates	8	(42)	28
Profit from recurring operations	24-25	8,305	11,504
Other operating income and expenses	26	(333)	(231)
Operating profit		7,972	11,273
Cost of net financial debt		(35)	(107)
Interest on lease liabilities		(281)	(290)
Other financial income and expenses		(292)	(162)
Net financial income/(expense)	27	(608)	(559)
Income taxes	28	(2,409)	(2,932)
Net profit before minority interests		4,955	7,782
Minority interests	18	(253)	(611)
Net profit, Group share		4,702	7,171

- You must look at operating profit before tax, everything above that is operating
- Under operating profit before tax, you have non-operating items
- Profit before tax is $7972 - 608 = 7364$
- NOPAT that the earnings number that the firm would have realised in case it was fully financed with equity. (In case it would not have the non-operating expenses)

Tax shield

- Tax on profit = tax expense that we would have, in absence of nonoperating expense and revenue items

- Tax on operating profit

$$= \text{Tax expense} + (\text{pretax nonoperating expenses} \times \text{statutory tax rate})$$

= tax shield

- NOPAT for LVMH= $7972 - (2409 + (608 \times 0.3)) = 5380.6$

Operating Assets and liabilities

- Operating assets include:
 - o Receivables
 - o Inventories
 - o Intangible assets
 - o Goodwill
 - o PPE
 - o Lease assets
- Operating assets exclude:
 - o Cash (and cash equivalent)
 - o Short-term and long-term investments
 - o Other financial assets and investments
- Operating liabilities = all liabilities **EXCEPT**:
 - o Long-term debt
 - o Short-term debt
 - o Lease liabilities!!

NET operating Assets (NOA) = Operating assets – Operating liabilities

Trade accounts payable = leverancierskrediet

NOA for LVMH

Assets (EUR millions)	Notes	2020	2019
Brands and other intangible assets	3	17,012	17,212
Goodwill	4	16,042	16,034
Property, plant and equipment	6	18,224	18,533
Right-of-use assets	7	12,521	12,409
Investments in joint ventures and associates	8	990	1,074
Non-current assets available for sale financial assets	9	739	915
Other non-current assets	10	845	1,546
Deferred tax	28	2,325	2,274
Non-current assets		68,698	69,997
Inventories and work in progress	11	13,016	13,717
Trade accounts receivable	12	2,756	3,450
Income taxes		392	406
Other current assets	13	3,846	3,264
Cash and cash equivalents	15	19,963	5,673
Current assets		39,973	26,510
Total assets		108,671	96,507

Operating Assets (2020) = 87,969

Operating Assets (2019) = 89,919

Liabilities and equity (EUR millions)	Notes	2020	2019
Equity, Group share	16.1	37,412	36,586
Minority interests	18	1,417	1,779
Equity		38,829	38,365
Long-term borrowings	19	14,065	5,101
Non-current lease liabilities	7	10,665	10,373
Non-current provisions and other liabilities	20	3,322	3,812
Deferred tax	28	5,481	5,498
Purchase commitments for minority interests' shares	21	10,991	10,735
Non-current liabilities		44,524	35,519
Short-term borrowings	19	10,638	7,610
Current lease liabilities	7	2,163	2,172
Trade accounts payable	22.1	5,098	5,814
Income taxes		721	722
Current provisions and other liabilities	22.2	6,698	6,305
Current liabilities		25,318	22,623
Total liabilities and equity		108,671	96,507

Operating Liabilities (2020) = 21,320

Operating Liabilities (2019) = 22,151

- NOA = Operating assets – Operating liabilities
 - o Operating Assets (2020) = 87,969
 - o Operating Liabilities (2020) = 21,320

When you have a doubt: it's operating!

⇒ NOA 2020 = 66 649
- NOA 2019 = 67 768

→ We usually consider average NOA

⇒ NOA av. = 67208.5
- The amount of money you need to invest in LVMH operations before the company can work and is currently doing

RNOA of LVMH

- RNOA = NOPAT/ av. NOA
- $RNOA = 5,380.6 / 67,208.5 = 8.01\%$
- Only number in which everything that has to do with LVMH operations is included and everything that has to do with management to decide how to finance these operations excluded. A pure figure that shows how LVMH is profitable.

⇒ for every 100€ that we invest in luxury business in LVMH the company realizes 8.01€ an after-tax operating return.
- Clean measure of operating profitability
- What would ROE be if LVMH would be fully financed with equity? It will be 8.01%

RNOA and ROA of Bekaert

Bekaert Income Statement (2021)

in thousands of € - Year ended 31 December	2021
Sales	4 839 659
Cost of sales	-3 953 752
Gross profit	885 907
Selling expenses	-186 239
Administrative expenses	-161 091
Research and development expenses	-59 537
Other operating revenues	62 940
Other operating expenses	-28 894
Operating result (EBIT)	513 086
of which	
EBIT - Underlying	514 617
One-off items	-1 531
Interest income	3 260
Interest expense	-44 480
Other financial income and expenses	4 430
Result before taxes	476 296
Income taxes	-133 296
Result after taxes (consolidated companies)	343 000
Share in the results of joint ventures and associates	107 619
RESULT FOR THE PERIOD	450 620

Bekaert Assets

in thousands of €	Notes	2020	2021
Intangible assets	6.1	54 664	61 440
Goodwill	6.2	149 398	150 674
Property, plant and equipment	6.3	1 191 781	1 253 857
RoU Property, plant and equipment	6.4	132 607	132 073
Investments in joint ventures and associates	6.5	123 981	188 661
Other non-current assets	6.6	45 830	65 886
Deferred tax assets	6.7	124 243	119 599
Non-current assets		1 822 503	1 972 189
Inventories	6.8	683 477	1 121 219
Bills of exchange received	6.8	54 039	41 274
Trade receivables	6.8	587 619	750 666
Other receivables	9 / 6.21	101 330	157 005
Short-term deposits	6.10	50 077	80 058
Cash and cash equivalents	6.10	940 416	677 270
Other current assets	6.11	41 898	42 272
Assets classified as held for sale	6.12	6 740	1 803
Current assets		2 465 597	2 871 567
Total		4 288 100	4 843 756

Bekaert Liabilities and Equity

in thousands of €	Notes	2020	2021
Share capital	6.13	177 812	177 923
Share premium		37 884	38 850
Retained earnings	6.14	1 614 781	1 984 791
Treasury shares	6.14	-106 148	-95 517
Other Group reserves	6.14	-276 448	-136 495
Equity attributable to equity holders of Bekaert		1 447 880	1 969 551
Non-controlling interests	6.15	87 175	130 971
Equity		1 535 055	2 100 522
Employee benefit obligations	6.16	130 948	77 659
Provisions	6.17	25 166	23 311
Interest-bearing debt	6.18	968 076	953 581
Other non-current liabilities	6.19	1 231	844
Deferred tax liabilities	6.7	38 337	51 979
Non-current liabilities		1 163 759	1 107 375
Interest-bearing debt	6.18	641 655	237 742
Trade payables	6.8	668 422	1 062 185
Employee benefit obligations	6.8 / 6.16	149 793	177 159
Provisions	6.17	11 421	4 392
Income taxes payable	6.21	53 543	86 131
Other current liabilities	6.20	64 451	68 249
Liabilities associated with assets classified as held for sale	6.12	—	—
Current liabilities		1 589 286	1 635 859
Total		4 288 100	4 843 756

$$\text{RNOA} = \text{NOPAT} / \text{av. NOA} = 370,703 / 2,340,135 = \mathbf{15.84\%}$$

Operating Profit (EBIT)	=	513,086
Tax expense	=	133,296
Nonoperating expense	=	36,790 = (44,480 - 3,260 - 4,430)
Statutory Tax Rate	=	24.7%
Operating Tax	=	142,383 = [133,296 + (0.247 x 36,790)]
NOPAT	=	370,703

→ Income statement

Operating Assets (2021)	=	4,084,625 (4,843,756 - 1,803 - 677,270 - 80,058)
Operating Liabilities (2021)	=	1,551,909 (77,659 + 23,311 + 844 + 51,979 + 1,062,185 + 177,159 + 4,392 + 86,131 + 68,249)

→ Balance sheet

NOA (2021)	=	2,532,716
NOA (2020)	=	2,147,553

$$\Rightarrow \text{Average NOA} = 2,340,135$$

$$\text{ROE} = \text{Net profit} / \text{Av. Equity} = 343,000 / 1,817,789 = \mathbf{18.87\%}$$

- RNOA = **15.84%**, for every 100€ that we invest in the operating activities, Bekaert realise an after tax operating return of 15.84€. only numbers to compare how Bekaert is profitable in comparison with his competitors.
- ROE = **18.87%** (Net profit/AV.equity). return for the shareholders, any difference between these 2 has to do with how the management decided to finance their operations. Has Bekaert efficiently used their leveraged? yes because ROE is higher than RNOA.

Disaggregation of RNOA

$$\text{RNOA} = \text{NOPAT} / \text{NOA} = \text{NOPAT} / \text{SALES} \times \text{Sales} / \text{NOA}$$

- NOPM= net operating profit margin (NOPAT / SALES)
- NOAT = net operating asset turnover (SALES / NOA)

Net operating Profit margin (NOPM)

- Net operating profit margin (NOPM) reveals how much operating profit the company earbns from each sales dollar/euro
- Nopm is affected by (among others):
 - o Industry type
 - o Degree of competition
 - o Extent to which customers want to pay a premium
 - o Cost efficiency – economies of scale
- For LVHM (2020)
 - o NOPM = NOPAT/revenues
 - o NOPM LVMH = 12.05%

- ⇒ This result means that for each 100€ of sales at LVMH, the company earns 12.1€ of profit after all operating expenses and tax
- For Bekaert (2021) :
 - $\text{NOPM} = 370,703 / 4,839,659 = 7.66\%$

Net operating asset turnover (NOAT)

- Net operating asset turnover measures the productivity of the company's net operating assets
- Noat measures efficiency of operating asset use
- This metric reveals the level of sales the company realizes from each euro/dollar invested in the firm's operating assets
- All things equal, a higher NOAT is preferable
- For LVMH
 - $\text{Noat} = \text{revenues} / \text{noa}$
 - $\text{Noat} = 44,651 / 67,208.5 = 0.66$
- ⇒ This result means that for each euro invested in net operating assets LVMH realizes 66-euro cents in sales.
- For Bekaert (2021): $\text{NOAT} = 4,839,659 / 2,340,135 = 2.07$

Industry comparison of NOPM and NOAT

- Profitability position of LVMH looks like:
 - $\text{RNOA} = 8\%$
 - $\text{NOPM} = 12\%$
 - $\text{NOAT} = 0.66$
- ⇒ Are very dependent on the industry! For example, the kind of investment of apple is not the same as the kind of investment for LVMH.
- What is your advice to the firm under these scenarios?
- Scenario 1 => Luxury industry looks like:
 - Industry $\text{RNOA} = 8\%$
 - Industry $\text{NOPM} = 10\%$
 - Industry $\text{NOAT} = 0.80$
- ⇒ LVMH is doing slightly better on the margin better and on the sales largely bad. LVMH has to work on the productivity NOAT.
- Scenario 2 => Luxury industry looks like:
 - Industry $\text{RNOA} = 8\%$
 - Industry $\text{NOPM} = 25\%$
 - Industry $\text{NOAT} = 0.32$
- ⇒ LVMH improvement on the margin. LVMH do a lot better on productivity but a lot worse on the margin.

Example Carrefour vs. Lidl:

- RNOA will be the same
- But Aldi is cheaper and will have lower margins
- But Carrefour will have to invest more in the shop (Aldi does not invest in his shop)
- ⇒ The strategy of the companies is different:
So if you have a company with a high profit margin but a much lower asset turnover than the average industry than it's likely to be a company like

Carrefour or LVMH. They get more trouble to sale something (but higher margin). For H&M it is the opposite !

Return on Equity

$$ROE = \text{Net Income} / \text{Average Equity}$$

$$ROE = \text{Operating Return} + \text{Nonoperating return}$$

$$\text{Nonoperating return} = \text{FLEV} \times \text{SPREAD}$$

Simple Example:

1. Base situation: no debt

$$\text{Equity} = 1000$$

$$\text{RNOA} = 20\%$$

$$\text{Profit} = 200 \text{ (no taxes)}$$

$$ROE = 200/1000 = 20\%$$

$$ROE = \text{RNOA} + [\text{FLEV} \times \text{SPREAD}] = 20\% + 0 = 20\%$$

2. We take on 500 of debt against cost of 7%

$$\text{Equity} = 1000$$

$$\text{RNOA} = 20\%$$

$$\text{Profit} = 300 \text{ (20\% of 1500)} - 35 \text{ (7\% of 500)} = 265$$

$$ROE = 265/1000 = 26.5\%. \Rightarrow \text{You have increased the profit for the shareholders with 6,5\%}$$

$$ROE = \text{RNOA} + [\text{FLEV} \times \text{SPREAD}]$$

(The extend over which you have debt over equity = FLEV)

$$ROE = 20\% + [500/1000] \times [20\% - 7\%] = 20\% + (0.5 \times 13\%) = 26.5\%$$

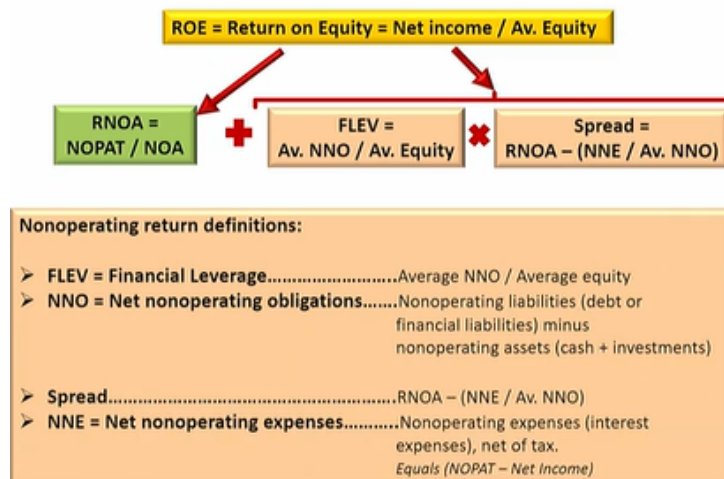
$$\text{FLEV} = \text{Debt} / \text{Equity}$$

$$\text{SPREAD} = \text{RNOA} - \text{Cost of Debt}$$

Andere voorbeeld :

- *Stel debt = 1000, cost of 7%*
- *Profit = 400 - 70 = 330 => ROE = 330/1000 = 33%*

Nonoperating Return



Nonoperating return of LVMH

(EUR millions, except for earnings per share)		Notes	2020	2019
Revenue	24-25		44,651	53,670
Cost of sales			(15,871)	(18,123)
Gross margin			28,780	35,547
Marketing and selling expenses			(16,792)	(20,207)
General and administrative expenses			(3,641)	(3,864)
Income/(loss) from joint ventures and associates	8		(42)	28
Profit from recurring operations	24-25		8,305	11,504
Other operating income and expenses	26		(333)	(231)
Operating profit			7,972	11,273
Cost of net financial debt			(35)	(107)
Interest on lease liabilities			(281)	(290)
Other financial income and expenses			(292)	(162)
Net financial income/(expense)	27		(608)	(559)
Income taxes	28		(2,409)	(2,932)
Net profit before minority interests			4,955	7,782
Minority interests	18		(253)	(611)
Net profit, Group share			4,702	7,171

Liabilities and equity (EUR millions)		Notes	2020	2019
Equity, Group share	16.1		37,412	36,586
Minority interests	18		1,417	1,779
Equity			38,829	38,365
Long-term borrowings	19		14,065	5,101
Non-current lease liabilities	7		10,665	10,373
Non-current provisions and other liabilities	20		3,322	3,812
Deferred tax	28		5,481	5,498
Purchase commitments for minority interests' shares	21		10,991	10,735
Non-current liabilities			44,524	35,519
Short-term borrowings	19		10,638	7,610
Current lease liabilities	7		2,163	2,172
Trade accounts payable	22.1		5,098	5,814
Income taxes			721	722
Current provisions and other liabilities	22.2		6,698	6,305
Current liabilities			25,318	22,623
Total liabilities and equity			108,671	96,507

Nonoperating Liabilities (2020) = 48,522

Assets (EUR millions)	Notes	2020	2019
Brands and other intangible assets	3	17,012	17,212
Goodwill	4	16,042	16,034
Property, plant and equipment	6	18,224	18,533
Right-of-use assets	7	12,521	12,409
Investments in joint ventures and associates	8	990	1,074
Non-current available for sale financial assets	9	739	915
Other non-current assets	10	845	1,546
Deferred tax	28	2,325	2,274
Non-current assets		68,698	69,997
Inventories and work in progress	11	13,016	13,717
Trade accounts receivable	12	2,756	3,450
Income taxes		392	406
Other current assets	13	3,846	3,264
Cash and cash equivalents	15	19,963	5,673
Current assets		39,973	26,510
Total assets		108,671	96,507

Nonoperating Assets (2020) = 20,702

- $ROE = 4,955 / 38,597 = 0.12837 = 12.84\%$
- $RNOA = 8.01\%$
- $NNO (2020) = 48,522 - 20,702 = 27,820$ (All of the debt minus the cash)
- $NNO (2019) = 35,991 - 6,588 = 29,403$
- $Av. NNO = 28,611.5$
- $Av. Equity = 38,597$
- $NNE = 425.6 = (1 - \text{tax rate}) \times \text{Nonoperating Expense}$
 $= (1 - 0.30) \times (608)$
 $= (NOPAT - \text{Net Income}) = (5,380.6 - 4,955)$
- $ROE = 0.08006 + \frac{28,611.5}{38,597} \times (0.08006 - \frac{425.6}{28,611.5})$
- $ROE = 0.08006 + (0.7413 \times 0.06518) = 0.1284 = \mathbf{12.84\%}$
- CHECK!! $\rightarrow ROE = 4,955 / 38,597 = \mathbf{12.84\%}$

Difference between ROE and RNOA is leverage, if this difference is low it means that:

- Company hasn't used a lot of debt
- Or used a lot of debt but the cost of debt is high

Nonoperating Return of Bekaert (2021)

- $ROE = 343,000 / 1,817,789 = 18.87\%$
- $RNOA = 15.84\%$ (see before for details)
- $NNO (2021) = 432,142$
- $NNO (2020) = 612,498$
- $Av. NNO = 522,320$
- $Av. Equity = 1,817,789$

- $NNE = 27,703 = (1 - \text{tax rate}) \times (\text{Nonoperating Expense})$
 $= (1 - 0.247) \times (36,790)$
 $= (NOPAT - \text{Net Income}) = (370,703 - 343,000)$
- $ROE = 0.1584 + \frac{522,320}{1,817,789} \times (0.1584 - \frac{27,703}{522,320})$
- $ROE = 0.1584 + 0.03027 = 0.1887$
- CHECK!! $\rightarrow ROE = 343,000 / 1,817,789 = 18.87\%$
- Conclusion: Leverage effect fails to kick in because of low FLEV. Roe is still high, because of a high RNOA. Bekaert seems to offset operational risk with lower financial risk. ($\frac{1}{4}$ is financed by debt and $\frac{3}{4}$ by equity)

BMW's RNOA and ROE (2016)

$$RNOA = NOPAT / \text{av. NOA} = 7,022.27 / 122,969 = \mathbf{5.71\%}$$

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

$$\Rightarrow \text{Av. NOA} = 122,969$$

$$ROE = \text{Net profit} / \text{Av. Equity} = 6,910 / 45,063.5 = \mathbf{15.33\%}$$

BMW's Nonoperating Return (2016)

- $RNOA = 0.057106$
- $NNO (2015) = 42,326 + 55,405 - 7,880 - 7,065 - 2,705 - 560 = 79,521$
- $NNO (2015) = 76,290$
- $\text{Av. NNO} = 77,905.5$
- $\text{Av. Equity} = 45,063.5$
- $NNE = 112,27 = (\text{NOPAT} - \text{Net Income})$
 $= (1 - \text{tax rate}) \times \text{Nonoperating Expense}$
 $= (1 - 0.307) \times (489 - 131 - 196)$

- $ROE = 0.057106 + 77,905.5 \times (0.057106 - \frac{112.27}{45,063.5})$
- $ROE = 0.057106 + 0.09623 = 0.1533 = \mathbf{15.33\%}$
- $ROE = 6,910 / 45,063.5 = 0.1533 = \mathbf{15.33\%}$
- Conclusion? Very big leverage effect for BMW because of high debt level (FLEV) as well as high SPREAD.

ROE disaggregation – Cisco

- $NOPAT = 11,973 - (2,678 + (-314) \times 0.35) = 9,404.9$
- $NOA (2017) = 59,326 - 29,964 = 29,362$
- $NOA (2016) = 55,896 - 29,424 = 26,472$
- $Av. NOA = 27,917$
- $RNOA = 0.3369 = \mathbf{33.7\%}$
- $NNO (2017) = 33,717 - 70,492 = -36,775$
- $NNO (2016) = 28,643 - 65,756 = -37,113$
- $Av. NNO = -36,944$
- $Av. Equity = 64,861$
- $NNE = (-314) \times (1 - 0.35) = -204.1$
- $ROE = 0.3369 + \frac{(-36,944)}{64,861} \times (0.3369 - \frac{(-204.1)}{(-36,944)})$
- $ROE = 0.3369 + (-0.18875) = 0.14815 = \mathbf{14.8\%}$
- CHECK → $ROE = 9,609 / 64,861 = 0.14815 = \mathbf{14.8\% (Much lower)}$
- ⇒ The firms (flev * spread) is negative. Thus, company might have a high cost of debt. But it is not the case here. If you have negative equity your financial leverage will be negative, and the difference will be big. But that is also not the case here.
- ⇒ If you have more cash than debt you have a negative NNO. And that IS the case for Cisco !
- ⇒ The cost for the shareholder for holding such an amount of cash that is just there doing nothing is the difference between the two percentages:
 $33.7\% - 14.8\% = 18\%$ of your equity

Hoarding cash – why ? (Not know for exam)

1. Precautionary motives (buffer)
2. Financial flexibility
3. Offset operational leverage / risk
4. No (attractive) investment opportunities
5. Easier to consume private control benefit
6. Tax purposes


Articles (see Blackboard)

- The Economist (June 3, 2017)
- Financial Times (Sep 15, 2017)


- Financial Times (Mar 25, 2020)

B. Profitability analysis: Pernod Ricard vs. Diageo

For 2019


	<ul style="list-style-type: none"> • ROE = 9.5 % • RNOA = 8.0 % <ul style="list-style-type: none"> → NOPM = 18.5 % → NOAT = 0.43 • Nonoperating return = 1.5 % <ul style="list-style-type: none"> → FLEV = 0.36 → Spread = 4.2%
	<ul style="list-style-type: none"> • ROE = 30.5 % (3,337/10,934.5) • RNOA = 16.0 % (3,432.2/21,259.5) ($\zeta=20\%$) <ul style="list-style-type: none"> → NOPM = 26.7 % → NOAT = 0.61 • Nonoperating return = 14.4 % <ul style="list-style-type: none"> → FLEV = 0.94 → Spread = 15.2% <p>Conclusions?</p>

Un-doing the COVID-19 impact for Pernod Ricard versus Diageo for 2020

	<ul style="list-style-type: none"> • ROE = $1,251.1/15,196.5 = 8.2\%$ • NOPAT = $2,260 - [(1,283+366)*0.3+258] = 1,507.3$ • RNOA = $1,507.3/21,722 = 6.94\%$ <ul style="list-style-type: none"> → NOPM = $1,507.3/8,448 = 17.8\%$ → NOAT = $8,448/21,722 = 0.39$ • Nonoperating return: <ul style="list-style-type: none"> → FLEV = 0.4294 (NNO 2020=7,845; NNO 2019=5,205) → Spread = 3.014%
	<ul style="list-style-type: none"> • ROE = $2,765.4/9,298 = 29.7\%$ • RNOA = $2,840.4/21,736.5 = 13.07\%$ <ul style="list-style-type: none"> → NOPM = $2,840.4/11,752 = 24.2\%$ → NOAT = $11,752/21,736.5 = 0.54$ • Nonoperating return: <ul style="list-style-type: none"> → FLEV = 1.339 → Spread = 12.466% <p>Conclusions?</p>

Please note that in these calculations, I considered 2,260 as the operating profit (veofre tax) for Pernod Ricard and disregarded the 1,283 of extraordinary items completely (=optimistic scenario). Pay attention: I do not consider the 1,283 as a nonoperating item, but I leave it out of the analysis completely. That means I calculate ROE based on a recalculated net income figure ($353 + 1,283*0.7$) of 1,251. Same for Diageo for which I exclude 1,357 of extraordinary expenses.

Pernod Ricard versus Diageo for 2021

	<ul style="list-style-type: none"> • ROE = $1,318/14,643 = 9.0\%$ • NOPAT = $2,423 - [(62+371)*0.3+667] = 1,626.1$ • RNOA = $1,626.1/21,943 = 7.4\%$ <ul style="list-style-type: none"> → NOPM = $1,626.1/8,824 = 18.4\%$ → NOAT = $8,824/21,943 = 0.40$ • Leverage effect = small (2.59%) <ul style="list-style-type: none"> → Firm does not use a lot of debt
	<ul style="list-style-type: none"> • ROE = $2,799/8,435.5 = 33.2\%$ • RNOA = $3,086.2/21,355 = 14.5\%$ (EBIT=4,065) <ul style="list-style-type: none"> → NOPM = $3,086.2/12,733 = 24.2\%$ → NOAT = $12,733/21,355 = 0.60$ • Leverage effect = big (18.7%) <ul style="list-style-type: none"> → Firm uses a lot of debt at a low interest rate <p>Conclusions?</p>

Operating assets for Pernod Ricard vs Diageo

Assets

€ million	30.06.2020	30.06.2021
Net amounts		
Non-current assets		
Intangible assets	10,965	10,725
Goodwill	5,611	5,505
Property, plant and equipment	3,095	3,177
Non-current financial assets	522	685
Investments in associates	28	36
Non-current derivative instruments	54	65
Deferred tax assets	1,678	1,623
TOTAL NON-CURRENT ASSETS	21,953	21,816

	Notes	30 June 2021	
		£ million	£ million
Non-current assets			
Intangible assets	9	10,764	
Property, plant and equipment	10	4,849	
Biological assets		66	
Investments in associates and joint ventures	6	3,308	
Other investments	12	40	
Other receivables	14	36	
Other financial assets	15	327	
Deferred tax assets	7	100	
Post employment benefit assets	13	1,018	
			20,508

- Company of DIAGEO does better on all front.
BUT: Look at what is on the balance sheet of both.
Pernod Ricard has a lot of mergers on his balance sheet. A lot of intangibles and goodwill (more than 55% percent) → they get in the denominator of your RNOA
For Diageo a lot of the brands has always been part of the business. So less in the denominator!
- Because of accounting we cannot compare Diageo and Pernod Ricard fairly based on RNOA. Not all economic assets are put on the balance sheet.
⇒ NOPM is still higher for Diageo and doesn't take into account the balance sheet, so Diageo it is still doing better but not to the same extent that RNOA says.

Remember that not every economic asset is put on the balance sheet!

Additional remarks on Profitability Analysis

- "other" items are usually operating items
- Joint-ventures is an operating item
- Leased assets are operating while lease liabilities are nonoperating
- For noncontrolling interests it is advisable to ignore them, i.e.:
 - Include NCIs in Net income (do not use the parent's share)
 - Include NCIs in Equity (use total equity)
 - See example of Walmart in extra exercises
- Ignore discontinued operations, i.e., do not treat them as operating or nonoperating; or treat them as nonoperating if they are immaterial.

4. CREDIT RISK ANALYSIS

A. Concept of credit risk

Solvency : concept

- **Solvency** (or credit risk) refers to the ability of the firm to meet its debt obligations
- Credit risk is the risk creditors bear vis à vis their borrower reflecting the probability that the creditor will be able to fulfil the lending terms
- A very much related concept is “bankruptcy risk” which is the probability a firm will expire or fail
- Solvency is largely unrelated to a firm’s operations and usually focuses on the long run

B. Solvency analyses : ratio + examples

Solvency ratios

- Static solvency ratios are based on only liability and equity items:
 - o Liabilities-to-equity ratio
 - o Book leverage
 - o Market leverage
- Dynamic solvency ratios are based on a mix of balance sheet items **and** income statement or cash flow items:
 - o Times interest earned ratio
 - o (Net) Debt-to-EBIT(DA)

Liabilities-to-equity (bad ratio)

- Measured as: total liabilities/equity
- Threshold: should not be much larger than 2
- Inverse ratio is also frequently used:
 - o $\text{Equity} / (\text{Equity} + \text{Liabilities})$
 - o Should be no less than 30% (rule of thumb)
- Equivalent ratio:
 - o $\text{Total liabilities} / (\text{Equity} + \text{Liabilities})$
- **Mercedes (2021):**
 - o $\text{Liabilities-to-equity} = 186,664 / 73,167 = 2.55$
 - o $\text{Equity-to-total assets} = 73,167 / 259,831 = 28\%$
- **BMW (2021):**
 - o $\text{Liabilities-to-equity} = 154,395 / 75,132 = 2.05$
 - o $\text{Equity-to-total assets} = 75,132 / 229,527 = 33\%$
- **Apple (2021):**
 - o $\text{Liabilities-to-equity} = 287,912 / 63,090 = 4.56$
 - o Does Apple have a worse solvency position than BMW or Mercedes?
→ The reason why Apple scores worse on this ratio, it is because liabilities=credit that you receive from your suppliers so free credit.

Book leverage for Pernod Ricard (cleaner ratio)

- Book leverage = (LT debt + ST debt) / (Book value of equity + LT Debt + ST Debt)
= Debt / Debt + BV equity

Liabilities

€ million	30.06.2020	30.06.2021
Shareholders' equity		
Capital	411	406
Share premium	3,052	3,052
Retained earnings and currency translation adjustments	10,177	10,066
Group net profit	329	1,305
Shareholders' equity attributable to owners of the parent	13,968	14,829
Non-controlling interests	243	246
TOTAL SHAREHOLDERS' EQUITY	14,211	15,075
Non-current liabilities		
Non-current provisions	310	253
Provisions for pensions and other long-term employee benefits	605	477
Deferred tax liabilities	2,596	2,825
Bonds – non-current	8,599	8,787
Non-current lease liability	433	405
Other non-current financial liabilities	192	108
Non-current derivative instruments	0	0
TOTAL NON-CURRENT LIABILITIES	12,735	12,854
Current liabilities		
Current provisions	222	163
Trade payables	1,877	2,337
Income taxes payable	232	282
Other operating payables	1,016	1,134
Bonds – current	723	70
Current lease liability	88	103
Other current financial liabilities	380	122
Current derivative instruments	24	6
TOTAL CURRENT LIABILITIES	4,563	4,218
Liabilities related to assets held for sale	16	0
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	31,525	32,147

$$\text{Book leverage} = (9,300 + 301) / (9,601 + 15,075) = 39\%$$

- ⇒ 39%, so Pernod Ricard doesn't finance itself with debt because 39% is less than the average in the company. It is pretty low, debt's structure: LT and ST, private (debt to the bank) and public (bond). The Short term is extremely little, gets more LT debt so it is a good signal. Its debt is more bonds, so the advantage is that it is much cheaper. Pernod Ricard only finance itself with Bond. So good signal.
- Advantage?
 - Clean and robust metric
 - It doesn't use market value but book value and book value change only one time per year.
- Drawback?
 - Less timely and relevant than market leverage
- Conclusion on the debt level of Pernod-R:
 - ⇒ It is pretty low but look at the dept structure of Pernod Ricard. Short term debt is extremely low (less then 5%). It gets more long-term debt then short terms debt: this is an indicator for solvency! Before someone wants to lend for some longer term it has to be sure that the firm is solvend over the next 10 year. You also have to look at the private (bank) vs. public (bonds) debt. Pernod Ricard had the most bond debt. It is good news: only good firms get acces to bonds. Private is much cheaper!

Market leverage for Pernod Ricard (good ratio)

- 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]
 - ⇒ $9,601 / (9,601 + (261,5 \times 187,2)) = 16\%$

- ⇒ 16% of the total value of the company is debt
- Advantage?
 - More timely and economically relevant measure
- Market leverage is less frequently used than book leverage, why?
 - It is a more volatile metric. And market leverage could go up.
- What is your conclusion on the debt level of Pernod-Ricard?
 - Despite the fact that Pernod Ricard has not a lot of operational risk they do not seem to finance their operations with a lot of debt they finance it with equity. (Kenmerk van family company)

→ You need to calculate both !

Book and Market leverage

Company	<u>Book equity</u>	Shares	Stock Price	Market cap	<u>LT Debt</u>	<u>ST Debt</u>	<u>Book Leverage</u>	<u>Market Leverage</u>
Pernod Ricard	15,075	262	210	55,073	9,300	301	38.9%	14.8%
Diageo	8,431	2,337	40	94,321	13,249	2,119	64.6%	14.0%
Mercedes	73,167	1,070	69	73,498	75,351	58,297	64.6%	64.5%
BMW	75,132	602	91	54,981	62,342	41,121	57.9%	65.3%
Apple	63,090	16,701	143	2,384,942	109,106	15,613	66.4%	5.0%

You need to calculate self the book and market leverage

- What are your conclusions regarding these firms' solvency?
 - BMW and Mercedes have similar operations and similar capital structures...
 - ... while Pernod Ricard and Diageo have very different capital structures, Diageo being the one showing substantially more credit risk, despite similar operations.
 - Book leverage is less prone to market sentiment... but more affected by accounting conservatism (i.e. not all economic assets are included in book equity, which is very clear for Apple)

Times interest earned

- $TIE = \text{Operating Profit (EBIT)} / \text{Interest Expense}$
- TIE measures the number of times operating income (or EBIT) covers the 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 lease payments and rental expense, besides interest expense).

→ This ratio lost some of its relevance because of historically lows interest rates. It remains relevant for struggling firms...

- **Mercedes (2021):**
TIE = $16,028 / 429 = 37$ times
- **BMW (2021):**
TIE = $13,400 / 165 = 81$ times
 - Despite having a lot of debt, BMW and Daimler do not show signs of solvency problems based on this ratio.
- **Pernod Ricard (2021):**
TIE = $2,361 / 410 = 6$ times
- **Diageo (2021):**
TIE = $3,731 / 651 = 6$ times
- **Apple (2021):**
TIE = $108,949 / 2,687 = \text{many}$ times
- This ratio lost some of its relevance because of historically low interest rates. It remains relevant for struggling firms...
- ... and it may regain some of its relevance...

→ More than 5 you are oke; between 1 and 3: problematic; under 1 big problem

Debt-to-EBIT(DA) (mostly use dynamic ratio)

- (Short-term debt + long-term debt)/EBITDA
- EBITDA = earnings before interests, taxes, depreciation, and amortization
- Less than 2 is considered to be safe; higher than 7 is considered to be **indicative** (you can still be fine) of solvency problems and very high credit risk. Some use 5 as the threshold for a red flag signal.
- Related (similar) ratios:
 - o Debt/cash flow from operations (not use these ratios, see Volkswagen)
 - o Debt/ operating income (NOPAT or EBIT) (this tells you much more over future cash flows)
- **For Daimler (2021):**
EBITDA = $16,028 + 6,980 = 23,008$
Debt-to-EBITDA = $133,648 / 23,008 = 5.8$
- **For BMW (2021):**
Debt-to-EBITDA = $103,463 / 19,895 = 5.2$
⇒ Conclusions?
 - Credit risk looks high.
 - And volatile!
- QUESTIONS:
 - o How come this situation is sustainable?
 - o What explains the spikes for Daimler?

- **For Pernod Ricard (2021):**
Debt-to-EBITDA = $9,601/2,806 = 3.4$
⇒ meaning that it needs between 3 to 4 of its current EBITDA to service its entire amount of debt at 9.6 billion euro's.
- For Pernod Ricard: debt-to-ebitda in 2020 was 4.3
- For Pernod Ricard: debt-to-ebitda in 2019 was 2.9
- **For Diageo (2021):**
Debt-to-EBITDA = $15,459/4,178 = 3.7$
⇒ Conclusions:
 - Diageo is more profitable, but also carries a bit more credit risk.
 - Credit risk remains low for both firms.
- Question: what do you think happened with the credit rating of Pernod Ricard received from S&P during the pandemic?
 - Pernod get an upgrade. Despite the act from 2.9 to 4.3, the credit rating went up, so credit risk went down. Their sales took a hit but less than 10%. Credit risk rewarding the company by a higher credit rate.

Net Debt

- **Net debt** = [financial liabilities] minus [cash and cash equiv.]
- Net debt can be negative, if you have more cash than debt
- Debatable whether to include ST investments other than cash
- Widely used credit ratios are Net debt/EBITDA; Net Debt/CFO; Net debt/Operating Income (EBIT)
 - Net Debt / EBITDA in 2021 for:
 - Mercedes = $(75,351+58,297-23,120) / 23,008 = 4.8$
 - BMW = $87,454 / 19,895 = 4.4$
→ Hight but not that high
 - Pernod Ricard = $7,523 / 2,806 = 2.7$
 - Diageo = $12,710 / 4,178 = 3.0$
 - Apple = $89,779 / 109,207 \rightarrow 0$
→ Safer

Net Debt for Unilever

JANUARY 15 2022

At first blush, it looks like just a little bit of an overreaction. Investor Terry Smith mocked socially-conscious Unilever for defining the "purpose" of Hellmann's mayonnaise amid disappointing share price performance. A few days later, the UK-listed consumer products group confirmed that it had made a £50bn approach for a rival business belonging to GSK.



Unilever would probably have to go higher to win, shouldering heavy debts.

Shareholders who feared the company lacked ambition may now worry it has too much fire in its belly.

The enlarged Unilever could cover up to £35bn of an increased price with medium-term debt. But that would double its leverage to some four times net debt to ebitda, steep for a FTSE-100 company. To get to £55bn it might need to take on additional short-term borrowing, repayable with proceeds from disposals. Unilever might also have to offer more equity.

Net Debt for Danone

NET DEBT AND NET FINANCIAL DEBT

Net debt

	As of December 31	
(in € millions)	2019	2020
Non-current financial debt ^(a)	12,906	12,343
Current financial debt ^(a)	4,474	4,157
Short-term investments	(3,631)	(3,680)
Cash and cash equivalents	(644)	(593)
Derivatives – assets – Non-current ^(b)	(271)	(259)
Derivatives – assets – Current ^(b)	(16)	(27)
Net debt	12,819	11,941

(a) Consists of €966 million of lease debt following the application of IFRS16 Leases.

(b) Used solely to manage net debt.

Bridge from net debt to net financial debt

	Year ended December 31	
(in € millions)	2019	2020
Net debt	12,819	11,941
Liabilities related to put options granted to non-controlling interests – Non-current	(13)	(7)
Liabilities related to put options granted to non-controlling interests – Current	(469)	(355)
Financial debt excluded from net debt	(482)	(362)
Net financial debt	12,337	11,579

Voluntary disclosure of Net Debt for WM Morrison Supermarkets (UK):

6.5 Analysis of net debt¹

	Note	2020 £m
Cross-currency interest rate swaps ³		—
Fuel and energy price contracts		—
Non-current financial assets	7.3	—
Foreign exchange forward contracts		—
Fuel and energy price contracts		1
Current financial assets	7.3	1
Bonds ³	6.3	(237)
Other short-term borrowings ³	6.3	—
Cross-currency interest rate swaps ³	7.3	(4)
Lease liabilities ³	6.4	(72)
Foreign exchange forward contracts	7.3	(17)
Fuel and energy price contracts	7.3	(15)
Current financial liabilities		(345)
Bonds ³	6.3	(1,110)
Revolving credit facility ³	6.3	2
Lease liabilities ³	6.4	(1,304)
Fuel and energy price contracts	7.3	(7)
Non-current financial liabilities		(2,419)
Cash and cash equivalents		305
Net debt¹		(2,458)

⇒ Net debt is highly positive: more liabilities than cash

C. Accounting in debt contracts

- Lenders have several options to impose control over the borrower's behaviour:
 - Collateral: hypotheek, house als waarborg, before a bank can ask for collateral It needs to be collateral (tangible asset). And the borrower must also willing collateral.
 - Interest rate:
 - Maturity
 - **Covenants:** Covenants are contract terms negotiated between borrowers (firms) and lenders (one or several banks)
 - Most big lending contracts (especially in the syndicated loan market) contain one or several covenants
 - Violating a covenant triggers rights for the lender
 - Borrowers have incentive to prevent violating a covenant

- Two main types of covenants (to know):
 - **Negative** covenants place restrictions on the borrower's actions
 - Dividend restrictions: less dividends pay more cash to repay your loan.
 - Capital expenditure
 - Restrictions
 - Limitation on top management salaries
 - Bringing organizational change in consultation with the bank
 - **Financial** covenants do not (directly) place restrictions but impose financial boundaries the borrower must respect.
 - **Credit rating-based covenants (e.g. S&P, Moody's ratings)**
 - **Capital-based covenants** (debt-to-equity ratio, leverage ratio,)
 - **Performance-based covenants** (debt-to-EBITDA, interest coverage ratio,...)

Accounting in debt contracts

Abstracted information from Davel Communication Corporation's Syndicated Revolving loan. At contract initiation the interest rate on the loan is LIBOR + 325 basis points, and the pricing grid allows for reduction in the interest rate with improvements in financial performance and has financial covenants as follows:

Performance pricing grid

Level	Debt/EBITDA ratio	LIBOR plus
1 ^a	≥ 4.50	325.00
2	≥ 4.00 < 4.50	300.00
3	≥ 3.50 < 4.00	275.0
4	≥ 3.0 < 3.50	250.0
5	≥ 2.50 < 3.0	225.0
7	< 2.5	200.0

Questions:

- Suppose the company currently has a debt/EBITDA ratio of 3.75. What is the price of the loan in this case?
 - 275.0
- What is the covenant slack the borrowing company has in this case?
 - The difference where you are and the nearest threshold, so in this case, 3.5 or 4. $2.75 - 2.5 = 0.25$ is the covenant slack.
- What is the benefit of the lower spread when the borrower's solvency position improves: a. for the borrower? And b. for the lender?
 - The borrower gets rewarded, interest expense goes down. The borrower can finance itself cheaper. The lender remains in business, because of this grill the borrower won't go to a competitor.

Debt covenants for Pernod Ricard

The Group's bank and bond debt contracts include covenants and a financial ratio. Breaches of these covenants or financial ratio could force the Group to make accelerated payments. At 30 June 2021, the Group was in compliance with the covenants under the terms of its syndicated loan, with a solvency ratio (total Net debt converted at the average rate/consolidated EBITDA) of 5.25 or less.

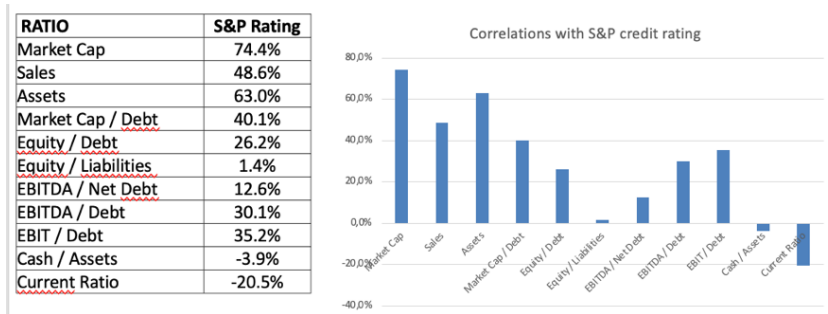
D. Credit ratings

⇒ They assess the credit risk and put companies into grid

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

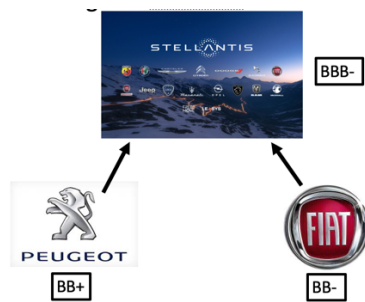
- AAA** Best credit quality—Extremely reliable with regard to financial obligations.
- AA** Very good credit quality—Very reliable.
- A** More susceptible to economic conditions—still good credit quality.
- BBB** Lowest rating in investment grade.
- BB** Caution is necessary—Best sub-investment credit quality.
- B** Vulnerable to changes in economic conditions—Currently showing the ability to meet its financial obligations.
- CCC** Currently vulnerable to nonpayment—Dependent on favorable economic conditions.
- CC** Highly vulnerable to a payment default.
- C** Close to or already bankrupt—payment on the obligation currently continued.
- D** Payment default on some financial obligation has actually occurred.

What financial ratios matter for credit ratings?



- The higher the correlation, the more important the relation between that firm characteristic and the credit rating
- It is the firm size that the significantly most correlate with credit ratings. Despite the fact that they are highly indebted. You considered to be better, less risky.

Ratings for Stellantis – Fiat – PSA



Ratings for Pernod Ricard and Diageo

- For Pernod Ricard (2019):

The credit ratings sought by Pernod Ricard from rating agencies on its long- and short-term debt are Baa2/P2 from Moody's and BBB/A2 from Standard & Poor's respectively.

- For Pernod Ricard (2020):

The credit ratings sought by Pernod Ricard from rating agencies on its long- and short-term debt are Baa1/P2 from Moody's and BBB+/A2 from Standard & Poor's, respectively.

- For Pernod Ricard (2021):

The credit ratings sought by Pernod Ricard from rating agencies on its long- and short-term debt are Baa1/P2 from Moody's and BBB+/A2 from Standard & Poor's, respectively.

For Diageo (2019, 2020 and 2021):

Ratings agencies	Moody's	S&P
LT rating	A3	A-
Outlook	Stable	Stable
ST rating	P2	A2
Date rating/outlook last changed	Oct 05	Sept 05

Ratings for Nokia

In 2015, we exercised our option to redeem our EUR 750 million convertible bonds due in 2017. The redemption led to materially all convertible bonds being converted into Nokia shares. Additionally, we refinanced our undrawn EUR 1 500 million revolving credit facility maturing in March 2016 with a new similar size facility maturing in June 2018. The new facility has two one-year extension options, no financial covenants and it remains undrawn. We believe with EUR 9 849 million cash and other liquid assets, as well as a EUR 1 500 million revolving credit facility, we have sufficient funds available to satisfy our future working capital needs, capital expenditure, R&D, acquisitions and debt service requirements at least through 2016. We also believe that with our current credit ratings of BB+ by Standard & Poor's and Ba2 by Moody's, we have access to the capital markets should any funding needs arise in 2016. Nokia aims to re-establish its investment grade credit rating.

Credit Ratings: conclusions

- The strengths of credit ratings are:
 - o Agencies do the job for you
 - o Agencies have access to proprietary information
- The disadvantages and drawbacks are

- Questionable business model as the clients pay the rating agencies to get a rating
- Seem to be stale and rusty sometimes...Not timely enough
- Black box on how ratings are compiled and changed

E. Case study : Kinopolis vs Cineworld

- Context:
 - Both firms heavily affected by the Covid-crisis
 - Cineworld, the world's second biggest cinema chain, is on the verge of bankruptcy
- Assignment: Investigate and compare these companies' solvency position in 2021.

Kinopolis vs Cineworld: inputs

<u>Key financial inputs</u>	Kinopolis	Cineworld
<u>Unit</u>	<i>Mln EUR</i>	<i>Mln USD</i>
<u>Period</u>	2021	2021
Sales	266.00	1,805.00
Equity	121	-345
ST Debt	108	717
LT Debt	833	8,512
Cash and Eq.	75	354
Operating Income	-6.55	15.80
D&A	81.00	535.00
OCF	88.90	555.00
Interest Exp.	25.70	899.20
Stock Price Dec-31-2021	54.75	0.32
# Shares (mln.)	27	1,373
Market Cap (Dec 31, 2021)	1,498	439
Market Cap (Sep 12, 2022)	1,180	40

Kinopolis vs Cineworld: ratios

<u>Key ratios and numbers</u>	Kinopolis	Cineworld
Net Debt	866	8,876
Net Debt / Equity	7.18	-25.73
Book Leverage	0.89	1.04
Market Leverage	0.39	0.95
Times Interest Earned	-0.3	0.0
Debt / EBITDA	12.64	16.76
Debt / EBIT	-143.62	584.16
Debt / OCF	10.58	16.63
Market-to-Book	12.42	-1.27

Kinepolis vs Cineworld: ratio interpretations

<u>Key ratios and numbers</u>	<u>Kinepolis</u>	<u>Cineworld</u>
Net Debt	866	8,876
Net Debt / Equity	7.18	-25.73
Book Leverage	0.89	1.04
Market Leverage	0.39	0.95
Times Interest Earned	-0.3	0.0
Debt / EBITDA	12.64	16.76
Debt / EBIT	-143.62	584.16
Debt / OCF	10.58	16.63
Market-to-Book	12.42	-1.27

Conclusions:

- Sky-high debt levels for Cineworld without profits. Investors lose faith in the survival of the firm.
- High debt levels for Kinepolis, but investors continue to believe in the long-run survival of the firm and return to profitability

F. Case study on airlines: Homework

- Case study / exercise on:
 - Credit risk analysis
 - Credit risk interpretation
 - Credit risk prediction
- Four companies in the airline industry:
 - Ryanair
 - SAS
 - Norwegian
 - Thomas Cook
- Assignment:
 - Calculate and interpret relevant credit ratios based on the 2018-2019 financial statements.
 - Make a conclusion and prediction for the likelihood of insolvency in the near future.

Ryanair: Income Statement

		Year ended March 31, 2019	Year ended March 31, 2018
	Note	€M	€M
Operating revenues			
Scheduled revenues	17	5,261.1	5,134.0
Ancillary revenues	17	2,436.3	2,017.0
Total operating revenues	17	7,697.4	7,151.0
Operating expenses			
Fuel and oil		(2,427.3)	(1,902.8)
Airport and handling charges		(1,061.5)	(938.6)
Staff costs	18	(984.0)	(738.5)
Route charges		(745.2)	(701.8)
Depreciation	2	(640.5)	(561.0)
Marketing, distribution and other		(547.3)	(410.4)
Maintenance, materials and repairs		(190.9)	(148.3)
Aircraft rentals		(83.9)	(82.3)
Total operating expenses		(6,680.6)	(5,483.7)
Operating profit		1,016.8	1,667.3
Other income/(expense)			
Finance expense	20	(59.1)	(60.1)
Finance income		3.7	2.0
Foreign exchange gain/(loss)		(3.5)	2.1
Gain on sale of associate	3	6.0	—
Share of associate losses	3	(15.8)	—
Total other income/(expenses)		(68.7)	(56.0)
Profit before tax		948.1	1,611.3
Tax expense on profit	12	(63.1)	(161.1)
Profit for the year – all attributable to equity holders of parent		885.0	1,450.2

Ryanair: Balance Sheet

		At March 31, 2019	At March 31, 2018
	Note	€M	€M
Non-current assets			
Property, plant and equipment	2	9,029.6	8,123.4
Intangible assets	4	146.4	46.8
Derivative financial instruments	5	227.5	2.6
Deferred tax	12	43.2	—
Total non-current assets		9,446.7	8,172.8
Current assets			
Inventories	6	2.9	3.7
Other assets	7	238.0	235.5
Trade receivables	8	59.5	57.6
Derivative financial instruments	5	308.7	212.1
Restricted cash	9	34.9	34.6
Financial assets: cash > 3 months		1,484.4	2,130.5
Cash and cash equivalents		1,675.6	1,515.0
Total current assets		3,804.0	4,189.0
Total assets		13,250.7	12,361.8
Current liabilities			
Trade payables		573.8	249.6
Accrued expenses and other liabilities	10	2,992.1	2,502.2
Current maturities of debt	11	309.4	434.6
Current tax	12	31.6	36.0
Derivative financial instruments	5	189.7	190.5
Total current liabilities		4,096.6	3,412.9
Non-current liabilities			
Provisions	13	135.6	138.1
Derivative financial instruments	5	8.0	415.5
Deferred tax	12	460.6	395.2
Other creditors	14	—	2.8
Non-current maturities of debt	11	3,335.0	3,528.4
Total non-current liabilities		3,939.2	4,480.0
Shareholders' equity			
Issued share capital	15	6.8	7.0
Share premium account	15	719.4	719.4
Other undenominated capital		3.2	3.0
Retained earnings		4,181.9	4,077.9
Other reserves	16	303.6	(338.4)
Shareholders' equity		5,214.9	4,468.9
Total liabilities and shareholders' equity		13,250.7	12,361.8

SAS: Income Statement

MSEK	FY18					FY19				
	Q1	Q2	Q3	Q4	Full-year	Q1	Q2	Q3	Q4	Full-year
	Nov-Jan	Feb-Apr	May-Jul	Aug-Oct	Nov-Oct	Nov-Jan	Feb-Apr	May-Jul	Aug-Oct	Nov-Oct
Revenue	8,978	9,916	13,146	12,678	44,718	9,534	10,187	13,552	13,463	46,736
Payroll expenses	-2,268	-2,355	-2,385	-2,433	-9,441	-2,401	-2,420	-2,504	-2,609	-9,934
Other operating expenses	-5,871	-6,835	-7,431	-8,201	-28,338	-6,387	-7,593	-8,050	-8,223	-30,253
Leasing costs for aircraft	-760	-765	-814	-817	-3,156	-787	-846	-985	-943	-3,561
Depreciation, amortization and impairment	-353	-374	-404	-632	-1,763	-419	-455	-548	-502	-1,924
Share of income in affiliated companies	-9	-8	29	23	35	-9	-3	1	1	-10
Income from the sale of shares in subsidiaries and affiliated companies	-4	0	0	0	-4	0	0	0	0	0
Income from sale of aircraft	104	47	26	302	479	8	0	104	0	112
Operating income (EBIT)	-183	-374	2,167	920	2,530	-461	-1,130	1,570	1,187	1,166
Income from other securities holdings	0	0	0	0	0	0	0	0	0	0
Financial income	34	30	34	31	129	44	44	43	41	172
Financial expenses	-136	-144	-167	-162	-609	-159	-130	-123	-132	-544
Income before tax (EBT)	-285	-488	2,034	789	2,050	-576	-1,216	1,490	1,096	794
Tax	36	139	-464	-166	-455	107	283	-328	-235	-173
Net income for the period	-249	-349	1,570	623	1,595	-469	-933	1,162	861	621

SAS: Balance Sheet

ASSETS, MSEK	Note	31 Oct 2019	31 Oct 2018
Fixed assets			
Intangible assets	11	1,416	1,498
Tangible fixed assets	12		
Land and buildings		569	500
Aircraft		11,609	8,767
Spare engines and spare parts		87	92
Workshop and aircraft servicing equipment		126	73
Other equipment and vehicles		93	102
Investment in progress		14	48
Prepayments relating to tangible fixed assets	13	3,071	2,658
		15,569	12,240
Financial fixed assets	14		
Equity in affiliated companies	6	14	417
Other holdings of securities		9	3
Pension funds, net	15	2,004	4,025
Deferred tax assets	10	750	174
Other long-term receivables		2,519	2,770
		5,296	7,389
Total fixed assets		22,281	21,127
Current assets			
Expendable spare parts and inventories	16	346	401
		346	401
Current receivables	17		
Accounts receivable		1,233	1,219
Receivables from affiliated companies	18	0	1
Other receivables		543	866
Prepaid expenses and accrued income	19	846	829
		2,622	2,915
Cash and cash equivalents			
Short-term investments	20	2,273	4,232
Cash and bank balances		6,490	5,524
		8,763	9,756
Total current assets		11,731	13,072
TOTAL ASSETS		34,012	34,199

SHAREHOLDERS' EQUITY AND LIABILITIES, MSEK	Note	31 Oct 2019	31 Oct 2018
Shareholders' equity			
Share capital	21	7,690	7,732
Other contributed capital		170	327
Reserves	22	112	1,241
Hybrid bond		1,500	–
Retained earnings		-4,100	-2,032
Total shareholders' equity attributable to Parent Company shareholders		5,372	7,268
Non-controlling interests		–	–
Total shareholders' equity		5,372	7,268
Long-term liabilities	23		
Subordinated loans	24	1,240	1,161
Bonds	25	3,063	3,040
Other loans	26	5,147	3,291
Deferred tax liability	10	183	359
Provisions	28	1,966	4,044
Other liabilities	29	1,926	116
		13,525	12,011
Current liabilities			
Current portion of long-term loans		784	2,272
Short-term loans	30	1,049	328
Prepayments from customers		23	13
Accounts payable		1,700	1,675
Tax liabilities		17	32
Unearned transportation liability	29	6,049	5,681
Current portion of provisions	28	1,559	1,028
Other liabilities		732	582
Accrued expenses and prepaid income	31	3,202	3,309
		15,115	14,920
TOTAL SHAREHOLDERS' EQUITY AND LIABILITIES		34,012	34,199

Norwegian Income statement

NOK million	Note	2018	2017
Revenue	4	40,265.5	30,948.3
Total operating revenue		40,265.5	30,948.3
Operational expenses	5	32,964.0	24,021.6
Payroll and other personnel expenses	6, 7, 17, 18	6,664.6	5,316.3
Depreciation and amortization	10, 11	1,667.6	1,405.1
Other operating expenses	5a	1,825.9	1,983.7
Other losses/(gains) - net	20	994.1	(432.2)
Total operating expenses		44,116.2	32,950.4
Operating profit		(3,850.6)	(2,002.1)
Interest income		117.5	71.3
Interest expense		1,159.5	958.6
Other financial income (expenses)		2,273.9	35.3
Net financial items	8	1,232.0	(852.0)
Share of profit from associated companies	25	128.5	291.9
Profit (loss) before tax		(2,490.1)	(2,562.2)
Income tax expense (income)	9	(1,036.0)	(768.5)
Profit (loss) for the year		(1,454.1)	(1,793.7)

Norwegian: Balance Sheet

<i>NOK million</i>	<i>Note</i>	2018	2017
ASSETS			
Non-current assets			
Intangible assets	10	212.3	201.4
Deferred tax asset	9	2,673.8	1,018.9
Aircraft, parts and installations on leased aircraft	11	31,064.2	25,861.9
Equipment and fixtures	11	211.4	90.5
Buildings	11	269.4	279.5
Derivative financial instruments	3, 20	3.5	31.0
Financial assets available for sale	3, 20	-	2.7
Investment in associate	25	70.3	832.6
Prepayment to aircraft manufacturers	11	8,561.3	5,219.4
Other receivables	13	1,142.4	790.0
Total non-current assets		44,208.6	34,327.7
Current assets			
Assets held for sale	11	850.6	-
Inventory	14	167.3	101.9
Trade and other receivables	13	6,752.6	4,357.6
Derivative financial instruments	3, 20	32.6	615.7
Financial assets available for sale	3, 20	-	80.0
Investments in financial assets	3, 20	2,051.8	-
Cash and cash equivalents	24	1,921.7	4,039.8
Total current assets		11,776.7	9,194.9
TOTAL ASSETS		55,985.3	43,522.7
<i>NOK million</i>	<i>Note</i>	2018	2017
EQUITY AND LIABILITIES			
Equity			
Share capital	15	4.5	3.6
Share premium	15	2,686.7	1,231.6
Other paid-in equity		132.9	127.8
Other reserves		1,011.7	641.4
Retained earnings		(2,148.6)	81.7
Shareholders' equity		1,687.2	2,086.1
Non-controlling interest		17.3	12.3
Total equity		1,704.4	2,098.4
Non-current liabilities			
Pension obligation	18	146.5	149.7
Provision for periodic maintenance	19	3,187.5	2,679.4
Other non-current liabilities	19	145.2	137.1
Deferred tax	9	614.5	0.0
Borrowings	22	22,530.0	22,060.3
Derivative financial instruments	3, 20	38.1	-
Total non-current liabilities		26,661.8	25,026.5
Current liabilities			
Borrowings	22	11,309.1	4,244.5
Trade and other payables	21	8,011.8	5,568.3
Air traffic settlement liabilities		6,907.3	6,493.6
Derivative financial instruments	3, 20	1,359.4	41.8
Tax payable		31.4	49.6
Total current liabilities		27,619.0	16,397.8
Total liabilities		54,280.8	41,424.3
Total equity and liabilities		55,985.3	43,522.7

Thomas Cook: Income Statement

	Notes	Year ended 30 September 2018		
		Underlying results £m	Separately disclosed items (Note 7) £m	Total £m
Revenue	4	9,584	-	9,584
Cost of providing tourism services		(7,629)	(22)	(7,651)
Gross profit		1,955	(22)	1,933
Personnel expenses	5	(1,015)	(56)	(1,071)
Depreciation and amortisation	12/13	(219)	-	(219)
Net operating expenses	6	(473)	(116)	(589)
Profit/(loss) on disposal of subsidiaries and fixed assets	13/32	-	41	41
Amortisation of business combination intangibles	7	-	(8)	(8)
Share of results of joint venture and associates	14	2	8	10
Profit from operations		250	(153)	97
Finance income	8	5	-	5
Finance costs	8	(129)	(26)	(155)
(Loss)/Profit before tax		126	(179)	(53)
Tax	9	-	-	(110)
(Loss)/Profit for the year				(163)

Thomas Cook: Assets

		30 September 2018 £m	30 September 2017 Restated* £m
Non-current assets			
Intangible assets	12	3,104	3,136
Property, plant and equipment			
- aircraft and aircraft spares	13	568	581
- other	13	150	139
Investments in joint ventures and associates	14	85	6
Other investments		1	1
Deferred tax assets	24	117	216
Pension asset	30	279	123
Trade and other receivables	16	83	65
Derivative financial instruments	21	14	6
		4,401	4,273
Current assets			
Inventories	15	44	42
Tax assets		-	1
Trade and other receivables	16	811	725
Derivative financial instruments	21	219	56
Cash and cash equivalents	17	1,039	1,407
		2,113	2,231
Non-current assets held for sale	32	55	101
Total assets		6,569	6,605
Current liabilities			
Retirement benefit obligations	30	(9)	(9)
Trade and other payables	18	(2,314)	(2,349)
Borrowings	19	(184)	(245)
Obligations under finance leases	20	(34)	(39)
Tax liabilities		(57)	(57)
Revenue received in advance		(1,390)	(1,363)
Short-term provisions	25	(214)	(168)
Derivative financial instruments	21	(20)	(109)
		(4,222)	(4,339)
Non-current liabilities			
Retirement benefit obligations	30	(435)	(439)
Trade and other payables	18	(24)	(25)
Long-term borrowings	19	(1,028)	(1,047)
Obligations under finance leases	20	(182)	(115)
Non-current tax liabilities		(11)	(7)
Deferred tax liabilities	24	(88)	(61)
Long-term provisions	25	(282)	(307)
Derivative financial instruments	21	(6)	(9)
		(2,056)	(2,010)
Total liabilities		(6,278)	(6,349)
Equity			
Called-up share capital	26	69	69
Share premium account		524	524
Merger reserve		1,547	1,547
Hedging and translation reserves		116	8
Capital redemption reserve		8	8
Accumulated losses		(1,965)	(1,891)
Investment in own shares		(8)	(8)
Equity attributable to equity owners of the parent		291	257
Non-controlling interests		-	(1)
Total equity		291	256

Credit Risk of Airlines: inputs

Key financial inputs	Ryanair	SAS	Norwegian	Thomas Cook
Unit	Mln EUR	Mln SEK	Mln NOK	Mln GBP
Period	Apr18-Mar19	Nov18-Oct19	2018	Oct17-Sep18
Sales (in Mln EUR)	7,697.40	4,486.66	4,026.55	10,925.76
Equity	5,214.90	5,372	1,704.40	291
ST Debt	499.1	1,833	12,668.50	218
LT Debt	3,343	9,450	22,568.10	1,210
Cash and Equivalents	1,675.60	8,763	1,921.70	1,039
Operating Income	1,016.80	1,166	-3,850.60	97
Depreciation & Amortization	640.5	1,924	1,667.60	264
OCF	2017.5	3,318	462.7	139
Interest Expense	59.1	544	1,159.50	150
Market Capitalization	13,391.56	5,829.22	7,807.35	53

Credit Risk of Airlines: Ratios

Key ratios and numbers	Ryanair	SAS	Norwegian	Thomas Cook
Net Debt	2,167	2,520	33,315	389
Net Debt / Equity	0.42	0.47	19.55	1.34
Book Leverage	0.42	0.68	0.95	0.83
Market Leverage	0.22	0.66	0.82	0.96
Times Interest Earned	17.2	2.1	<0	0.6
Debt / EBITDA	2.32	3.65	<0	3.96
Debt / EBIT	3.78	9.68	<0	14.72
Debt / OCF	1.90	3.40	76.15	10.27
Market-to-Book	2.57	1.09	4.58	0.18

Key ratios and numbers	Ryanair	SAS	Norwegian	Thomas Cook
Net Debt	2,167	2,520	33,315	389
Net Debt / Equity	0.42	0.47	19.55	1.34
Book Leverage	0.42	0.68	0.95	0.83
Market Leverage	0.22	0.66	0.82	0.96
Times Interest Earned	17.2	2.1	<0	0.6
Debt / EBITDA	2.32	3.65	<0	3.96
Debt / EBIT	3.78	9.68	<0	14.72
Debt / OCF	1.90	3.40	76.15	10.27
Market-to-Book	2.57	1.09	4.58	0.18

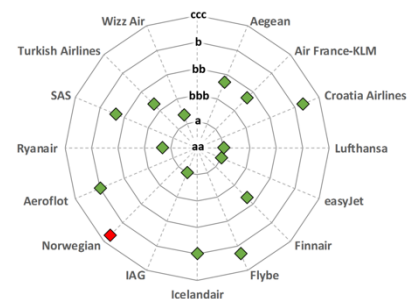
Conclusions per Firm:

- Ryanair:
 - Ratios indicate a low credit risk
 - Scores well on every indicator
 - Credit rating of BBB+ (one of the highest in the industry) confirms our analyses

- SAS:
 - Ratios indicate a medium credit risk
 - Scores favorable on many indicators, except for Debt/EBIT.
 - Profitability seems rather low compared to the debt level.
 - Very low credit rating of B+ does not entirely align with our analyses
- Norwegian:
 - Ratios indicate a very high credit risk
 - Insolvency seems just around the corner
 - Very low credit rating of B- is in line with our analyses.
- Thomas Cook:
 - Ratios indicate a high credit risk.
 - The problem seems to lie more with the lack of profitability rather than excessive amount of debt
 - Prior to its failure, the company got a B+ credit rating, same as SAS.

General Conclusion of the Case

- Ryanair faces the lowest credit risk, followed by SAS. Norwegian and Thomas Cook face substantial credit risk based on several indicators.
- For Thomas Cook, we find that some indicators, including widely used ones such as Debt/EBITDA, are not informative about credit risk.
- Debt/EBIT is the only frequently used credit risk metric that predicted trouble for SAS.



Solvency and credit risk: conclusion

- Credit risk captures the extent to which a firm is likely to meet its financial liabilities
- The most widely used solvency ratios are debt-to-EBITDA and book leverage ratio
- The most important concept regarding credit risk is net debt, or economic debt
- Credit risk can be controlled by lenders in debt contracts by means of covenants
- Bankruptcy prediction models suffer from misspecification and a lack of explanatory power
- Credit rating agencies rate credit risk of public companies thereby relying on indicators of firm size, profitability, cash flow and solvency ratios.

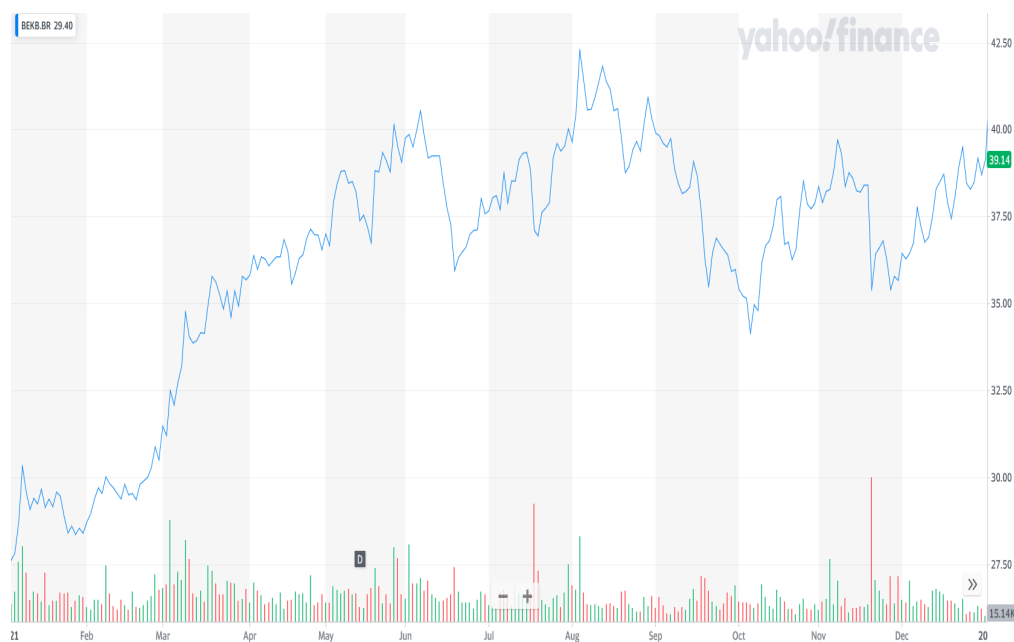
5. OPERATING INCOME: REPORTING, ANALYSIS AND INTERPRETATION

A. Analyses of income statements

Bekaert's Income Statement

in thousands of € - Year ended 31 December	2021	2020
Sales	4 839 659	3 772 374
Cost of sales	-3 953 752	-3 214 056
Gross profit	885 907	558 318
Selling expenses	-186 239	-167 141
Administrative expenses	-161 091	-133 526
Research and development expenses	-59 537	-52 361
Other operating revenues	62 940	84 659
Other operating expenses	-28 894	-33 422
Operating result (EBIT)	513 086	256 527
of which		
EBIT - Underlying	514 617	272 244
One-off items	-1 531	-15 717
Interest income	3 260	3 386
Interest expense	-44 480	-59 554
Other financial income and expenses	4 430	-30 165
Result before taxes	476 296	170 194
Income taxes	-133 296	-56 513
Result after taxes (consolidated companies)	343 000	113 682
Share in the results of joint ventures and associates	107 619	34 355
RESULT FOR THE PERIOD	450 620	148 037

Bekaert's Stock price in 2021



→ April – Mei: you know the result of 2020 end the first signals of 2021

Pfizer's Income statement

(MILLIONS, EXCEPT PER COMMON SHARE DATA)	Year Ended December 31,		
	2019	2018	2017
Revenues	\$ 51,750	\$ 53,647	\$ 52,546
Costs and expenses:			
Cost of sales ^(a)	10,219	11,248	11,228
Selling, informational and administrative expenses ^(a)	14,350	14,455	14,804
Research and development expenses ^(a)	8,650	8,006	7,683
Amortization of intangible assets	4,610	4,893	4,758
Restructuring charges and certain acquisition-related costs	747	1,044	351
(Gain) on completion of Consumer Healthcare JV transaction	(8,086)	—	—
Other (income)/deductions—net	3,578	2,116	1,416
Income from continuing operations before provision/(benefit) for taxes on income	17,682	11,885	12,305
Provision/(benefit) for taxes on income	1,384	706	(9,049)
Income from continuing operations	16,298	11,179	21,353
Discontinued operations:			
Income from discontinued operations—net of tax	4	10	(1)
Gain on disposal of discontinued operations—net of tax	—	—	3
Discontinued operations—net of tax	4	10	2
Net income before allocation to noncontrolling interests	16,302	11,188	21,355
Less: Net income attributable to noncontrolling interests	29	36	47
Net income attributable to Pfizer Inc.	\$ 16,273	\$ 11,153	\$ 21,308

We start with 2019: before covid – No vaccine effect

- Quite representative for pharmaceutical companies
- But not for normal companies:
 - o Cost of sales = 20% of sales
→ Conclusion: company is going to be huge profitable because of that
 - o Huge EBIT (34% margin)
 - o But low sales number
⇒ So, it's important to compare sales **within industries!!**
 - o SIA = 14,350: very big!
 - If you see things like that you need to explain it
 - In the most companies cost of sales much bigger than SIA but not in the pharmacy industry
 - Main part = salaries of salespeople: scientist, doctors... In the US this type of people makes a lot of money (not the people that have produced the medicines) (in the pharmaceutical the salaries are not cost of goods sales)

Pfizer's Income Statement (2021)

(MILLIONS, EXCEPT PER COMMON SHARE DATA)	Year Ended December 31,		
	2020	2019	2018
Revenues	\$ 41,908	\$ 41,172	\$ 40,825
Costs and expenses:			
Cost of sales ^(a)	8,692	8,251	8,987
Selling, informational and administrative expenses ^(a)	11,615	12,750	12,612
Research and development expenses ^(a)	9,405	8,394	7,760
Amortization of intangible assets	3,436	4,462	4,736
Restructuring charges and certain acquisition-related costs	600	601	1,058
(Gain) on completion of Consumer Healthcare JV transaction	(6)	(8,086)	—
Other (income)/deductions—net	669	3,314	2,077
Income from continuing operations before provision/(benefit) for taxes on income	7,497	11,485	3,594
Provision/(benefit) for taxes on income	477	618	(266)
Income from continuing operations	7,021	10,867	3,861
Income from discontinued operations—net of tax	2,631	5,435	7,328
Net income before allocation to noncontrolling interests	9,652	16,302	11,188
Less: Net income attributable to noncontrolling interests	36	29	36
Net income attributable to Pfizer Inc. common shareholders	\$ 9,616	\$ 16,273	\$ 11,153

No VACCIN effect: they began to sell its vaccine in 2021 (The sales are LOWER)

Pfizer's Income Statement (2021)

(MILLIONS, EXCEPT PER COMMON SHARE DATA)	Year Ended December 31,		
	2021	2020	2019
Revenues	\$ 81,288	\$ 41,651	\$ 40,905
Costs and expenses:			
Cost of sales ^(a)	30,821	8,484	8,054
Selling, informational and administrative expenses ^(a)	12,703	11,597	12,726
Research and development expenses ^(a)	13,829	9,393	8,385
Amortization of intangible assets	3,700	3,348	4,429
Restructuring charges and certain acquisition-related costs	802	579	601
(Gain) on completion of Consumer Healthcare JV transaction	—	(6)	(8,107)
Other (income)/deductions—net	(4,878)	1,219	3,497
Income from continuing operations before provision/(benefit) for taxes on income	24,311	7,036	11,321
Provision/(benefit) for taxes on income	1,852	370	583
Income from continuing operations	22,459	6,666	10,738
Discontinued operations—net of tax	(434)	2,529	5,318
Net income before allocation to noncontrolling interests	22,025	9,195	16,056
Less: Net income attributable to noncontrolling interests	45	36	29
Net income attributable to Pfizer Inc. common shareholders	\$ 21,979	\$ 9,159	\$ 16,026

⇒ VACCIN EFFECT!

- Doubled revenues
- Tripled in term of EBIT: they sold them with a pretty margin
- SIA: barely increased! => root of discussion : SIGNAL
 - ECONOMIES OF SCALE
 - It is not because your number of sales doubled that you have to double the number of people working

Pirelli's Income Statement

	Note	2019	
			of which related parties (note 44)
Revenues from sales and services	29	5,323,054	19,305
Other income	30	486,307	74,783
Changes in inventories of unfinished, semi-finished and finished products		5,584	
Raw materials and consumables used (net of change in inventories)		(1,741,249)	(4,096)
Personnel expenses	31	(1,072,167)	(14,498)
- of which non-recurring events		-	-
Amortisation, depreciation and impairment	32	(527,818)	
Other costs	33	(1,713,404)	(278,159)
- of which non-recurring events		-	-
Net impairment loss on financial assets	34	(22,266)	-
Increase in fixed assets for internal works		4,703	
Operating income / (loss)		742,744	
Net income (loss) from equity investments	35	(11,006)	
- share of net income (loss) of associates and j.v.		(9,678)	(9,678)
- gains on equity investments		1,684	
- losses on equity investments		(8,338)	
- dividends		5,526	
Financial income	36	128,761	1,160
Financial expenses	37	(238,240)	(1,049)
- of which non-recurring events		-	-
Net income / (loss) before tax		622,259	
Taxes	38	(164,562)	
- of which non-recurring events		-	-
Net income / (loss) from continuing operations		457,697	
Net income / (loss) from discontinued operations	39	-	-
Total net income / (loss)		457,697	

⇒ Profitable

- It looks not like any of the income statements that we have seen yet
 - No cost of sales and SIA
 - They look it by nature: direct material, indirect costs.
- IFRS: no fix format

Diageo's Income statement

	Notes	Year ended 30 June 2021 £ million
Sales	2	19,153
Excise duties	3	(6,420)
Net sales	2	12,733
Cost of sales	3	(5,038)
Gross profit		7,695
Marketing	3	(2,163)
Other operating items	3	(1,801)
Operating profit		3,731
Non-operating items	4	14
Finance income	5	278
Finance charges	5	(651)
Share of after tax results of associates and joint ventures	6	334
Profit before taxation		3,706
Taxation	7	(907)
Profit for the year		2,799

- You may be interested by the total amount for personnel
 - o But you will not find it due to the format!
 - o The info that you find for one company you are not obligated to find it for other companies
- ⇒ But the most companies put the information for example for the amount on personnel in the footnote

Footnote

(c) Staff costs and average number of employees

	2021 £ million	2020 £ million	2019 £ million
Aggregate remuneration			
Wages and salaries	1,336	1,251	1,344
Share-based incentive plans	50	3	50
Employer's social security	83	79	96
Employer's pension			
Defined benefit plans	82	37	61
Defined contribution plans	25	24	19
Other post employment plans	10	10	10
	1,586	1,404	1,580

Question: In which item do we find these expenses? Cost of sales? Or Marketing?

- ⇒ All the money spends on sales personnel that do the negotiation with supermarkets, sell their products... are not going to be included cost of sales but marketing
- And the rest other operating items
- ⇒ So the answer not one of those but it depends on the sort of cost: some in cost of sales some in marketing etc.
- Partly cost of sales (the people that have contributed to the production of your product)
- But the people that sells your product to Carrefour f.e. are not part of the cost of sales but in each of these 3 items SIA.

B. Operating income items in detail

Income statement: overview

- Revenues
- R&D
- Restructuring expenses
- Selling, general and administrative expenses
- Non-controlling interest
- Earnings per share

1. Revenues

- **Revenue recognition criteria**
 - o realized or realizable, and
 - o earned
 - **Realized or realizable** means that the goods have been shipped and title passes to the customer
 - **Earned** means that the seller has performed its duties under the terms of the sales agreement
 - Accruals involved
 - o accounts receivable: the accrual that appears when the cash payments than the initial revenue recognition
 - o unearned revenues: that's when the cash payments precede/before the revenues are recognised. F.e. airlines
 - Revenues => when the seller has done his duties: even if you don't have ever paid me! So no cash basis
 - o For the supermarket: no accrual, it is at the same time
- ⇒ Accrual: there is a discrepancy between the receiving and earnings

Revenue Recognition Criteria

- What about long-term sales contracts?
 - o Long-term sales contracts: f.e. construction companies
- You recognise your revenue when the client has paid and go with the goods (this is for supermarkets) but not with long term contracts

Example: Raytheon company => percentage of completion method

- It is based on the extend of progress!
 - Cost of cost measure of progress of all of our long-term contracts
 - The ratio: the cost that we have made on our contract to date / the total estimated cost
- ⇒ When we talk about **estimated** we must put attention: **INCERTENTY**

Example of the percentage of completion technique

- Sales value of the LT contract of a building = 2,000,000
- Expected time to finish is 24 months, starting on Jan 1, 2021.
- **Question: How much of the revenues will we recognize on Dec 31, 2021 AND 2022?**
- What is *irrelevant*?
 - o What the client has already paid for the building (relevant for the cash inflow and outflow but not for the revenue recognition)
- What is relevant?
 - o The extent to which the building is completed on Dec 31, 2021.

- This proportion is estimated by comparing the total costs incurred over the total ESTIMATED costs to finish the building
- Suppose costs incurred are 900,000 and we expect to finish the building by spending an additional 900,000 in 2022 → percentage of completion = 50%.
- In this case 50% of the 2,000,000 will be recognized in 2021.
 - 2,000,000 will be recognized in 2021 regardless how much the customer has already paid.
- What if the true additional amount of expenses is not 900,000, but 1,000,000?
 - We will not recognize any profits in 2022, because we under(over)-estimated the additional expenses (the percentage of completion).
 - If we underestimate: we have recognized too many revenues, and it will have impact on '22

Accuracy of the estimate of completion is vital. If you underestimate your revenues, you will show lower income in your statement.

Long-term sales contracts are an additional source of volatility in operating income. It is not only a story of underestimate and overestimate, but it is also a source of volatility. It is an additional risk that you show to your investors.

Unearned Revenues

- Deposits or advance payments are not recorded as revenue until the company performs the services owed or deliver the goods
- Until then, the company's balance sheet shows the advance payment as a liability (called unearned revenue or deferred revenue). Defer = postpone a revenue.

For air France – KLM (2021) :

		2021	2020	2019
Current return obligation liability and other provisions	32	885	1,337	714
Current financial liabilities	33	1,215	1,318	842
Current lease debt	34	825	839	971
Current derivative financial liabilities	39	46	363	154
Trade payables		1,850	1,435	2,379
Deferred revenue on ticket sales	36	2,644	2,394	3,289
Frequent flyer programs	37	888	916	848
Other current liabilities	38	3,369	3,175	3,448
Bank overdrafts	29	4	1	4
Total current liabilities		11,726	11,778	12,649

- Accrual that appears when you pay for it first and the seller provides it at a later time
- F.e. airlines => you pay for their flight upfront and airline have done nothing for you
 - cash that they have earned: unearned revenues: liabilities: they owe you a flight
- Get more credit of the client than their suppliers.
- Economic interpretation of 2,6 for air France
- If all client of Air France would pay for the flight ticket on the date that the flight takes place
 - The number would be 0
- When you pay for an airplane ticket you don't have an interest: so it's a free credit for Airfrance (do not take into account the inflation of the price tickets)

Unearned Revenues for Apple

	2021	2020
LIABILITIES AND SHAREHOLDERS' EQUITY:		
Current liabilities:		
Accounts payable	\$ 54,763	\$ 42,296
Other current liabilities	47,493	42,684
Deferred revenue	7,612	6,643
Commercial paper	6,000	4,996
Term debt	9,613	8,773
Total current liabilities	125,481	105,392
Non-current liabilities:		
Term debt	109,106	98,667
Other non-current liabilities	53,325	54,490
Total non-current liabilities	162,431	153,157
Total liabilities	287,912	258,549

What is the source of deferred revenues for Apple?

Deferred Revenue

As of September 25, 2021 and September 26, 2020, the Company had total deferred revenue of \$11.9 billion and \$10.2 billion, respectively. As of September 25, 2021, the Company expects 64% of total deferred revenue to be realized in less than a year, 26% within one-to-two years, 8% within two-to-three years and 2% in greater than three years.

- (1) Products net sales include amortization of the deferred value of unspecified software upgrade rights, which are bundled in the sales price of the respective product.

- Above: short time side
- Under: long time side
- Nature of unearned revenues:
 - o It has not much to do with iPhones and iPads
 - o Prepay for services for example cloud services: services that apple has not delivered to you but you have paid upfront

Unearned Revenues for Microsoft:

Microsoft reports \$34 billion of unearned revenues:

Unearned revenue comprises mainly unearned revenue from volume licensing programs, as well as payments for undelivered elements and for other offerings for which we earn the revenue when we provide the service or software or otherwise meet the revenue recognition criteria.

Volume Licensing Programs

Unearned revenue from volume licensing programs represents customer billings for multi- year licensing arrangements paid either at inception of the agreement or annually at the beginning of each billing coverage period and accounted for as subscriptions with revenue recognized ratably over the billing coverage period.

Undelivered Elements

Undelivered elements consist mainly of payments for unspecified upgrades or enhancements of Microsoft Internet Explorer on a when-and-if- available basis for Windows XP, and technology guarantee programs.

Microsoft even higher amount of unearned revenue

- Software: when you pay for it you pay also for the upgrades:

- The upgrade is not here but they will come so you must put it in your unearned revenues
- But it is an estimate!! (Based on previous years) for 3 years

Intersegment Revenues

For Mercedes (previously Daimler) (2020):

	Mercedes-Benz Cars & Vans	Daimler Trucks & Buses	Daimler Mobility	Total Segments	Recon- ciliation	Daimler Group
In millions of euros						
2020						
External revenue	95,247	33,246	25,816	154,309	-	154,309
Intersegment revenue	3,329	1,425	1,883	6,637	-6,637	-
Total revenue	98,576	34,671	27,699	160,945	-6,637	154,309

For Pernod Ricard (2021):

At 30.06.2021 € million	Americas	Asia/Rest of World	Europe	Total
Income statement items				
Segment net sales	3,794	5,494	4,185	13,473
c/w intersegment sales	1,167	1,854	1,628	4,649
Net sales (excluding Group)	2,627	3,640	2,557	8,824

- Intersegment revenue: they buy and sell to another division within the company.
- What you find on income statement is always the External revenue! Not the total revenue
- F.e: Car division: build a car and sell it to another division within the company
 - o Trucks : You know what they will do: they will put it in the truck and sell it somebody outside of the company.
 - o So, it will also be in the revenue for Trucks! So here double accounting: so on the income statement only external revenue (otherwise double accounting)

For Samsung:

For Samsung:

(1) For the year ended December 31, 2020

(In millions of Korean won)	CE	IM	DS			Harman	Total ¹	Intercompany elimination	Consolidated
			Total ¹	Semiconductor	DP				
Total revenue	110,116,900	208,211,782	211,477,724	142,840,934	65,824,403	10,298,318	542,059,756	(305,252,768)	236,806,988
Intercompany revenue	(61,943,576)	(108,624,289)	(108,441,578)	(69,983,131)	(35,238,688)	(1,114,570)	(305,252,768)	305,252,768	-
Net revenue ²	48,173,324	99,587,493	103,036,146	72,857,803	30,585,715	9,183,748	236,806,988	-	236,806,988
Depreciation	582,929	855,573	24,330,737	18,124,847	6,183,077	264,928	27,115,735	-	27,115,735
Amortization	76,270	1,394,396	1,321,305	1,053,892	257,446	233,518	3,219,881	-	3,219,881
Operating profit	3,561,536	11,472,671	21,120,231	18,804,970	2,236,919	55,518	35,993,876	-	35,993,876

- Total revenues: 542 trillion
- But great intercompany company: they buy and sell more from each other that Samsung sell to external
- Samsung do everything itself! Apple do not do anything themselves!
 - o Complete different strategy
- ⇒ The numbers of a company can tell you more about the strategy of a company!

2. Research and Development Expenses

- General accounting rule: all R&D expenditures/investments are expensed as incurred.
- Why?
 - Capitalization and depreciating/amortizing R&D costs is not advisable as the depreciation or amortization period is arbitrary
 - Future economic benefits highly uncertain
- ⇒ R&D = investment => So you would put it on the balance sheet
 - But it is not the case for R&D → It entails future economic benefits but when you do not can estimate them you cannot put them on the balance sheet.
- Exceptions: (you don't need to know them)
 - When the generated assets have alternative futures uses (in other R&D) projects or otherwise
 - For example: a general research facility housing multi-use lab equipment is capitalized and depreciated like any other depreciable asset. However, project-directed research buildings and equipment with no alternative uses must be expensed.
 - Software
- Recommendations for analysis:
 - Compare R&D/sales for peer companies
 - Not with assets! Because they have not the same place/ not balance sheet
 - Evaluate discussion of R&D effectiveness in the MD&A, financial press, and company communication.

Mercedes' Reporting of R&D

	Note	2021
In millions of euros		
Revenue	5	133,893
Cost of sales	6	-103,218
Gross profit		30,675
Selling expenses	6	-9,194
General administrative expenses	6	-2,808
Research and non-capitalised development costs	6	-5,467
Other operating income	7	2,888
Other operating expense	7	-1,735
Profit on equity-method investments, net	14	1,352
Other financial income/expense, net	8	317
Earnings before interest and taxes (EBIT)	35	16,028

R&D



- Non capitalized development cost
→ So there is a part that has been capitalized
- Mercedes report specific on his R&D
- BMW do not report specific on R&D

BMW's Reporting of R&D

	Note	2021
in € million		
Revenues	7	111,239
Cost of sales	8	-89,253
Gross profit		21,986
Selling and administrative expenses	9	-9,233
Other operating income	10	1,702
Other operating expenses	10	-1,055
Profit / loss before financial result		13,400
Result from equity accounted investments	24	1,520
Interest and similar income	11	135
Interest and similar expenses	11	-165
Other financial result	12	1,170
Financial result		2,660
Profit / loss before tax		16,060

R&D



- R&D in cost of sales → exception
 - ⇒ But not in the the car industry
 - ⇒ Most companies do like Mercedes

Footnote 8

08 Cost of sales

Cost of sales comprises:

in € million	2021	2020
Manufacturing costs	51,361	46,878
Cost of sales relating to financial services business	26,409	27,114
thereof: interest expense relating to financial services business	1,643	1,960
Research and development expenses	6,299	5,689
Expenses for service contracts, telematics and roadside assistance	1,591	1,411
Warranty expenditure	2,192	2,971
Other cost of sales	1,401	1,345
Cost of sales	89,253	85,408

R&D = 5.7% of sales

R&D is part of the cost of sales

6% is not that high

Under IFRS

- IFRS distinguishes between research and development
- Development is required to be capitalized under specific conditions

IFRS INSIGHT Research and Development Expenses and IFRS

IFRS accounts for research costs and development costs separately. Research costs are always expensed. Development costs must be capitalized if all of the following conditions are affirmed:

- Technical feasibility of completing the intangible asset.
- Intention to complete the intangible asset.
- Ability to use or sell the intangible asset.
- Intangible asset will generate future economic benefits (the company must demonstrate the existence of a market or, if for internal use, the usefulness of the intangible asset).
- Availability of adequate resources to complete development.
- Ability to measure reliably the expenditure attributable to the intangible asset during its development.

U.S. GAAP allows for capitalization of costs related to the development of software for sale to third parties once the software achieves "commercial feasibility," but is silent on the capitalization of other intangible assets—thus, implicitly prescribing expensing of these assets.



- US GAAP: all your R&D is expense
- IFRS distinguishes between R&D
- All of the R is expensed but not so for the D
- That amount that you spend on Developments projects, when it is sufficient tangible, probable that the project will be executed etc. than the money spend must be capitalized. (And you put it on the balance sheet)
- Development is required to be capitalized under specific conditions

BMW's reporting of R&D

Research and development expenses are as follows:

in € million	2021	2020
Research and development expenditure	6,870	6,279
New expenditure for capitalised development costs	- 2,506	- 2,300
Amortisation	1,935	1,710
Research and development expenses	6,299	5,689

➤ Interpretation?

➤ From a financial analysis standpoint, why is this an important footnote?

- R&D = 6870
- Difference between R&D expense and R&D expenditure
- 6870 R&D expenditure, this the amount of € that BMW spend on R&D in 2021
- Part of it goes to the income statement (so the R and part of the D)
- And another part goes to the balance sheet => capitalized. (Development cost)
- Capitalized means that you put it on the balance sheet, and you depreciate it.

RELEVANT FOR EXAM

If BMW will report on US gaap and not in IFRS? WHAT will be its R&D expense?

⇒ It will be 6870, under us gaap, everything that you spend on R&D is expensed.

IMPORTANT:

- R&D expense 6,299 => you find in income statement
- But BMW makes a diff between expenditure and expenses! So it not the same
 - It has to do with IFRS
 - 6,870 : amount of euro that BMW spent in R&D in 2021
 - Part of is goes to the income statement: R and part of the D 4,364
 - But you need to add amortization: 1,935 : amortization of previous capitalized development expenses !
=> 6,299
 - Another part goes to the balance sheet: capitalized D
 - New expenditure for capitalized development: so it goes on the balance sheet 2,506

From a financial analysis standpoint, why is this an important footnote? (Verry important)

- ⇒ if BMW would not report under IFRS but under US GAP R&D would be 6,870
- ⇒ Ebit is less affected because it swallows everything of expenditure
- ⇒ Europe sees better!
 - It does not matter when you keep your R&D constant but it do matter when it increases or decreases.

3. Restructuring expenses

- Restructuring expenses are usually big and create a one-time drop in earnings
- Accounting rules require a separate line in the IS or a footnote
 - So you can not hide
- Restructuring costs typically consists of 3 components:
 - Employee severance (firing expenses) or relocation costs (=severance pay)
 - Asset write-downs
 - Other (i.e., contract termination costs, legal expenses, etc)
- Accounting principle is similar to a provision:
 - Another example of how earnings are inherently more forward-looking than cash flow measures are
 - Usually, restructuring expenses decrease taxable income in financial reporting, but not in the tax reporting

4. Selling, general and administrative expenses

Apple (2021):

	September 25, 2021
Net sales:	
Products	\$ 297,392
Services	68,425
Total net sales	365,817
Cost of sales:	
Products	192,266
Services	20,715
Total cost of sales	212,981
Gross margin	152,836
Operating expenses:	
Research and development	21,914
Selling, general and administrative	21,973
Total operating expenses	43,887
Operating income	108,949

SG&A = 6% of sales



Pernod Ricard (2021):

€ million	30.06.2020	30.06.2021
Net sales	8,448	8,824
Cost of sales	(3,361)	(3,531)
Gross margin after logistics expenses	5,086	5,293
Advertising and promotion expenses	(1,327)	(1,363)
Contribution after advertising and promotion	3,759	3,930
Structure costs	(1,496)	(1,477)
Profit from recurring operations	2,263	2,453
Other operating income/(expenses)	(1,283)	(82)
Operating profit	978	2,381

SG&A = 33% of sales

- SG&A : All money that companies spend but that have nothing to do with the production of the product itself but with everything around your operations.
- When you analyze companies
 - o Compare cost of sales versus SG&A

Apple:

- 22 billion which is compare to his sales is ridiculous less then 6%
- Make sales: not many commercials (media that do it but apple doesn't pay for it)

Pernod Ricard:

- together 33% of sales
 - ⇒ When a firm is in a crisis and needs to engage in cost cutting on average it turns out to be the case that is much easier to cut back costs of sales then SG&A
 - ⇒ SG&A are more fixed costs on the short term
 - ⇒ We don't look at variable – fixed but unavoidable and avoidable costs
 - ⇒ SG&A are more unavoidable cost than cost of sales

When you look at a company you look at his numbers and at red flags

Pernod Ricard will have difficulted time of cutting cost of sales.

- If other companies like Pernod Ricard also have 33% it is not a big problem
- But if you have a company with 33% but the average of the companies in the same industry = 15% : red flag : abnormal high compared in the industry
- company with 33% will have more difficult to engage cost cutting
- ⇒ potential risk factor

Period expenses, all of the money that the company spend that have nothing to do with the production of the product itself but with everything around your operations. Wages of salespeople, advertising, money spend on IT.... when you analyse an income statement look at the cost structure of the company. Cost of sales vs SGA.


When a firm needs to engage in cost cutting on average it is much easier to cut back on the cost of sales than it is on the SGA. SGA much more fixed cost on ST. cost of sales more variable on ST.

SGA turns out to be more unavoidable on the ST than cost of sales.

Firms with an abnormally high, compared to the industry, amount of expensed or ù of expensed may find it much harder to cost cutting.

If you manage to decrease your cost with 10% your net income will increase with 100%.

Bekaert's Income Statement

Bekaert's Income Statement			
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		-28 894
Operating result (EBIT)	256 527	+ 100%	513 086

⇒ Costs of good sales: Margin grows up (good news!)

- SG&A : +15%

- It is expanding so it has to increase SG&A but not in the same amount of 28%
- Economies of scale! Lot more sales without spending lot more on SG&A

EX.

S	110	110
C	100	90
I	10	20

➔ GOES UP BY 100% : cost cutting matters !!

Conclusions and insights from cost analysis?

- Changes in cost of sales usually follow more or less changes in sales. Bekaert manages to realize higher increase in sales than in cost of sales
- Short-term increases in sales do not necessarily require immediate require immediate increases in SG&A
- Bigger increases in sales than in expenses have exponential effects on earnings

Bekaert (2019 → 2020)

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

Revenues decrease by 13%;
COGS decrease by 15%!
→ Gross profit increases by 6%

SG&A decrease a bit (5%)
→ Operating income increases by 65%!

⇒ Economies of scales !!

Vestas Wind Systems

mEUR	Note	2018	2017
Revenue	1.1, 1.2	10,134	9,953
Production costs	1.3, 1.4, 2.2	(8,503)	(7,990)
Gross profit		1,631	1,963
Research and development costs	1.3, 1.4	(229)	(235)
Distribution costs	1.3, 1.4	(189)	(229)
Administration costs	1.3, 1.4	(254)	(269)
Operating profit (EBIT) before special items		959	1,230

Revenues increase;
COGS increase more
→ GP decreases

SG&A decrease
= Economies of scale

⇒ SG&A decrease and it reduces the negative impact of increased costs

⇒ Here there is some negative news and good news

○ still negative effect

BARCO

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		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)	10,180	110,038

But it also goes the other way around!

➤ Revenues decrease by 29%

➤ COGS decrease by 26%

➤ SG&A decrease by 18%

➤ Operating income sinks by 90%

- ⇒ Some bad news but it is still oke
- ⇒ But SG&A decreases only by 18%
- ⇒ So EBIT down with 90%

BASF

Statement of income

Million €

	2019	2018 restated*
Sales revenue	59,316	60,220
Cost of sales	(43,061)	(42,914)
Gross profit on sales	16,255	17,306
Selling expenses	(7,912)	(7,715)
General administrative expenses	(1,310)	(1,356)
Research and development expenses	(2,158)	(1,994)
Other operating income	2,095	1,812
Other operating expenses	(3,034)	(2,348)
Income from companies accounted for using the equity method	116	269
Income from operations	4,052	5,974

Revenues decrease by 1.5%
COGS remain constant;
while SG&A increase by 1.7%

Operating income drops by 32%

- It seems harmless but the EBIT drops with 32%
 - ⇒ Innocent increase in expenses but drop in EBIT is high

Apple

	September 25, 2021	September 26, 2020
Net sales:		
Products	\$ 297,392	\$ 220,747
Services	68,425	53,768
Total net sales	365,817	274,515
Cost of sales:		
Products	192,266	151,286
Services	20,715	18,273
Total cost of sales	212,981	169,559
Gross margin	152,836	104,956
Operating expenses:		
Research and development	21,914	18,752
Selling, general and administrative	21,973	19,916
Total operating expenses	43,887	38,668
Operating income	108,949	66,288

Revenues increase by 35%
COGS increase by 26%
SG&A increase by 10%
The result? → Operating income jumps by 64%

- ⇒ Efficiency

5. non-controlling interests

- Non-controlling interests or minority interests relate to shares held by other shareholders than the mother company's shareholder (e.g. through acquisitions)

For Mercedes (2021):

	2021	2020
Net profit	23,396	4,009
thereof profit attributable to non-controlling interests	390	382
thereof profit attributable to shareholders of Mercedes-Benz Group AG	23,006	3,627
thereof continuing operations	10,695	3,656
thereof discontinued operations	12,311	-29

For Pernod Ricard (2021):

	30.06.2020	30.06.2021
NET PROFIT	350	1,318
o/w:		
• non-controlling interests	21	13
• attributable to owners of the parent	329	1,305

Mother company: takes over some small companies: x – y – z

- Usually you take 100% of the share
- But it can be the case that you take only 98% of company Y
 - o 2% shareholders that are part of the entire company of Mercedes but that are not part of the parent company of Mercedes
 - so they have to report to the parent company
 - o Non-controlling interest: the 2% in the example : shareholder in subsidiary .. But not in parent company
- 0 for apple because apple is big by selling smartphones not by buying other companies.
- Especially found in companies with (complex) group structures.
 - o Example: LVMH (2021 – Balance sheet)

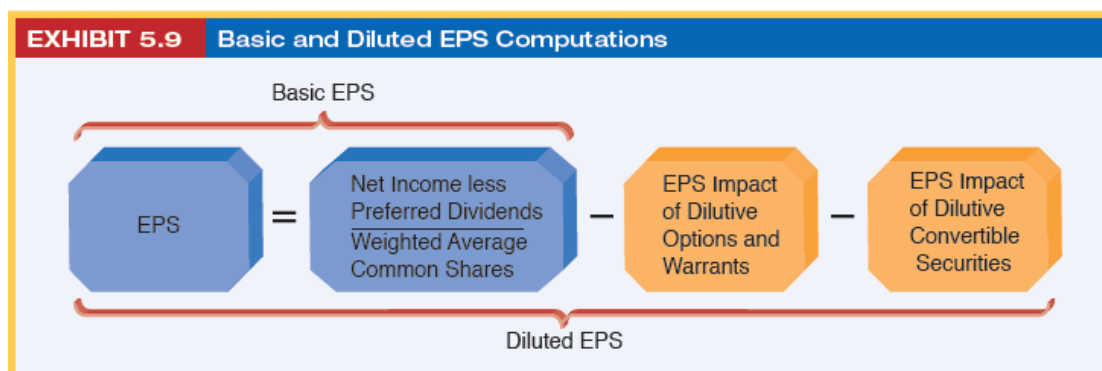
LIABILITIES AND EQUITY	Notes	2021	2020
(EUR millions)			
Equity, Group share	16.1	47,119	37,412
Minority interests	18	1,790	1,417
Equity		48,909	38,829

• Footnote 18:

(EUR millions)	2021
As of January 1	1,417
Minority interests' share of net profit	662
Dividends paid to minority interests	(428)
Impact of changes in control of consolidated entities	397
Impact of acquisition and disposal of minority interests' shares	(211)
Capital increases subscribed by minority interests	12
Minority interests' share in gains and losses recognized in equity	101
Minority interests' share in stock option plan-related expenses	6
Impact of changes in minority interests with purchase commitments	(166)
As of December 31	1,790

- LVMH bought a lot of companies
 - ⇒ Not only in your earnings but also in equity
 - o Look at footnote for information

6. Earnings per share



- What is dilution? What is the difference between basic EPS and diluted EPS?
 - Basic eps= net income/actual number of shares
 - Diluted EPS = bond that give you the option to buy a share, they may increase the number of shares the firm have. Net income/maximum number of shares a firm may have if everything is converted. It is a fictive number

EPS = Earnings per share

= Net income / Common share outstanding

→ not 1 Earning Per Share number but 2

- Basic ESP: NI/ Actual number of shares
- Diluted ESP: NI / maximum number of share that firm may maximum have on the end of a period
 - Fictive number
 - But it happens to be the case that companies have certain contracts that gives the company the right to convert into shares for example: convertible bonds and options → they may increase the number of shares

Example LVMH

28. EARNINGS PER SHARE

	2021	2020	2019
Net profit, Group share (EUR millions)	12,036	4,702	7,171
Average number of shares outstanding during the fiscal year	504,757,339	505,000,128	505,281,934
Average number of treasury shares owned during the fiscal year	(1,129,631)	(1,320,856)	(2,063,083)
Average number of shares on which the calculation before dilution is based	503,627,708	503,679,272	503,218,851
Basic earnings per share (EUR)	23.90	9.33	14.25
Average number of shares outstanding on which the above calculation is based	503,627,708	503,679,272	503,218,851
Dilutive effect of stock option and bonus share plans	267,884	530,861	620,691
Other dilutive effects	-	-	-
Average number of shares on which the calculation after dilution is based	503,895,592	504,210,133	503,839,542
Diluted earnings per share (EUR)	23.89	9.32	14.23

The LVMH share repurchase program that began on December 21, 2021 ended on January 14, 2022 (see Note 16); the LVMH shares acquired under this program are taken into account in the table above. No other events occurred between December 31, 2021 and the date at which the financial statements were approved for publication that would have significantly affected the number of shares outstanding or the potential number of shares.

- Verry small difference
- Even if all shares are used the EPS will still be the same
 - And that's what people focus on
 - Use: potential number of shares

6. CURRENT ASSETS : LIQUIDITY ANALYSIS

A. Inventories + COGS

- Inventory costs are reported on the balance sheet when the product is not sold yet.
- These costs are transferred to the income statement as an expense (**cost of goods sold**) to match against sales or revenues.
- This process is an illustration of the **matching principle** in accounting.
- Inventories is another example of an **accrual** account.
- Which expenses get into inventories and subsequently in cost of goods sold?
 - o **Raw materials** cost is relatively easy to compute. Design specifications list the components of each product, and their purchase costs are readily determined.
 - o **Labor cost** in a unit of inventory is based on how long each unit takes to build and the rates for each labor class working on that product. (Direct labor!)
 - o **Overhead costs** include the manufacturing plant depreciation, electricity, water, handling of materials, plant supervisory personnel, and so forth
 - You cannot directly trace it back. For example, you don't know how much electricity went to the product

Mercedes' Inventories

	2021	2020
In millions of euros		
1. Raw materials and manufacturing supplies	2,488	3,010
2. Work in progress	3,969	3,629
3. Finished goods, parts and products held for resale	14,829	19,675
Advance payments to suppliers	180	130
	21,466	26,444

- Raw materials
- Work in progress
- Finished goods



3 main sub-accounts in Inventories

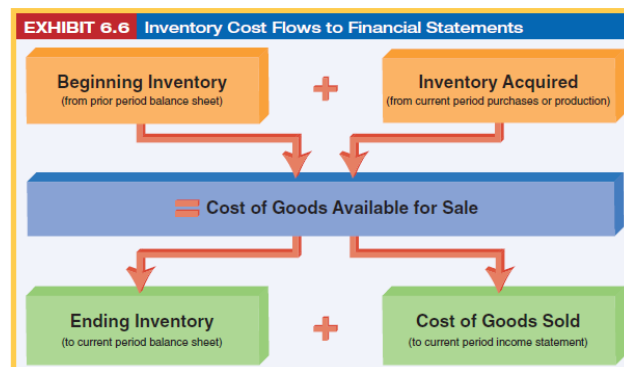
Pernod Ricard's inventories

€ million	30.06.2020	Change in gross values	Change in impairment	Foreign currency gains and losses	Other movements	30.06.2021
Raw materials	173	3	-	(1)	2	177
Work in progress	5,183	214	-	85	4	5,486
Goods in inventory	580	76	-	(10)	-	646
Finished products	296	32	-	(3)	6	331
GROSS VALUE	6,232	325	-	72	11	6,641
Raw materials	(11)	-	(5)	(0)	-	(16)
Work in progress	(23)	-	(5)	(0)	(1)	(29)
Goods in inventory	(16)	-	(7)	(0)	(0)	(23)
Finished products	(15)	-	(3)	0	1	(17)
IMPAIRMENT	(65)	-	(20)	(0)	-	(86)
NET INVENTORIES	6,167	325	(20)	72	11	6,555

4 sub-accounts in inventories

- What is "goods in inventory"?
 - o Empty bottles
- Why is "Work-in-progress" so high?
 - o 1/6 of the total balance sheet: the most important part of assets
 - o It takes year to develop liquor

Inventory Cost Flows to Financial Statements



→ The problem here is what number are we going to give to the number of costs of goods sold: what are going to be the expenses that we estimate that we have incurred for the cars that we have sold in this period.

Inventory Costing Methods

1. *First-In, First-Out (FIFO)*. This method assumes that the first units purchased are the first units sold.
2. *Last-In, First-Out (LIFO)*. The LIFO inventory costing method assumes that the last units purchased are the first to be sold.
3. *Weighted Average*. The average cost method assumes that the units are sold without regard to the order in which they are purchased. Instead, it computes COGS and ending inventories as a simple weighted average.

Inventory Costing Methods: Example

	Date	Units	Unit Cost/Price	Total Expense
Beginning Inventory	1-Jan-21	200	100 EUR	20,000
Inventory Produced or Purchased	in 2021	500	120 EUR	60,000
Goods Available-for-sale	in 2021	700		80,000
Inventory Sold	in 2021	600	200 EUR	120,000
Under FIFO:				
Sales	120,000			
Cost of goods sold	68,000 (200X100 + 400X120)			
Gross Profit	52,000			
Under LIFO:				
Sales	120,000			
Cost of goods sold	70,000 (500X120 + 100X100)			
Gross Profit	50,000			
Under Weighted Average:				
Sales	120,000			
Cost of goods sold	68,574 (600X114.29)			
Gross Profit	51,426			

Average cost = 80,000 / 700 units = 114.29 EUR / unit

! Inventories has nothing to do with the sales price! It has everything to do with the amount of money that you spent for producing the inventory!

Inventory Costing Effects on Cash Flows

- LIFO is only not allowed under IFRS!
 - o FIFO is the closest to the reality
- But it is allowed under US GAAP... and widely practiced
- One reason frequently cited for using LIFO is the reduced tax liability (when prices increase).

- Under US GAAP, companies using LIFO are required to disclose the amount at which inventories would have been reported if it had used FIFO.
- The difference between these two amounts is called the **LIFO reserve**.
- Why are firms reporting under LIFO required to show their LIFO reserve?
 - o To show better and more relevant information to investors

Ford's LIFO Reserve

NOTE 12. INVENTORIES

All inventories are stated at the lower of cost and net realizable value. Cost for a substantial portion of U.S. inventories is determined on a last-in, first-out ("LIFO") basis. LIFO was used for 30% of total inventories at both December 31, 2016 and 2017. Cost of other inventories is determined by costing methods that approximate a first-in, first-out ("FIFO") basis.

Inventories at December 31 were as follows (in millions):

	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

- The use of LIFO has reduced the carrying amount of 2017 inventories by 899 million USD.
- This difference, referred to as the LIFO reserve, is the amount that must be added to LIFO inventories to adjust them to their FIFO value.

→ Interpretation? If Ford would have done FIFO in the place of LIFO, the difference would be +/- 900 million dollars and the cost of sales would be lower by 900 million and also the pretax income. => 3000 / 4000 millions dollar cumulative tax saving by using LIFO.

NOTE 12. INVENTORIES

All inventories are stated at the lower of cost or net realizable value. Inventories at December 31 were as follows (in millions):

	2017	2018
Raw materials, work-in-process, and supplies	\$ 4,397	\$ 4,536
Finished products	6,779	6,684
Total inventories	\$ 11,176	\$ 11,220

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Company changed its method of accounting for U.S. inventories to a first-in, first-out basis from a last-in, first-out basis in 2018.

→ In 2018 the LIFO reserve has disappeared: All the inventories are now valued by FIFO and if you change you need to talk about it, here we see it in the footnote. They know that there is a danger/ threat that US GAAP is going to no longer allow LIFO. This could make a sudden increase in tax liabilities. In that period the tax was low for Ford because of the shift in regime, so it was the right moment to switch. The big tax that they would have paid because of LIFO is countered by the lower tax regime.

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 are reflected as an expense on 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.
 - But inventory impairment are extremely rare
- This principle is described as the inventories are valued on the balance sheet at the lower of cost or market.
- Inventory write-downs are rare. Why?
 - Because what is reflected in your inventory is product expenses and the sales prices/ market value needs to go below the product expenses and that is when your product is really really unpopular what is unlikely the case.

Analysis : Inventory Turnover

- Inventory Turnover (IT) = Cost of goods sold / Average Inventory
 = The number of times you sell you inventory in one year
- Average inventory Days outstanding (AIDO)
 = Inventory / Average daily COGS (COGS/365)
 = AIDO = 365 / IT

Example :

- For Apple: $IT = 212,981 / [(6,580+4,061)/2] = 40 \text{ times}$
 $AIDO = 5,320.5 / (212,981 / 365) = 9 \text{ days}$
 → If Apple starts producing an iPhone today, 9 days later it is sold.
- For Pernod Ricard: $IT = 3,531 / 6,361 = 0.55 \text{ times}$
 $AIDO = 365 / 0.55 = 658 \text{ days}$
- For Pirelli: ??????
 ○ You cannot calculate in the same way because the income statement is different
 ⇒ Always compare within industry or peers

Example of car manufacturers (2021):

- For Mercedes: $IT = 4.31$
 AIDO = 85 days
- For BMW: $IT = 5.79$
 AIDO = 63 days
- For Renault: $IT = 7.19$
 AIDO = 51 days
- For VW: $IT = 4.63 \text{ days}$
 AIDO = 79 days

→ If Mercedes start to produce a car today the car is produced and sold in 85 days (e.g., Mercedes)

Analysis: gross Profit Margin

- Gross profit margin = (Sales – COGS)/sales
- A decline in GPM is usually a cause for concern:
 - o It indicated that the company has less ability to mark up the cost of its products into selling prices
 - o Core operations become less profitable; company becomes less efficient
- Reasons for a declining GM?
 - o New competitors enter the market
 - o General decline in economic activity
 - o Commodities become more expensive
 - o Less efficient labor in production
 - o Higher labor protection
- Examples – GMPS for:
 - o Apple: 42%
 - o LVMH: 68%
 - o Pernod Ricard: 60%

→ Better not use this to compare with other companies, it is a good ratio but don't compare this with other firms.

Gross Profit Margin for BMW versus Mercedes

GPM of Mercedes:

	Note	2021	2020
In millions of euros			
Revenue	5	133,893	121,778
Cost of sales	6	-103,218	-101,592
Gross profit		30,675	20,186
		23%	17%

GPM of BMW:

in € million	Note	2021	2020
Revenues	7	111,239	98,990
Cost of sales	8	-89,253	-85,408
Gross profit		21,986	13,582
		GPM= 20%	14%

Is Mercedes performing better than BMW in 2021?

You cannot compare them!! BMW puts its R&D in cost of sales and Mercedes puts its cost of sales below the gross profit line!

- ⇒ **You first need to look good at the numbers before comparing any ratios of even comparable companies because their way of doing accounting is different**
- ⇒ If you want to compare them, you need to take R&D out of the cost of sales for BMW (or otherwise put the R&D for Mercedes in the cost of sales)
- ⇒ When you treat R&D in the same way you find that the GPM is 25% for BMW so it's not lower.

B. Account receivable (+sales)

- When companies sell to other companies, they offer credit terms, which are called sales on credit (or credit sales or sales on account)
- Accounts receivables are reported on the balance sheet of the seller at net realizable value, which is the net amount the seller **expects to collect**
- Two accounts come into play:
 - o Allowance for uncollectible accounts: part of the gross amount of credit that you have outstanding to your client that you expect to lose if you will probably lose (an estimate of what you will lose on your account)

- When you give a credit you know for sure that not every client will pay it back
- Bad debt expense: the change in that account will be captured by this expense account

Allowance for uncollectible accounts

- An estimate of the amount of receivables you will not be able to cash in
- The amount of expected uncollectible accounts is usually computed based on an **aging analysis** – example:
 - Each customer's account balance is categorized by the period the underlying invoices have remained outstanding.
 - Bad debts percentages are applied to each of these categorized amounts, with larger percentages being applied to older accounts.

Aging of Accounts Receivable			
Age of Accounts	Receivable Balance	Estimated Percent Uncollectible	Estimated Uncollectible Accounts (Impairment)
Current (within the expected time frame)	80,000	2%	1,600
1-60 days past due	12,000	5%	600
61-90 days past due	5,000	16%	800
90 days past due	3,000	40%	1,200
	100,000		4,200

Bad debt expense

- Bad debt expense equals the change in the allowance for uncollectible accounts. If the change is positive, the expense is positive
- How does the accounting occur?
- In our example: if a previous balance of 3900€ existed in the allowance for uncollectible accounts, the company would record a bad debt expense of 300€
 - From 3900 to 42000 is a difference of 300
- Accounting in' the journal for this example would look as follows:

<i>Journal entries:</i>	<i>DEBIT</i>	<i>CREDIT</i>
<i>Bad debt expense</i>	<i>300</i>	
<i>@ Allowance for <u>Uncollectibles</u></i>		<i>300</i>

- Bad debt expense is, similarly to depreciation expense, a non-cash operating expense. The allowance is similar to accumulated depreciation.
- These expenses are the direct consequence of managerial expectation regarding future insolvency of customers

The 3900 and 4200 are **estimates** based on history. There is a danger that the manager is dishonest. Suppose that the true economic amount when we have 100 000 outstanding is 4200, he can say to his investors they only expect to lose 3000 to give a better picture of the company. You will have a negative bad debt expense of 900. This means your earnings go up by 900. You have inflated your earnings.

→ It is only after a couple month or years that the fraud is detected.

→ One of the most used frauds

Pfizer Current Assets

(MILLIONS, EXCEPT PER COMMON SHARE DATA)	As of December 31,	
	2021	2020
Assets		
Cash and cash equivalents	\$ 1,944	\$ 1,786
Short-term investments	29,125	10,437
Trade accounts receivable, less allowance for doubtful accounts: 2021—\$492 2020—\$508	11,479	7,913
Inventories	9,059	8,020
Current tax assets	4,266	3,264
Other current assets	3,820	3,646
Total current assets	59,693	35,067

- Pfizer's Accounts Receivable are reported **net** of a \$492 million allowance for uncollectible accounts.

- What is the gross amount of credit?
 - $11,479 + 492 = 11,971$

Apple's Current Assets

ASSETS:		September 25, 2021
Current assets:		
Cash and cash equivalents	\$	34,940
Marketable securities		27,699
Accounts receivable, net		26,278
Inventories		6,580
Vendor non-trade receivables		25,228
Other current assets		14,111
Total current assets		134,836

Vendor Non-Trade Receivables

The Company has non-trade receivables from certain of its manufacturing vendors resulting from the sale of components to these vendors who manufacture subassemblies or assemble final products for the Company. The Company purchases these components directly from suppliers. As of September 25, 2021, the Company had three vendors that individually represented 10% or more of total vendor non-trade receivables, which accounted for 52%, 11% and 11%. As of September 26, 2020, the Company had two vendors that individually represented 10% or more of total vendor non-trade receivables, which accounted for 57% and 11%.

- Vendor non-trade receivables (it is an asset): it is credit that you give to the suppliers.
 - Why? Apple doesn't do everything himself it only assembles; raw materials are processed by the supplier, but it is APPLE that buy these raw materials and sells it to their suppliers!!!

BMW's Receivables Footnote (2021) !! (important)

In € million	Total		
Impairment allowances at 1 January 2021	1,639		
Reclassification to Stage 1	- 34		
Reclassification to Stage 2	119		
Reclassification to Stage 3	129		
Derecognition and origination of receivables	- 9		
Write-off of receivables	- 143		
Changes in risk parameters	- 67		
Other changes	- 35		
Impairment allowances at 31 December 2021	1,599		

In € million	31.12.2021	31.12.2020
Credit financing for retail customers and dealerships*	65,258	63,584
Finance lease receivables	22,159	20,693
Receivables from sales financing	87,417	84,277

35,705 in current assets (within the year)

51,712 in non-current assets (within 5 years)

- Total amount of client credit outstanding =
- Allowance for uncollectibles =
- Bad Debt Expense (2021) =

- Total amount of client credit outstanding = $(87417 + 1599) = 89016$
 - Credit amount that BMW have outstanding to his client
 - Net + Allowance
 - Allowance: here impairment allowance so it should be allowance for uncollectible accounts

- **Allowance for uncollectible** = $(1599/89016) = 1.8\%$,
 - o Allowance in function of sales
 - o BMW expects only to lose 1.8%, so it still expects to cash in 98.2% of their total amount of credit outstanding. If you decide not to pay BMW in full, then BMW is going to take back your car because it states in your contract that it will do that and sell your car. That will be the recupe that they will be able to do.
 - o Suppose it's not 1,8 but 3. The difference of 1,2 seems not that big but 1,2% from 90 billion is 10% of your sales
 - **Bad debt expense (2021)** = $1599 - 1639 = -40$ mill
 - o = Increase or decrease in your allowance of uncollectible
 - o There is a decrease so the income will increase by 40 million.
- ⇒ Red Flags

BMW's Receivables Footnote (2020)

in € million	Total	in € million	31.12.2020	31.12.2019
Impairment allowances at 1 January 2020	1,099			
Reclassification to Stage 1	-9			
Reclassification to Stage 2	123			
Reclassification to Stage 3	160			
Derecognition and origination of receivables	1			
Write-off of receivables	-106			
Changes in risk parameters	176			
Other changes	195			
Impairment allowances at 31 December 2020	1,639			
		Credit financing for retail customers and dealerships*	63,584	71,104
		Finance lease receivables	20,693	21,333
		Receivables from sales financing	84,277	92,437

36,252 in current assets (within the year) 48,025 in non-current assets (within 5 years)

- Total amount of client credit outstanding = $(84,277 + 1,639) = 85,916$
- Allowance for uncollectibles = $(1,639/85,916) = 1.9\%$
- Bad Debt Expense (2020) = $(1,639 - 1,099) = 540$
→ Net income drops by 540

Pernod Ricard's (Trade) Receivable Footnote

FN 4.5:

€ million	Net carrying amount	Not due	Due in respect of the following terms				
			< 30 days	31 to 90 days	91 to 180 days	181 to 360 days	> 360 days
Net carrying amounts							
Trade receivables and other operating receivables as of 30.06.2018	1,122	884	137	53	27	5	16
<i>O/w impairment</i>	<i>(60)</i>	<i>(12)</i>	<i>(1)</i>	<i>(4)</i>	<i>(1)</i>	<i>(2)</i>	<i>(40)</i>
Trade receivables and other operating receivables as of 30.06.2019	1,226	985	122	47	23	14	36
<i>O/w impairment</i>	<i>(67)</i>	<i>(13)</i>	<i>(1)</i>	<i>(4)</i>	<i>(2)</i>	<i>(2)</i>	<i>(43)</i>

Changes in the impairment of trade receivables and other operating receivables were as follows:

€ million	FY18	FY19
At 1 July	65	60
Allowances during the year	13	12
Reversals during the year	(8)	(3)
Used during the year	(7)	(2)
Foreign currency gains and losses	(3)	0
At 30 June	60	67

- Net value of Accounts Receivable (trade) for 2019 = 1,226
- Total amount of client credit outstanding = $1,226 + 67 = 1,293$
- Allowance for uncollectible accounts = 67 ; or 5.2% of gross amount
- Bad Debt Expense (2017) = $67 - 60 =$ (non-cash) expense of 7 (or a decrease in earnings of 7 million EUR)

Analysis: Accounts Receivable Turnover

- Accounts receivable turnover (ART) = sales / accounts receivable,
 - o The number of times you cash-in on your receivables in one year
- Average collection period (ACP) = accounts receivable/av. Daily sales (= $365/ART$)

- ACP measures the average number of days of credit you provide to your customers and clients
- A higher ART (and equivalently, a lower ACP) indicates that receivables are being collected more quickly, and less working capital is spent on receivables

Accounts Receivable Turnover: Examples

- For Pernod Ricard:
 - o $ART = 8,824 / [(906+1,126)/2] = 8.7$
 - o $ACP = 1,016 / (8,824/365) = 42 \text{ days}$
- For Diageo:
 - o $ART = 12,733 / 2,248 = 5.7$
 - o $ACP = 365 / 5.7 = 64 \text{ days}$
- For LVMH:
 - o $ART = 64,215 / 3,272 = 19.6$
 - o $ACP = 365 / 19.6 = 19 \text{ days}$
- For Apple:
 - o $ART = 365,817 / 21,199 = 17.3$
 - o $ACP = 21 \text{ days}$
- For BMW and Mercedes?
 - o ART (ACP) is very low (high)...
 - o ...but hard to calculate – Why?

C. Accounts payable (= Operating Current liabilities)

- **Accounts payable** – Obligations to others for amounts owed on purchases of goods and services; these are usually non-interest-bearing
- **Unearned revenues** – payment has been received, but no good or service has been delivered to the client
- **Accrual liabilities** – obligations for which there is no related external transaction in the current period. These include, for example, accruals for employee wages and taxes, as well as accruals for other liabilities such as rent, utilities, and insurance.

Analysis: Accounts Payable Turnover

- Accounts payable turnover (APT) = cost of goods sold / accounts payable
- APT measures how many times suppliers are paid per year
- Average payable days outstanding (APDO) = accounts payable/daily cost of goods sold
- APDO measures the average number of days of credit you receive from suppliers. Other operating liabilities may also be included

Examples :

- For Mercedes: $APT = 103,218 / 11,517 = 8.96$
 $APDO = 365 / 8.96 = \mathbf{41 \text{ days}}$
- For Apple: $APT = 212,981 / 48,530 = 4.39$
 $APDO = 365 / 4.39 = \mathbf{83 \text{ days}}$
- For Pernod Ricard: $APT = 3,531 \text{ (or } 6,401) / 2,107 = 1.7 \text{ (or } 3.0)$
 $APDO = 365 / 1.7 \text{ (or } 3.0) = \mathbf{215 \text{ days (or } 120 \text{ days)}}$

Financial Analysis: 3 aspects

1. Profitability
2. Solvency
3. Liquidity

Liquidity: Concept

- **Liquidity** refers to cash and access to cash: how much cash we have, how much we need and how much can be raised or drawn on a short notice.
- Liquidity refers to a firm's operating activities
- Liquidity refers to the short run
- Two widely considered liquidity ratios
 1. Current ratio
 - Current assets / current liabilities
 - Measure of the extent to which a firm has working capital
 - Threshold value = 1
 2. Quick ratio (Acid test ratio)
 - (Current assets-inventories-prepaid expenses)/current liabilities
 - Conservative version of the current ratio: items which are unrelated to cash or for which there is more uncertainty that they will result into cash in the short run are eliminated

⇒ These 2 ratios do not tell you the whole story of liquidity

Liquidity ratios for 2021

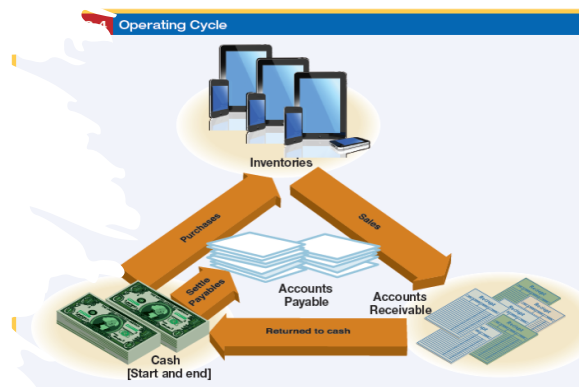
- Pernod Ricard:
 - CR: $10,321 / 4,218$ = 2.45
 - QR: $(10,321 - 6,555) / 4,218$ = 0.89
- Diageo:
 - CR: $11,445 / 7,142$ = 1.60
 - QR: $5,400 / 7,142$ = 0.76
- Mercedes:
 - Current Ratio = 1.17
 - Quick Ratio = 0.93
- Apple:
 - Current Ratio = 1.07
 - Quick Ratio = 1.02
- SAS Airlines:
 - Current Ratio = 0.48
 - Quick Ratio = 0.45

→ Conclusions? Critiques?

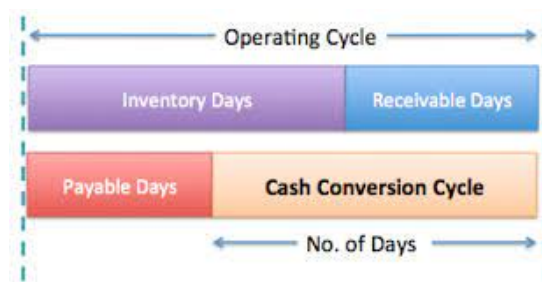
- ⇒ You can have the same ratio but very different liquidity problems
- ⇒ You have to take into account the structure

Liquidity analysis

- Current ratio and working capital measures the amount of working capital the firm has available
- But they are silent about what a firm's **need** for working capital...
 - Need for working capital, need for liquidity
- How does a firm's operating cycle look like?



Cash conversion cycle



$$\begin{aligned}
 & \# \text{ Days in Inventory} \\
 & + \# \text{ Days in Receivables} \\
 & - \# \text{ Days in Payables} \\
 & = \text{Period to bridge}
 \end{aligned}$$

Need for Working Capital: Need for Liquidity

- For Mercedes:

85 days in inventory
+ 113 days in receivables
- 41 days in payables
157 days "to bridge"
- For Pernod-R.:

658 days in inventory
+ 42 days in receivables
- 215 days in payables
485 days "to bridge"
- For Bekaert:

83 days in inventory
+ 51 days in receivables
- 80 days in payables
54 days "to bridge"
- For Apple:

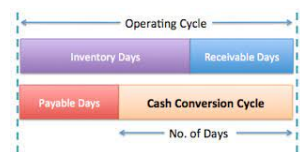
9 days in inventory
+ 21 days in receivables
- 83 days in payables
-53 days "to bridge"



- For Carrefour:
 - 35 days in inventory
 - + 13 days in receivables
 - 80 days in payables
 - 32 days "to bridge"**
- For SAS (2019):
 - 0 days in inventory
 - 38 days in receivables
 - 15 days in payables
 - 53 days "to bridge"**

Need for working capital

- Current ratio only partially captures liquidity. It only captures the amount of working capital...
- ... but doesn't say anything about a firm's NEED for working capital
- Need for WC (measured in number of days)
 - o # days in inventory + #days in receivables - # days payables
 - o = cash conversion cycle.
- Need for WC (measured as a euro or dollar number) =
 - o = operating current assets – operating current liabilities
 - $NWC = CA - CL$
 - $\text{Need for WC} = OCA - OCL$



Liquidity: Net Cash Position

- **Net cash position** = working capital – need for working capital
 - o If NCP is positive => no immediate liquidity problems
 - o If NCP is negative => need access to cash (usually the bank)
- Examples:
 - o $NCP \text{ (Ryanair)} = 3,625.8 - 1,291.4 = \mathbf{2,344.4}$
 - o $NCP \text{ (Norwegian)} = 2,667 - 11,935 = \mathbf{-9,268 \text{ (about 930 mEUR)}}$
 - o $NCP \text{ (Pernod Ricard)} = 2,078 - 295 = \mathbf{1,783}$
 - o $NCP \text{ (Diageo)} = 2,749 - 2,119 = \mathbf{630}$
 - o $NCP \text{ (Mercedes)} = 29,826 - 58,297 = \mathbf{-28,471}$
- Conclusions?
 - o Ryanair does not have any immediate liquidity concerns.
 - o Norwegian needs to find 930 mEUR or they will crash.
 - o Pernod Ricard and, to a lesser extent, Diageo both have a solid liquidity position despite their long operating cycles.
 - o Mercedes faces substantial liquidity risk and needs to *continuously* find resources to finance its operations → working capital loans from banks

Home exercise for CAT

Data for Caterpillar (in mln USD)

Sales:	54,722
Cost of goods sold:	36,997
Inventories:	11,529
Accounts receivable:	31,899
Accounts payable :	13,008

⇒ How long is Caterpillar's cash conversion cycle?

- 114 days in inventory
- + 213 days in receivables
- 128 days in payables
- **199 days “to bridge”**

7. LONG-TERM ASSETS

Accounting treatment of long-term assets involves (part of) the following practices and reporting items:

- Which assets are recognized?
- Depreciation, amortization or nothing?
- Type of recognition: Fair Value Accounting vs. Historical Cost Accounting
- Sale of long-term assets
- Asset impairment

A. Property, Plant and Equipment

- Property, Plant and Equipment (PPE) comprises tangible, operating assets that are expected to be kept in the company for longer than a year.
- Future expenses arising from these long-term assets and the degradation of their value is reflected in depreciation expense.
- The depreciation process typically involves:
 - o Useful life – period of time over which the asset is expected to generate cash
 - o Salvage value – Expected disposal amount for the asset at the end of its useful life
 - o Depreciation rate – an estimate of how the asset will be consumed over its useful life
- Land is typically not depreciated.
- Typical depreciation methods are:
 - o Straight-line method: depreciation expense is recognized evenly over the estimated useful life of the asset.
 - o Accelerated methods (e.g. Double-declining-balance method in which the double of the linear percentage is applied every year)

Depreciation Methods: Example

- Consider this simple example: An asset (machine) with the following details:
 - (1) investment / purchase cost of EUR 100,000
 - (2) salvage value (rest value) of EUR 10,000
 - (3) useful life of 5 years

Method:	Straight-Line		Double-Declining-Balance	
year	Depreciation Expense	Book Value at End of Year	Depreciation Expense	Book Value at End of Year
1	18,000	82,000	40,000	60,000
2	18,000	64,000	24,000	36,000
3	18,000	46,000	14,400	21,600
4	18,000	28,000	8,640	12,960
5	18,000	10,000	2,960	10,000
	90,000		90,000	

- Why are depreciation methods such as double-declining-balance sometimes preferred by managers?
 - o To pay less taxes in the beginning and more at the end.
 - o You pay the same amount of taxes as straight line but as you pay less in the beginning you have an economic advantage because you can do something else with your money.

Where do we find the amounts of depreciation and amortization expense?

- Not in the income statement!
- In a footnote (e.g.: Diageo)
- In the cash flow statement:

$$OCF = NI + D/A - \Delta WC$$

Sale of long-term assets: Example

- Suppose we **sell** one of our buildings with the following data:
 - o Book value = 10 mio (= Historical Cost – Accumulated Depreciation)
 - o Sale Price = 15 mio (paid in cash by the buyer)
- ⇒ Gain of 5 mio

- How does the accounting occur for this transaction?

<i>Journal entries:</i>	<i>DEBIT</i>	<i>CREDIT</i>
Cash	15	
@Proprety		10
Gain of sale		5

- This gain is an operating income item other than revenues.
- IMPORTANT!!! Please note that we actually CASH IN this economic gain!!

Sale of long-term assets: Another Example

$$\text{Gain or Loss on Asset Sale} = \text{Proceeds from Sale} - \text{Net Book Value of Asset Sold}$$

International Paper Co.'s sale of land:

In the fourth quarter, the Company completed sales of 5.1 million acres of forestlands for \$6.1 billion, including \$1.4 billion in cash and \$4.7 billion in installment notes, resulting in pre-tax gains totaling \$4.4 billion.

Transaction	Balance Sheet					Income Statement		
	Cash Asset	+ Noncash Assets	= Liabilities	+ Contrib. Capital	+ Earned Capital	Rev-enues	- Expen-ses	= Net Income
Sale of forestlands	+1.4 Bil. Cash	-1.7 Bil. Forestlands (PPE) +4.7 Bil. Notes Receivable	=		+4.4 Bil. Retained Earnings	+4.4 Bil. Gain on Asset Sale	-	= +4.4 Bil.

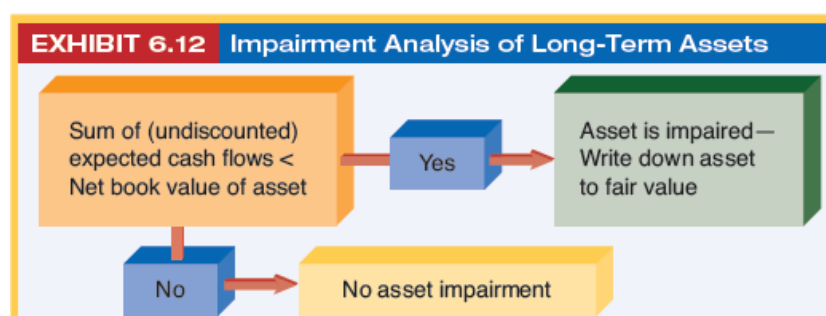
3. Operating costs

	2019 £ million	2018 £ million	2017 £ million
Excise duties	6,427	6,269	6,064
Cost of sales	4,866	4,634	4,680
Marketing	2,042	1,882	1,798
Other operating expenses	1,917	1,956	2,013
	15,252	14,741	14,555
Comprising:			
Excise duties – Great Britain	898	853	774
– United States	587	548	558
– India	2,202	2,094	2,073
– Other	2,740	2,774	2,659
Increase in inventories	(446)	(296)	(146)
Raw materials and consumables	3,007	3,052	2,813
Marketing	2,042	1,882	1,798
Other external charges	2,285	1,849	2,124
Staff costs	1,580	1,509	1,583
Depreciation, amortisation and impairment	374	493	361
Gains on disposal of properties	(5)	(9)	(7)
Net foreign exchange (gains)/losses	(7)	6	(16)
Other operating income	(5)	(14)	(19)
	15,252	14,741	14,555

International Paper sold land, carried on its balance sheet at \$1.7 billion (computed as \$6.1 billion sale less \$4.4 billion gain), for \$6.1 billion, and realized a gain on the sale of \$4.4 billion.

Impairments of long-term assets

- Impairment of tangible and intangible assets is determined by comparing the sum of the *expected* future (undiscounted) cash flows generated by the asset with its net book value.
- Separate standard in IFRS on Asset Impairment: IAS 36.
- Companies must recognize a loss if the asset is deemed to be impaired.
- Impairment analysis of long-term assets:



- Impairments can occur for all asset categories!
- B. Intangible Assets
- Intangible assets include brands, trade names, franchises, licenses, copy rights etc.
 - Separate standard for intangibles: IAS 38.
 - Internally generated brands and other intangibles (such as quality of the production systems, employee satisfaction, governance) are not recognized on the balance sheet.
 - Internally generated software and IT is an exception to this rule.
 - Limited-life intangible assets, such as licenses and investments in IT infrastructure, are **amortized** in similar fashion to tangible assets.
 - Brands and trade names are typically not amortized as they have an indefinite life. They are subject to an annual **impairment** test.
 - Under IFRS, part of the development expenses are capitalized on the balance sheet.

Intangible Assets for Pernod Ricard

€ million	Movements in the year						30.06.2020
	30.06.2019	Acquisitions	Allowances	Disposals	Translation adjustments	Other movements	
Goodwill	5,528	199	-	(1)	21	0	5,747
Brands	12,957	227	-	0	47	0	13,230
Other intangible assets	452	41	-	(20)	(7)	5	471
GROSS VALUE	18,937	467	-	(21)	60	5	19,448
Goodwill	(137)	-	-	-	1	0	(136)
Brands	(1,408)	-	(999)	0	9	0	(2,398)
Other intangible assets	(318)	-	(34)	10	6	(1)	(338)
AMORTISATION/IMPAIRMENT	(1,863)	-	(1,033)	10	16	(1)	(2,872)
INTANGIBLE ASSETS, NET	17,074	467	(1,033)	(11)	76	4	16,576

Impairment of tangible or intangible assets

⇒ Allowance is an impairment of part of his brand

In accordance with IAS 36, intangible assets and property, plant and equipment are subject to impairment tests whenever there is an indication that the value of the asset has been impaired and at least once a year for non-current assets with indefinite useful lives (goodwill and brands).

The assets subject to impairment tests are included in cash-generating units (CGUs), corresponding to linked groups of assets which generate identifiable cash flows. The CGUs include assets related to the Group's brands and are allocated in accordance with the three geographical areas defined by the Group, on the basis of the sale destination of the products.

C. Goodwill

- Intangible asset related to M&A activity– Some firms report on goodwill separately, others put it in Intangible Assets.
- The initial amount of goodwill is the **premium** on top of the **book value** of the net assets of the acquired target.
- Previously, goodwill used to be amortized, but...
- ... IFRS and US GAAP nowadays no longer amortize goodwill but impose it to an annual **impairment** test instead.
- In the impairment test, the future benefits of the acquired assets need to be estimated.
- Goodwill impairment is another example of an accrual managers sometimes use to manipulate earnings (understating goodwill impairment increases earnings).
- Does “badwill” exist?
 - In theory well but in practice we never see it, so no it doesn't exist

Goodwill: Example

- Microsoft purchases Nokia's cell phone division, with these data:
 - Sales Price of 5.4 bn Euro (paid in cash)
 - Net book value on Nokia's books for (merely) 2 bn Euro.
 - How does the accounting in Nokia's statements occur?

<u>Journal entries:</u>	<u>DEBET</u>	<u>CREDIT</u>
Cash	5.4	
@ Assets (Held-for-Sale)		2
Gain on Sale		3.4

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

<u>Journal entries:</u>	<u>DEBET</u>	<u>CREDIT</u>
Assets (in entire Balance Sheet)	2	
Goodwill	3.4	
@cash		5.4

Goodwill for Walt Disney

	September 28, 2019	September 29, 2018
ASSETS		
Current assets		
Cash and cash equivalents	\$ 5,418	\$ 4,150
Receivables	15,481	9,334
Inventories	1,649	1,392
Television costs and advances	4,597	1,314
Other current assets	979	635
Total current assets	28,124	16,825
Film and television costs	22,810	7,888
Investments	3,224	2,899
Parks, resorts and other property		
Attractions, buildings and equipment	58,589	55,238
Accumulated depreciation	(32,415)	(30,764)
Total	26,174	24,474
Projects in progress	4,264	3,942
Land	1,165	1,124
Total	31,603	29,540
Intangible assets, net	23,215	6,812
Goodwill	80,293	31,269
Other assets	4,715	3,365
Total assets	\$ 193,984	\$ 98,598

Take-over of FOX by Walt Disney

- ⇒ Footnote
- ⇒ All the numbers are now part of the balance sheet of Disney

Book value of
the Assets
and Liabilities
of Fox

	Updated Allocation
Cash and cash equivalents	\$ 25,701
Receivables	5,230
Film and television costs	17,798
Investments	964
Intangible assets	17,881
Net assets held for sale	11,366
Accounts payable and other liabilities	(12,359)
Borrowings	(21,723)
Deferred income taxes	(5,333)
Other net liabilities acquired	(3,958)
Noncontrolling interests	(10,408)
Goodwill	49,085
Fair value of net assets acquired	74,244
Less: Disney's previously held 30% interest in Hulu	(4,737)
Total purchase price	\$ 69,507

D. Joint Ventures (*fair value accounting*)

For BMW: Investments using the equity method

in € million	Note	2021
ASSETS		
Intangible assets	21	12,980
Property, plant and equipment	22	22,390
Leased products	23	44,700
Investments accounted for using the equity method	24	5,112
Other investments		1,241
Receivables from sales financing	25	51,712
Financial assets	26	1,715
Deferred tax	13	2,202
Other assets	28	1,302
Non-current assets		143,354

Operating assets →

Financial Interests in Other Entities

- Generally, we distinguish between 3 types of stakes a firm may have in related companies or entities:
 - When one owns 50% or more of the shares
 - When one owns less than 5% of another firm

- When one owns between 5 and 50% of another firm (major shareholder – *block holder*)
- The second category is usually described as “other financial assets”.
- The latter category typically gives rise to items such as “Investments in associates and joint ventures” or “Investments accounted for using the equity method” in the balance sheet.

Special topic: Fair Value Accounting

- Fair value accounting is the alternative valuation principle to historical cost.
- Under the Historical cost (or Amortized cost) model, assets are stated on the balance sheet at cost less accumulated depreciation and any impairment losses.
 - Most assets of most companies are under historical cost
- Under the Fair value model, assets are stated at their fair value, defined in IFRS as the amount for which an asset can be exchanged between knowledgeable, willing parties in an at arm’s length transaction. Sometimes referred to as the “open market value”.
- Unlike historical cost, there is no depreciation is recorded.
- Fair value valuation is a market-based valuation process. Consequence: it includes assumptions about future growth and risk factors.
- The intention of the owner of the asset to hold on to it, or to fulfill the liability is irrelevant in the context of fair value measurements.
- For SOME assets, fair value is mandatory (e.g., financial instruments IFRS 7 and IFRS 9)

Pros and Cons of Fair Value Acco

- *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 (earnings) volatility*
 - *Lack of conservatism not always beneficial (e.g., for creditors)*

Fair Value or Historical Cost?

- Suppose we own a building with the following data:
 - Book value = 10 mio (= Historical Cost – Accumulated Depreciation)
 - Value = [Sales Price – Transaction Costs] = 15 mio
- Suppose we **switch from historical cost to fair value accounting**.

- How does this change affect our financial statement?

Journal entries:	DEBET	CREDIT
Property	5	
@ Gain on Property Value		5

- This gain of 5 mio is a **NON-CASH** revenue!
- But you will pay taxes on it!
- Consequence of switching from HC to FV accounting?
- Is fair value accounting allowed for long-term assets?
 - o Yes, under IFRS you are allowed to do fair value accounting for most of your assets
- Are companies applying fair value accounting? No
- Why are firms reluctant to switch to fair value accounting?
 - o Instigates volatility in your financial reports
 - o Increases tax liabilities!

Some firms are voluntarily applying fair value accounting: Example of LVMH (2021):

1.13. Property, plant and equipment

With the exception of vineyard land, the gross value of property, plant and equipment is stated at acquisition cost. Any borrowing costs incurred prior to the placed-in-service date or during the construction period of assets are capitalized.

Vineyard land is recognized at the market value at the balance sheet date. This valuation is based on official published data for recent transactions in the same region. Any difference compared to historical cost is recognized within equity in "Revaluation reserves". If market value falls below acquisition cost the resulting impairment is charged to the income statement.

- E. Accounting for financial assets and financial instruments
 - IFRS 9 for the recognition and measurement of financial instruments
 - IFRS 9 replaced IAS 39 in 2018, bringing only minor changes
 - IAS 39 was a contested standard, first introduced in 2005, when IFRS became the mandatory set of accounting standards to be use in the EU.
 - IFRS 7 for the disclosure requirements on information regarding financial instruments.

Financial assets:

- Fair value assets (FVA)
 - o Held-for-trading

- Designated
- Loans and Receivable (L&R)
- Held to Maturity (HTM)
- Available for sales (AFS)

Financial Liabilities

- Fair Value Liabilities (FVL)
- Other Liabilities

A Bank's Balance Sheet: HSBC

<i>Assets</i>	<i>2015 (m\$)</i>	<i>2015 (% of total assets)</i>	<i>2014 (m\$)</i>	<i>2014 (% of total assets)</i>	<i>Fair value item?</i>
Cash and balances at central banks	98,934	4.11	129,957	4.93	No
Items in the course of collection from other banks	5,768	0.24	4,927	0.19	No
Hong Kong Government certificates of indebtedness	28,410	1.18	27,674	1.05	No
Trading assets	224,837	9.33	304,193	11.55	Yes
Financial assets designated at fair value	23,852	0.99	29,037	1.10	Yes
Derivatives	288,476	11.97	345,008	13.10	Yes
Loans and advances to banks	90,401	3.75	112,149	4.26	No
Loans and advances to customers	924,454	38.36	974,660	37.00	No
Reverse repurchase agreements – non-trading	146,255	6.07	161,713	6.14	No
Financial investments	428,955	17.80	415,467	15.77	Partially
Assets held for sale	43,900	1.82	7,647	0.29	No
Prepayments, accrued income and other assets	54,398	2.26	67,529	2.56	No
Current tax assets	1,221	0.05	1,309	0.05	No
Interests in associates and joint ventures	19,139	0.79	18,181	0.69	No
Goodwill and intangible assets	24,605	1.02	27,577	1.05	No
Deferred tax assets	6,051	0.25	7,111	0.27	No
<i>Total assets</i>	<i>2,409,656</i>		<i>2,634,139</i>		

Accounting for Financial Instruments

Category	Measurement	Recognition of changes in value	Impairment Test	Type of Assets
Assets held for trading	Fair value	Income statement (fair value fluctuations)	No	Quoted
Loans and receivables	Amortized cost	Income statement (amortization or impairment)	Yes	Unquoted
Assets held to maturity	Amortized cost	Income statement (amortization or impairment)	Yes	Quoted
Assets available for sale	Fair value	Equity (other comprehensive income)	Yes	Both

- Why are held for trading assets and available-for-sale assets measured under fair value?
 - Because the relevant value of these two assets is the market price.
- Why are changes in the value of available-for-sale assets recorded in OCI rather than net income?
 - Everything that is flowing directly through the income statement is expected to be under the control of the management. Any change in the value in the available for sales is not in the hands of the management.

F. Accounting for Leasing

- **Key Issue**= Whether and how is leasing recognized in the financial statements?

⇒ Recent change in accounting regulation for leasing (2019):

IAS 17 → IFRS 16

- Leasing is an alternative investment policy to borrowing for the financing of long-term assets.
- Leasing provides flexibility and enables lessees to address the issue of obsolescence and residual value risk. Sometimes, leasing may be the only way to obtain the use of a physical asset that is not available for purchase.
- As of January 2019, the accounting **standard** for leasing **has changed**:
 - Under the previous standard, IAS 17, there was a distinction between **operating** and **finance leasing**. Only finance leasing was recognized in the balance sheet. Operating lease was treated as rental expense, and nothing was shown on the balance sheet.
 - Under the new standard, IFRS 16, all leases are put on the balance sheet.
 - Referred to as **“Rights-of-use assets”**
 - The expense items are now both operating and nonoperating in nature.

Leasing Change: LVMH

ASSETS (EUR millions)	Notes	2019	2018 ^(a)
Brands and other intangible assets	3	17,212	17,254
Goodwill	4	16,034	13,727
Property, plant and equipment	6	18,533	15,112
Right-of-use assets	7	12,409	-
Investments in joint ventures and associates	8	1,074	638
Non-current available for sale financial assets	9	915	1,100
Other non-current assets	10	1,546	986
Deferred tax		2,274	1,932
Non-current assets		69,997	50,749
Inventories and work in progress	11	13,717	12,485
Trade accounts receivable	12	3,450	3,222
Income taxes		406	366
Other current assets	13	3,264	2,868
Cash and cash equivalents	15	5,673	4,610
Current assets		26,510	23,551
Total assets		96,507	74,300

- Assets are increasing because the operating leasing are now on the balance sheet (after change in accounting regulation)

LIABILITIES AND EQUITY (EUR millions)	Notes	2019	2018 ^(a)
Equity, Group share	16	36,586	32,293
Minority interests	18	1,779	1,664
Equity		38,365	33,957
Long-term borrowings	19	5,101	6,005
Non-current lease liabilities	7	10,373	-
Non-current provisions and other liabilities	20	3,812	3,188
Deferred tax		5,498	5,036
Purchase commitments for minority interests' shares	21	10,735	9,281
Non-current liabilities		35,519	23,510
Short-term borrowings	19	7,610	5,027
Current lease liabilities	7	2,172	-
Trade accounts payable	22	5,814	5,314
Income taxes		722	538
Current provisions and other liabilities	22	6,305	5,954
Current liabilities		22,623	16,833
Total liabilities and equity		96,507	74,300

- The debt is also increasing (non-current and current lease liabilities)
- In 2018 the debt was underestimated: there were other liabilities, but they were off-balance

Leasing Change: Impact per Industry

- Leasing activity is ubiquitous but differs significantly across industries.
- PwC study indicates that retailers are major users and expected to experience significant impacts.

significant impacts.

Industry	Why? Median increase in debt	Why? Median increase in EBITDA
All companies	22%	13%
Retailers	98%	41%
Airlines	47%	33%
Professional services	42%	15%
Health care	36%	24%
Wholesale	28%	17%
Transport & logistics	24%	20%
Entertainment	23%	15%
Telecommunication	21%	8%

Source: PwC global lease capitalisation study

EBITDA was fully negatively impact by all the negative leases. So now it not negatively impacted anymore with the new accounting regulation, and it will increase. EBIT will increase but less. **(Verry important)**

Accounting for Leasing

Assignment:

- Consult the annual report of Carrefour of 2019 to detect the impact of the switch to IFRS 16 on (choose a few):
 - Operating Assets and debt? → Leverage Ratio (Debt/ Equity)
 - EBIT and EBITDA? → Debt/ Edit
 - Net Income and FCF? → Debt/ EBITDATA

2. What is your conclusion on the impact of IFRS 16 for Carrefour on its solvency position (credit position) for 2018? And for 2019?
3. Is this a welcome regulatory change?

Leasing Change: Carrefour => Look at the blackboard for all financial statements

Reconciliation of off-balance sheet commitments at December 31, 2018 with IFRS 16 lease commitments at January 1, 2019

(in millions of euros)

Operating leases commitments as a lessee at December 31, 2018	3,569
Contracts not accounted for in accordance with IFRS 16 exemptions	(95)
Differences in duration determined under IFRS 16 related to termination and extension options which are reasonably certain	2,301
Non discounted leases commitments under IFRS 16 at January 1, 2019	5,775
Discount impact	(793)
Discounted leases commitments under IFRS 16 at January 1, 2019	4,981
Finance leases liability under IAS 17 at December 31, 2018	275
TOTAL LEASE COMMITMENTS AT JANUARY 1, 2019	5,256
Including leases commitments – Portion less than one year	984
Including leases commitments – Portion more than one year	4,272

(in millions of euros)	12/31/2018	IFRS 16 first application impacts	IFRIC 23 first application impacts	01/01/2019
Goodwill	7,983			7,983
Other intangible assets	1,461	(41)		1,420
Property and equipment	12,637	(367)		12,270
Investment property	389			389
Right-of-use Assets	-	5,244		5,244
Investments in companies accounted for by the equity method	1,374			1,374
Other non-current financial assets	1,275	191		1,466
Consumer credit granted by the financial services companies – portion more than one year	2,486			2,486
Deferred tax assets	723			723
Other non-current assets	379	(26)		353
Non-current assets	28,709	5,000	-	33,709
Inventories	6,135			6,135
Trade receivables	2,537			2,537
Consumer credit granted by the financial services companies – portion less than one year	3,722			3,722
Other current financial assets	190	42		232
Tax receivables	853			853
Other assets	887	(17)		870
Cash and cash equivalents	4,300			4,300
Assets held for sale	46			46
Current assets	18,670	25	-	18,694
TOTAL ASSETS	47,378	5,025	-	52,403

(in millions of euros)	12/31/2018	IFRS 16 first application impacts	IFRIC 23 first application impacts	01/01/2019
Share capital	1,973			1,973
Consolidated reserves (including net income)	7,196	(9)		7,188
Shareholders' equity, Group share	9,169	(9)	-	9,161
Shareholders' equity attributable to non-controlling interests	2,117			2,117
Total shareholders' equity	11,286	(9)	-	11,278
Borrowings – portion more than one year	6,936	(230)		6,706
Lease commitments – portion more than one year	-	4,272		4,272
Provisions	3,521	54	(459)	3,116
Consumer credit financing – portion more than one year	1,932			1,932
Deferred tax liabilities	541			541
Tax payables – portion more than one year	-		382	382
Non-current liabilities	12,930	4,096	(77)	16,949
Borrowings – portion less than one year	1,339	(45)		1,294
Lease commitments – portion less than one year	-	984		984
Suppliers and other creditors	14,161	(2)		14,160
Consumer credit financing – portion less than one year	3,582			3,582
Tax payables – portion less than one year	1,142		77	1,219
Other payables	2,938	(1)		2,937
Liabilities related to assets held for sale	-			-
Current liabilities	23,162	937	77	24,176
TOTAL SHAREHOLDERS' EQUITY AND LIABILITIES	47,378	5,025	-	52,403

(in millions of euros)	Notes	2019	2018 restated IFRS 5	% change
Net sales	7.1	72,397	72,355	0.1%
Loyalty program costs		(746)	(627)	19.0%
Net sales net of loyalty program costs		71,651	71,728	(0.1)%
Other revenue	7.1	2,491	2,438	2.2%
Total revenue		74,142	74,166	(0.0)%
Cost of sales	7.2	(58,054)	(58,012)	0.1%
Gross margin from recurring operations		16,088	16,154	(0.4)%
Sales, general and administrative expenses, depreciation and amortisation	7.2	(13,999)	(14,216)	(1.5)%
Recurring operating income		2,088	1,937	7.8%
Net income from equity-accounted companies	10	2	14	(88.8)%
Recurring operating income after net income from equity-accounted companies		2,090	1,952	7.1%
Non-recurring income and expenses, net	7.3	(1,030)	(1,129)	(8.8)%
Operating income		1,060	823	28.9%
Finance costs and other financial income and expenses, net	15.6	(338)	(258)	31.1%
Finance costs, net		(214)	(228)	(6.2)%
Net interests related to leases commitment		(107)	-	
Other financial income and expenses, net		(17)	(30)	(42.7)%
Income before taxes		722	565	27.9%
Income tax expense	11.1	(504)	(529)	(4.8)%
Net income from continuing operations		219	36	511.4%
Net income/(loss) from discontinued operations	5	1,092	(380)	387.4%
NET INCOME/(LOSS) FOR THE YEAR		1,311	(344)	480.8%

EBIT = 954

Leasing Impact for Carrefour

Indicator	2018 - Pre IFRS16	2018 - Post IFRS16	2019 - Pre IFRS16	2019 - Post IFRS16
Lt Assets	28,709	33,709	31,927- 4,388 = 27,539	31,927
Debt	(6,936 + 1,339) = 8,275	(6,706 + 4,272 + 1,294 + 984) = 13,256	6,303 + 997 = 7,300	(6,303 + 3,660 + 997 + 912) = 11,872
Equity	11,286	11,278	11,675	11,675
Debt/ Equity	0.73	1.18	0.63	1.02
EBIT	758	?	1,060 – 107 = 954	1,060
EBITDA	758 + 1,536 = 2,294	?	954 + (2,328 – 905) = 2,377	1,060 + 2,328 = 3,388
Debt/ EBITDA	3.61	?	3.07	3.50

- ⇒ But you cannot compare the first and last column because of the change of leasing standard that's why we include the 2 columns in the middle (that are fiction!)
- ⇒ We cannot calculate EBIT and EBITA for 2018 post IFRS because you don't know the interest expenses related to 2018
- ⇒ The 905 we get from the financing cash flow statements (look at table below)

We compare 3.61 with 3.07! It has decreased, so the solvency position of Carrefour has improved.

Leasing Change: Carrefour

(in millions of euros)	2019	2018 restated IFRS 5
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from share issues to non-controlling interests ⁽⁷⁾	75	89
Dividends paid by Carrefour (parent company) ⁽⁸⁾	(106)	(152)
Dividends paid by consolidated companies to non-controlling interests	(116)	(82)
Change in treasury stock and other equity instruments	0	42
Change in current financial assets ⁽⁹⁾	(2)	(39)
Issuance of bonds ⁽⁹⁾	930	1,758
Repayments of bonds ⁽⁹⁾	(1,530)	(744)
Net financial interests paid	(236)	(240)
Other changes in borrowings ⁽⁹⁾	131	(89)
Payments related to leases ⁽¹⁰⁾	(905)	-
Net interests related to leases ⁽¹⁰⁾	(98)	-
Impact of discontinued operations ⁽¹¹⁾	(128)	(13)
Net cash from financing activities	(1,987)	529
Net change in cash and cash equivalents before the effect of changes in exchange rates	247	1,023
Effect of changes in exchange rates	(81)	(315)
NET CHANGE IN CASH AND CASH EQUIVALENTS	166	708
Cash and cash equivalents at beginning of year	4,300	3,593
Cash and cash equivalents at end of year	4,466	4,300

Leasing Impact for Carrefour

Impact of the accounting change in leasing regulation on:

- Operating Assets → Increase
- Debt → Increase
- EBITDA → Increase
- EBIT → Small increase
- Debt / EBIT(DA) → Increase (from 3.07 to 3.50)
- Leverage Ratio → BIG Increase (from 0.63 to 1.02)
- Net Income → Nothing!
- Equity → Nothing!
- Operating Cash Flow → Increase (by 905)
- Free Cash Flow → Nothing!

Leasing Change: Case Study – Homework

- A firm leases a truck for a period of four years starting on Jan 1, 2020. The investment value is EUR 71,690. The lease requires payments of EUR 1,336 on a monthly basis for the duration of the lease term (i.e., EUR 16,032 per annum). The annual lease component of the lease payments is EUR 13,371 and the service component is EUR 2,661. The residual value of the truck at the end of the lease term is EUR 28,336. There is no option to renew the lease or purchase the truck.
- In addition:
 - o The implicit discount rate in the lease is 5%.
 - o The net present value of the project determines the amount to be depreciated.
 - o Service costs are not part of the lease, but operating expenses (SG&A).
- **Required:**
 - o What is the net present value of the lease payments using a 5% discount rate?

- How will the accounting occur for this transaction in the accounts of the lessee:
 - A. Under IAS 17 ?
 - B. Under IFRS 16 ?
- Which are the implications of the differences in accounting treatment?
- Why did the IASB change the standard?

Question 1.: The net present value:

- First, we need to calculate the net present value of the monthly payments for the lease (not the service, which will immediately be expensed).

$$\text{The annuity of a monthly payment of 1 euro} = \frac{1 - \left(\frac{1}{(1 + \frac{0.05}{12})} \right)^{48}}{\frac{0.05}{12}} = 43.422956$$

- The net present value of a monthly payment of 1,114.25 (13,373/12) = 1,114 x 43.423 = 48,384.

Question 2. A.: The accounting treatment of this transaction under IAS 17 (old standard):

IAS 17 Treatment (Old)	Jan-20	Dec-20	Dec-21	Dec-22	Dec-23	Total
<i>Balance Sheet:</i>						
Right-of-use Asset	0	0	0	0	0	
Lease Liability	0	0	0	0	0	
<i>Income Statement:</i>						
Operating expense (SG&A)	0	16,032	16,032	16,032	16,032	64,128
Operating Income Effect	0	-16,032	-16,032	-16,032	-16,032	-64,128
<u>Pretax Income Effect</u>	0	-16,032	-16,032	-16,032	-16,032	-64,128

Question 2. B. The accounting treatment of this transaction under IFRS 16 (new standard):

IFRS 16 Treatment (New)	Jan-20	Dec-20	Dec-21	Dec-22	Dec-23	Total
<i>Balance Sheet:</i>						
Right-of-use Asset	48,384	36,288	24,192	12,096	0	
Lease Liability	48,384	35,011	21,638	8,265	-5,108	
<i>Income Statement:</i>						
Service expense (SG&A)	0	2,661	2,661	2,661	2,661	10,644
Depreciation	0	12,096	12,096	12,096	12,096	48,384
Operating Income Effect	0	-14,757	-14,757	-14,757	-14,757	-59,028
Interest expense	0	2,165	1,594	992	356	5,107
<u>Pretax Income Effect</u>	0	-16,922	-16,351	-15,749	-15,113	-64,135

See Excel Sheet "Leasing Exercise Lecture 6" on Blackboard.

Question 3:

- IFRS 16 increases operating assets, affecting ratios such as RNOA.
- IFRS 16 increases operating income (and therefore derivative concepts including EBIT and EBITDA) but has no effect on net income.

Question 4.

- To bring the reported number financial statements closer to underlying economics

- To remove off-balance sheet financing and provide a better picture of a firm's debt burden.

G. Taxes → Lecture 8

8. TAX ACCOUNTING

A. Intro

- All firms are required to provide a tax footnote (IAS12) – some provide several footnotes on taxes.
 - A firm needs to account for the tax consequences of transactions and other events in the same way it accounts for the transactions or other events themselves.
 - Tax information and tax accounting is highly important as it involves many stakeholders...
 - Tax accounting is complex, yet important as tax footnotes may convey useful information on a firm's economic activities, its future prospects, its tax aggressiveness, its likelihood of future tax litigation, type of management etc.
 - ... and tax policies are on the political agenda and tax payables are hotly debated in the media.
- ⇒ Firms like to pay a little tax as possible, they try to optimize their taxes

B. Actual vs. Statutory Tax Rates

- Actual tax rate = ETR = Effective tax rate
- Statutory tax rate = Theoretical tax rate = Tax rate that firm needs to pay according to national tax regulation
- For Pernod Ricard (2019):

€ million	30.06.2018 restated	30.06.2019
Operating profit	2,296	2,375
Financial expenses	(375)	(346)
Financial income	74	36
Financial results	(301)	(310)
Corporate income tax	(392)	(582)
Share of net profit/(loss) of associates	0	0
NET PROFIT	1,603	1,482

Pretax income = 2,375 – 310 = 2,065
 Stat. Tax Rate in France = **34.43%**
 Theoretical Tax Expense = **711**

Actual Tax Expense = **582**
 ETR = 582/2,065 = **28.18%**

→ If these differs a lot you need to check the tax footnote ! It explains the difference between the 2.

For Pernod Ricard (2020):

€ million	30.06.2020	30.06.2021
Operating profit	978	2,361
Financial expenses	(403)	(410)
Financial income	36	39
Financial income/(expense)	(366)	(371)
Corporate income tax	(258)	(667)
Share of net profit/(loss) of associates	0	(4)
Net profit of discontinued and held for sale activities	(3)	0
NET PROFIT	350	1,318

Pretax income = $978 - 366 = 612$
 Stat. Tax Rate in France = **34.43%**
 Theoretical Tax Expense = **210**

Actual Tax Expense = **258**
 ETR = $258/612 = 42.2\%$
 → Difference of 48 million

For Pernod Ricard (2021):

€ million	30.06.2020	30.06.2021
Operating profit	978	2,361
Financial expenses	(403)	(410)
Financial income	36	39
Financial income/(expense)	(366)	(371)
Corporate income tax	(258)	(667)
Share of net profit/(loss) of associates	0	(4)
Net profit of discontinued and held for sale activities	(3)	0
NET PROFIT	350	1,318

Pretax income = $2,361 - 371 = 1,990$
 Stat. Tax Rate in France = **34.43%**
 Theoretical Tax Expense = **685**

Actual Tax Expense = **667**
 ETR = $667/1,990 = 33.5\%$

- Actual tax expenses is here higher than the theoretical one
- You need to find out what is going on? Why increased?
 - P.R has written off: decrease expenses: tax do not accept these as tax deductible => so you still have to pay tax for them
 - In 2021 is nearly the theoretical tax rate
- Differences between actual tax rate and statutory tax rate are attributable to:
 - Tax rates differ by country (and sometimes region)
 - Most important! P.R operates in different countries: countries with lower taxes then France → lower taxes
 - Additional state or city taxes
 - Tax-Exempt Income (decreases the ETR)
 - Tax exempt income: income for some project that the government like or sponsors: lower your effective tax rate
 - Nondeductible Expenses (increase the ETR)
 - Nondeductible expenses: under the theoretical: all of expenses are tax deductible like resto bill, life assurance for CEO → are not accepted
 - Changes in DTA and DTL affect ETRs, but not statutory tax
 - Current taxes related to previous period(s)

- Exchange rate fluctuations
- Changes in tax rates (within the fiscal period)
- Taxes accounted for in OCI

⇒ 1-3-4: are the most important

Actual vs Statutory Tax – Pernod Ricard

Analysis of effective tax rate – Net profit from continuing operations before tax		
€ million	30.06.2018	30.06.2019
Operating profit	2,296	2,373
Financial results	(301)	(310)
Taxable profit	1,994	2,064
Theoretical tax charge at the effective income tax rate in France ⁽ⁱ⁾	(687)	(711)
1. Impact of tax rate differences by jurisdiction	276	228
7. Tax impact of variations in exchange rates	1	(1)
5. Re-estimation of deferred tax assets linked to tax rate changes	86	(9)
5. Impact of tax losses used/not used	2	1
3. 4. Impact of reduced/increased tax rates on taxable results	0	0
2. Taxes on distributions	24	(47)
? Other impacts	(94)	(44)
EFFECTIVE TAX CHARGE	(392)	(582)
EFFECTIVE TAX RATE	20%	28%

(i) At the standard rate of 34.43%.

What explains the difference between theoretical and effective

→ the main part is explained by the impact of different rate by jurisdiction

Actual vs Statutory Tax – BMW

in € million	2021	2020
Profit before tax	16,060	5,222
Tax rate applicable in Germany	30.8 %	30.8 %
Expected tax expense	4,946	1,608
1. Variances due to different tax rates	- 596	- 397
Tax increases (+) / tax reductions (-) due to:		
3. Tax-exempt income	- 597	- 97
4. Non-deductible expenses	314	398
9. Equity accounted	- 370	- 210
6. Tax expense (+) / benefits (-) for prior years	- 54	61
8. Effects from tax rate changes	25	17
? Other variances	- 71	- 15
Actual tax expense	3,597	1,365
Effective tax rate	22.4 %	26.1 %

- Tax reconciliation!
- Diff is big enough to have a look at how BMW reconcile:
 - 3 is relevant: is a big part of the profit (if you would have non deduct it your taxes would be 10% more) → some subsidies, activities in country with lower taxes...
 - 4 fines for the emission scandal: tax men don't accept it! When its big you need to investigate (314 is oke)

Current vs Deferred Tax

- Current tax is the tax expense of the current fiscal period (and earlier periods).
- Deferred tax is either an asset (DTA) or a liability (DTL) can be short-term or long-term.
- Example for LVMH (2019) :

(EUR millions)	2019	2018	2017
Current income taxes for the fiscal year	(3,234)	(2,631)	(2,875)
Current income taxes relating to previous fiscal years	12	76	474
Current income taxes	(3,222)	(2,555)	(2,401)
Change in deferred income taxes	300	57	137
Impact of changes in tax rates on deferred income taxes	(10)	(1)	50
Deferred income taxes	290	56	187
Total tax expense per income statement	(2,932)	(2,499)	(2,214)

⇒ Deferred = postponed!

⇒ Current tax can relate to previous taxes, but it is still the current tax!!

Deferred Tax Assets and Liabilities

- Companies maintain two sets of accounting records:
 - one for preparing financial statements for **external parties**
 - another for reporting to **tax authorities**.
- These two sets are necessary because the country's tax code is different from GAAP/IFRS.
- **Deferred tax liabilities (assets)** arise when tax expense amount for financial reporting is greater (lower) than what is paid (or payable) to tax authorities in this year.
 - If the two numbers are equal = you don't have DTA
 - But if they are different you would see a deferred tax liability
 - If in the current year your tax is lower than your actual...
- DTA and DTL are accruals that arise and disappear because of **temporary** differences between the consolidated financial statements (under IFRS) and the financial statements considered by the tax authorities.
 - Permanent: are tax deduct and nondeductible expenses they never give rise to deferred taxes
- DTL is a tax liability postponed to the future (so you put it on the balance sheet)
- DTA is a tax benefit to be consumed in the future

C. Deferred tax liabilities

- Financial Reporting (Accounting) Profit > Taxable Profit

- Sources of DTLs:
 1. Accelerated depreciation
 2. Prepaid expenses
 3. Buyer write-ups of long-term assets
 4. Capitalization of specific expenses (when you buy companies)
- For each of these 4 sources, please note/understand:
 1. The technical accounting mechanism behind it.
 2. $DTL = [\text{tax rate}] \times [\text{the deferral amount of assets}]$
 3. Accrual of DTL is *temporary* → Financial reporting catches up with tax reporting over time

Source of DTL 1 – Accelerated Depreciation

Suppose we have a piece of PPE with a historical cost of 9,000 and a life span of 3 years with no salvage value. We depreciate linearly in our financial reporting, in line with economics, but the tax regulation allows the following depreciation pattern: 50% in year 1, 33% in year 2 and 17% in year 3. Tax rate is 33%. Pretax income before depreciation is 9,000.

INCOME STATEMENT:		THE JOURNAL:		
<u>Fin. Rep. (Yr 1)</u>	<u>Tax Rep. (Yr 1)</u>			
PTI b D = 9,000	PTI b D = 9,000	In Year 1: <u>Journal entries:</u>	<u>DEBET</u>	<u>CREDIT</u>
- <u>Depr.</u> = 3,000	- <u>Depr.</u> = 4,500	Tax Expense	2,000	
= PTI = 6,000	= PTI = 4,500	@ <u>Tax Liability</u> / cash		1,500
- Tax E. = 2,000	- Tax L. = 1,500	<u>Deferred Tax Liability</u>		500
= Net I. = 4,000	= Net I. = 3,000			
<u>Fin. Rep. (Yr 2)</u>	<u>Tax Rep. (Yr 2)</u>			
PTI b D = 9,000	PTI b D = 9,000	In Year 2: <u>Journal entries:</u>	<u>DEBET</u>	<u>CREDIT</u>
- <u>Depr.</u> = 3,000	- <u>Depr.</u> = 3,000	Tax Expense	2,000	
= PTI = 6,000	= PTI = 6,000	@ Tax Liability / cash		2,000
- Tax E. = 2,000	- Tax L. = 2,000			
= Net I. = 4,000	= Net I. = 4,000			
<u>Fin. Rep. (Yr 3)</u>	<u>Tax Rep. (Yr 3)</u>			
PTI b D = 9,000	PTI b D = 9,000	In Year 3: <u>Journal entries:</u>	<u>DEBET</u>	<u>CREDIT</u>
- <u>Depr.</u> = 3,000	- <u>Depr.</u> = 1,500	Tax Expense	2,000	
= PTI = 6,000	= PTI = 7,500	<u>Deferred Tax Liability</u>	500	
- Tax E. = 2,000	- Tax L. = 2,500	@ Tax Liability / cash		2,500
= Net I. = 4,000	= Net I. = 5,000			

Here we depreciate faster in the tax report than the financial report because you want to look good to your investors. So, it's lower on the financial report.

- Year 1: Temporary diff
 - Year 2: Nothing: is equal
 - Year 3: Lower in financial report
 - tax liability will be higher
 - you must pay more than what they say in the financial report
- ⇒ your DTL disappears and they will have to pay for it.

Example: Verizon (2015)

Liabilities and Equity		
Current liabilities		
Debt maturing within one year	\$ 6,489	\$ 2,735
Accounts payable and accrued liabilities	19,362	16,680
Liabilities related to assets held for sale	463	-
Other	8,736	8,572
Total current liabilities	35,052	27,987
Long-term debt		
	103,705	110,536
Employee benefit obligations	29,957	33,280
Deferred income taxes	45,484	41,563
Non-current liabilities related to assets held for sale	959	-
Other liabilities	11,641	5,574
Equity		
Series preferred stock (\$.10 par value; none issued)	-	-
Common stock (\$.10 par value; 4,242,374,240 shares issued in each period)	424	424
Contributed capital	11,196	11,155
Reinvested earnings	11,246	2,447
Accumulated other comprehensive income	550	1,111
Common stock in treasury, at cost	(7,416)	(3,263)
Deferred compensation — employee stock ownership plans and other	428	424
Noncontrolling interests	1,414	1,378
Total equity	17,842	13,676
Total liabilities and equity	\$ 244,640	\$ 232,616

What happens when we continue to renew our assets? Is the DTL equity or debt

- DTL = 45 484 (= Big)
 - o It's a Belgium company: equity is only 17 842
 - o The DTL is 3 times its equity)
- ⇒ But it's a telecom firm!
- They have a lot of long-term assets → a lot of depreciations: you move with the DTL
- Is it really a liability? (Verry important!)
 - o At the end it will disappear, and they will have to pay for it
 - o It disappears when you write of the asset
 - o But you can continue to invest: so your DTL will never disappears
 - So it is not a liability if it never disappears but it is an equity
- ⇒ at least the half consider as equity

Many other companies with big DTL

Source of DTL 2 – Prepaid Expenses

Suppose we rent a building with an annual rent of 1,800 from Sep 1 in X1 until Aug 31 in X2. The contract stipulates to pay up front for the entire rental amount in Sep 1 in X1. Tax authorities treat the expensed amount as expense in X1. Tax rate is 33%. Pretax income before rental expense is 9,000.

INCOME STATEMENT:

<u>Fin. Rep. (Yr 1)</u>	<u>Tax Rep. (Yr 1)</u>
PTI b RE= 9,000	PTI b RE= 9,000
- Rent Exp.= 600	- Rent E.= 1,800
= PTI = 8,400	= PTI = 7,200
- Tax E. = 2,800	- Tax L. = 2,400
= Net I. = 5,600	= Net I. = 4,800
<u>Fin. Rep. (Yr 2)</u>	<u>Tax Rep. (Yr 2)</u>
PTI b RE= 9,000	PTI b RE= 9,000
- Rent E.= 1,200	- Rent Exp. = 0
= PTI = 7,800	= PTI = 9,000
- Tax E. = 2,600	- Tax L. = 3,000
= Net I. = 5,200	= Net I. = 6,000

THE JOURNAL:

<u>In Year 1: Journal entries:</u>		<u>DEBET</u>	<u>CREDIT</u>
Tax Expense		2,800	
@ Tax Liability / cash			2,400
Deferred Tax Liability			400
<u>In Year 2: Journal entries:</u>		<u>DEBET</u>	<u>CREDIT</u>
Tax Expense		2,600	
Deferred Tax Liability		400	
@ Tax Liability / cash			3,000

NOTE: in sum, the total amount of taxes paid is the same but there are temporal differences that lead to tax savings.

- Your expenses run on in a different fiscal period, but you pay for them upfront!
- Big difference with example 1: it is a choice of the company to have tax saves → in example 1 they pay more in the begin to pay less in the further
 - o But here it is not a choice !

Source of DTL 3 – Acquisitions

Suppose we have done an acquisition of a distressed firm with book value of 2,000. We revamp its business and write up the assets to 2,600. The write-up of 600 will be written off 2 years later. Tax rate is 33%. Pretax income before the write-off is 9,000.

INCOME STATEMENT:		THE JOURNAL:		
<u>Fin. Rep. (Yr 1)</u>	<u>Tax Rep. (Yr 1)</u>		DEBIT	CREDIT
PTI b WO= 9,000	PTI b WO= 9,000	In Year 1: Journal entries:		
+ Reval. = 600	+ Reva. = 0	Tax Expense	3,200	
= PTI = 9,600	= PTI = 9,000	@ Tax Liability / cash		3,000
- Tax E. = 3,200	- Tax L. = 3,000	Deferred Tax Liability		200
= Net I. = 6,400	= Net I. = 6,000			
<u>Fin. Rep. (Yr 2-3)</u>	<u>Tax Rep. (Yr 2-3)</u>		DEBIT	CREDIT
PTI b WO= 9,000	PTI b WO= 9,000	In Year 2: Journal entries:		
- Write-off = 600	- Write-off = 0	Tax Expense	2,800	
= PTI = 8,400	= PTI = 9,000	Deferred Tax Liability	200	
- Tax E. = 2,800	- Tax L. = 3,000	@ Tax Liability / cash		3,000
= Net I. = 5,600	= Net I. = 6,000			

NOTE: if the write-up does not get written off in the financial reporting, the DTL never disappears.

Reevaluate the assets: those revaluates / write offs are “revenues”

→ You should have written off in year 2 and 3

Example: AB INBEV (2018)

INCOME STATEMENT:		THE JOURNAL:		
<u>Fin. Rep. (Yr 1)</u>	<u>Tax Rep. (Yr 1)</u>		DEBIT	CREDIT
PTI b WO= 9,000	PTI b WO= 9,000	In Year 1: Journal entries:		
+ Reval. = 600	+ Reva. = 0	Tax Expense	3,200	
= PTI = 9,600	= PTI = 9,000	@ Tax Liability / cash		3,000
- Tax E. = 3,200	- Tax L. = 3,000	Deferred Tax Liability		200
= Net I. = 6,400	= Net I. = 6,000			
<u>Fin. Rep. (Yr 2-3)</u>	<u>Tax Rep. (Yr 2-3)</u>		DEBIT	CREDIT
PTI b WO= 9,000	PTI b WO= 9,000	In Year 2: Journal entries:		
- Write-off = 600	- Write-off = 0	Tax Expense	2,800	
= PTI = 8,400	= PTI = 9,000	Deferred Tax Liability	200	
- Tax E. = 2,800	- Tax L. = 3,000	@ Tax Liability / cash		3,000
= Net I. = 5,600	= Net I. = 6,000			

NOTE: if the write-up does not get written off in the financial reporting, the DTL never disappears.

All relates to tax! It's a footnote

→Biggest part: revaluation and accelerated depreciation

Example: Oracle (2012)

2. ACQUISITIONS

Fiscal 2012 Acquisitions

Acquisition of Taleo Corporation

On April 5, 2012, we completed our acquisition of Taleo Corporation (Taleo), a provider of cloud-based talent management solutions. We have included the financial results of Taleo in our consolidated financial statements from the date of acquisition. These results were not individually material to our consolidated financial statements. The total preliminary purchase price for Taleo was approximately \$2.0 billion, which consisted of approximately \$2.0 billion in cash and \$10 million for the fair value of stock options and restricted stock-based awards assumed. We have preliminarily recorded \$1.1 billion of identifiable intangible assets and \$282 million of net tangible liabilities related primarily to deferred tax liabilities and customer performance obligations that were assumed as a part of this acquisition based on their estimated fair values and \$1.2 billion of residual goodwill.

(in millions)	May 31,	
	2012	2011
Deferred tax liabilities:		
Unrealized gain on stock	\$ (130)	\$ (130)
Acquired intangible assets	(1,974)	(1,816)
Unremitted earnings	(322)	(44)
Total deferred tax liabilities	<u>\$ (2,426)</u>	<u>\$ (1,990)</u>

Source of DTL 4 – Capitalized Expenses

Suppose we capitalize expenses for attracting new clients for our streaming service for an amount of 9,000 and we amortize these over a period of 3 years. Although allowed under GAAP (under certain conditions), the tax regulation considers these cash outflows as expenses in Year 1. Tax rate is 33%. Pretax income before these expenses is 18,000.

INCOME STATEMENT:

<u>Fin. Rep. (Yr 1)</u>	<u>Tax Rep. (Yr 1)</u>
PTI b A = 18,000	PTI b A = 18,000
- Amort. = 3,000	- Expenses = 9,000
= PTI = 15,000	= PTI = 9,000
- Tax E. = 5,000	- Tax L. = 3,000
= Net I. = 10,000	= Net I. = 6,000

THE JOURNAL:

In Year 1: Journal entries:	DEBIT	CREDIT
Tax Expense	5,000	
@ Tax Liability / cash		3,000
Deferred Tax Liability		2,000

<u>Fin. Rep. (Y2/3)</u>	<u>Tax Rep. (Yr 2/3)</u>
PTI b A = 18,000	PTI b A = 18,000
- Amort. = 3,000	- Expenses = 0
= PTI = 15,000	= PTI = 18,000
- Tax E. = 5,000	- Tax L. = 6,000
= Net I. = 10,000	= Net I. = 12,000

In Year 2 and Year 3:	DEBIT	CREDIT
Journal entries:		
Tax Expense	5,000	
Deferred Tax Liability	1,000	
@ Tax Liability / cash		6,000

- Must be taken into account immediately as expenses (tax authority)
- In the financial reporting: you must amortize
- Here they want to show better information in the financial report to their investors!

Concluding Remarks on DTL

- DTLs chiefly arise because of more aggressive depreciation and amortization in tax reporting.
- Theoretically, growing firms could feasibly never have to pay DTLs
- Important in advanced analysis of M&A deals
- Major investing activities are visible in the DTL
- “Surprising” increases in deferred tax liabilities are a red flag signal as they may be the result of aggressive revenue recognition
 - o Advice: Read and analyze the tax footnote carefully.

Suppose you commit frauded and make up revenues (for investors)

	FINAN RES	TAX
SALES	1000	0 (Ask invoices)
TAX E / L	400 (40%)	0
	d	c
Tax exp	400	
@dtl		400

⇒ Red flag signal: fraud! In this example fictive income

D. Deferred Tax assets

- DTAs represent a claim of the firm against the government, as they may reduce the taxes to be paid on future profits.
- The reasons for creation and use of DTAs vary across countries and are normally defined in national legislations in the context of income taxes.
- DTAs are also referred to as government contingent liabilities
- Accounting profit < Taxable profit
- DTAs are related to past transactions and can be grouped in two principal categories: temporary deductions and tax losses.
- These fall in three main sources of DTAs:
 1. Restructuring expenses
 2. Non-cash employee benefits
 3. Carry forward of past losses

⇒ Non-financial → non cash

Source of DTA 1 - Restructuring Expenses

- Most common example: Severance pay for redundant employees:
 - A provision for *severance pay* to employees is immediately considered an expense under IFRS.
 - These expenses negatively affect operating income in the income statement.
 - However, tax regulations usually only consider these expenses as deductible when the losses actually materialize (i.e. when the cash outflows actually occur). In tax reports, these will not be considered an expense and will not be deductible from the tax base.

- Until the losses materialize, these amounts are accounted for as DTAs on the balance sheet.

- **DTA = tax rate x deductible amount of restructuring expense**

Suppose we restructure our business in X1 and we forecast to pay 1,800 in X2 to discharge part of our workforce. This is a provision taking into account in X1. Tax authorities likely reject these provisions as tax deductible expenses in X1 and will only allow you to consider it expenses when you actually spend money on discharging people (in X2). Tax rate is 33%. Pretax income before restructuring expense is 9,000.

INCOME STATEMENT:

<u>Fin. Rep. (Yr 1)</u>	<u>Tax Rep. (Yr 1)</u>
PTI b RE= 9,000	PTI b RE= 9,000
- Restr. E.= 1,800	- Restr. E.= 0
= PTI = 7,200	= PTI = 9,000
- Tax E. = 2,400	- Tax L. = 3,000
= Net I. = 4,800	= Net I. = 6,000
<u>Fin. Rep. (Yr 2)</u>	<u>Tax Rep. (Yr 2)</u>
PTI b RE= 9,000	PTI b RE= 9,000
- Restr. E.= 0	- Restr. E.= 1,800
= PTI = 9,000	= PTI = 7,200
- Tax E. = 3,000	- Tax L. = 2,400
= Net I. = 6,000	= Net I. = 4,800

THE JOURNAL:

<u>In Year 1: Journal entries:</u>	<u>DEBIT</u>	<u>CREDIT</u>
Tax Expense	2,400	
Deferred Tax Asset	600	
@ Tax Liability / cash		3,000

<u>In Year 2: Journal entries:</u>	<u>DEBIT</u>	<u>CREDIT</u>
Tax Expense	3,000	
@ Tax Liability / cash		2,400
Deferred Tax Asset		600

- IFRS → Put it in financial report
- Tax accounting → not yet in report; not allowed to write it off
 - ⇒ Temporary because at some point in the future you will spend out!
 - You will not see it in the financial report but in the tax report
 - Asset = future economic benefit
- Firm has no choice!

Source of DTA 2 – Employee Benefits

- Postponed or deferred benefits to employees
 - Noncash benefits that you give to your employees
- Most common examples:
 - Retirement benefits
 - Stock-based compensation = You pay not only in cash but also in stock
- Taxes are exempt until the benefits are paid out.
- DTA = tax rate x deductible amount of employee benefits
- Functions the same way as DTAs for restructuring expenses.

Example: Verizon (US GAAP)

	(dollars in millions)	
At December 31,	2015	2014
Employee benefits	\$ 12,220	\$ 13,350
Tax loss and credit carry forwards	4,099	2,255
Other — assets	2,504	2,247
	18,823	17,852
Valuation allowances	(3,414)	(1,841)
Deferred tax assets	15,409	16,011
Spectrum and other intangible amortization	29,945	28,283
Depreciation	24,725	23,423
Other — liabilities	6,125	5,754
Deferred tax liabilities	60,795	57,460
Net deferred tax liability	\$ 45,386	\$ 41,449

→ (Also, tax loss)

- Employee benefits: temporarily in balance until you cash out to your employees it is an DTA

Source of DTA 3 - Carry Forward of Past Losses

- When a company reports a loss for tax purposes, it can in some countries carry back that loss (e.g., in US for up to two years) to recoup previous taxes paid.
- Any tax losses can be carried forward for a certain number of years to reduce future taxes (e.g., in US 20 years)
- The use of DTAs as set in national legislations is limited to a determined period of time since their creation. In this case, the remaining amounts will be lost if not used at the end of the given period. However, in some countries such limitation does not exist (e.g., Belgium).
- Tax losses create a potential future tax benefit (an “asset”).
- **DTA = tax rate x ((-) negative tax base)**

Example:

C = 40 %

	Yr1	Yr0	Yr1->2
	PTI = 20	PTI = - 100	PTI = 40
	tax = -8	tax = - (-40)	tax = -16
	NI = 12	NI = -60	NI = 24
	D	C	
DTA	40		(ASSET BCS WE EXEPT THAT WE ARE GOINT TO BE PROF AGAIN)
@Tax exp		40	
Tax exp	16		
@DTA		16	

Tax los !!

- in some countries you can recupere
- ⇒ carry forward that tax losses

Suppose we register a loss of 6,000 in X1. Tax expense becomes negative. Governments will typically not pay out this amount but will allow you to carry forward the tax loss. Tax rate is 33%.

INCOME STATEMENT:

<u>Fin. Rep. (Yr 1)</u>	<u>Tax. Rep. (Yr 1)</u>
= PTI = -6,000	= PTI = -6,000
- Tax E. = +2,000	- Tax A. = +2,000
= Net I. = -4,000	= Net I. = -4,000

THE JOURNAL:

<u>In Year 1: Journal entries:</u>	<u>DEBIT</u>	<u>CREDIT</u>
Deferred Tax Asset	2,000	
@ Tax Expense		2,000

<u>Fin. Rep. (Yr 1)</u>	<u>Tax. Rep. (Yr 1)</u>
= PTI = 2,400	= PTI = 2,400
- Tax E. = 800	- Tax L. = 0
= Net I. = 1,600	= Net I. = 2,400

<u>In Year 2: Journal entries:</u>	<u>DEBIT</u>	<u>CREDIT</u>
Tax Expense	800	
@ Deferred Tax Asset		800

- ⇒ IF you make enough positive income in the future!!
- ⇒ But if you will never do positive income : the economic value of deferred tax = 0
- Deferred tax assets are amounts of income tax recoverable in future periods...
provided that there will be sufficient future taxable profits!!
- As a consequence, DTAs need to be estimated and their value critically depends on the estimated future profitability of the firm, which is an extremely difficult estimation exercise.
- Which are the consequences of a decrease in expected future profitability?
 - If not: write off assets = losses
 - A cash inflow that you expected but that you will not have = loss
- What happens with DTAs from tax losses in loss making companies in the event of a potential take-over?
 - Pay less taxes in the further (not important)
- The economic value of DTA depends on your ability to create profit in the future

Example: Verizon (US GAAP)

(dollars in millions)		
At December 31,	2015	2014
Employee benefits	\$ 12,220	\$ 13,350
Tax loss and credit carry forwards	4,099	2,255
Other — assets	2,504	2,247
	18,823	17,852
Valuation allowances	(3,414)	(1,841)
Deferred tax assets	15,409	16,011
Spectrum and other intangible amortization	29,945	28,283
Depreciation	24,725	23,423
Other — liabilities	6,125	5,754
Deferred tax liabilities	60,795	57,460
Net deferred tax liability	\$ 45,386	\$ 41,449

- Valuation allowances: under IFRS you don't show it! You direct show the difference

- Valuation allowances increase → expense: negatively affect incomes
⇒ Economically it is the same

IFRS versus U.S. GAAP

- Several smaller differences
- One important one related to the valuation allowance
- Under US GAAP:
 - Companies are required to establish a **deferred tax valuation allowance** for deferred tax assets when the future realization of their benefits is uncertain.
 - The effect on financial statements is to reduce reported assets, increase tax expense, and reduce equity.
 - These effects are reversed if the allowance is reversed in the future when realization of these tax benefits becomes more likely.
- Under IFRS:
 - No valuation allowances
 - DTAs are only recognized when there is a “high” probability that the tax benefit will be realized.

You need to know to interpret the valuation allowance: see at Toledo exercise

Source of DTA 4 – Tax Losses

Example: Nokia (IFRS)

Financial year ended December 31	Notes	2013 EURm	2012 ¹ EURm	2011 ¹ EURm
Continuing operations				
Net sales		12 709	15 400	15 968
Cost of sales		-7 364	-9 841	-10 408
Gross profit		5 345	5 559	5 560
Research and development expenses		-2 619	-3 081	-3 334
Selling and marketing expenses		-974	-1 372	-1 608
Administrative and general expenses		-697	-690	-735
Impairment of goodwill	9	—	—	-1 090
Other income	8	272	276	151
Other expenses	8, 9	-808	-1 513	-332
Operating profit (loss) (-)	2-11, 13	519	-821	-1 388
Share of results of associated companies	16, 12	4	-1	-23
Financial income and expenses	9, 12	-280	-357	-131
Profit (loss) (-) before tax		243	-1 179	-1 542
Income tax	13	-202	-304	-73
Profit (loss) (-) from continuing operations		41	-1 483	-1 615
Profit (loss) (-) from continuing operations attributable to equity holders of the parent		186	-771	-1 272
Loss from continuing operations attributable to non-controlling interests		-145	-712	-343
		41	-1 483	-1 615
Loss (-)/profit (+) from discontinued operations	3	-780	-2 303	128
Loss (-)/profit (+) from discontinued operations attributable to equity holders of the parent		-801	-2 334	109
Profit from discontinued operations attributable to non-controlling interests		21	31	19
		-780	-2 303	128
Loss for the year		-739	-3 786	-1 487

These numbers do not make sense

- Pretax income: positive
 - Effective tax rate = 80%
 - Statutory tax rate = 26%
- Nokia has a giant loss
 - You expect the tax expense negative, but it is positive!
 - Profit is even lower! Makes no sense, you need to dig in the footnotes

The differences between the income tax expense computed at statutory rate of 24.5% in 2013 and 2012 in Finland (26% in 2011) and income taxes recognized in the consolidated income statement is reconciled as follows:

EURm	2013	2012	2011
Income tax expense (+)/benefit (-) at statutory rate	60	-289	-401
Permanent differences	-22	67	-98
Non tax deductible impairment of goodwill (Note 9)	—	—	283
Income taxes for prior years	-22	-78	-16
Income taxes on foreign subsidiaries' profits in excess of (lower than) income taxes at statutory rates	5	15	-22
Realizability of deferred tax assets ¹	138	609	279
Net increase (+)/decrease (-) in uncertain tax positions	14	-14	3
Change in income tax rates	7	4	11
Income taxes on undistributed earnings	-21	-24	9
Other	43	14	25
Income tax expense	202	304	73

¹ This item primarily relates to NSN's Finnish tax losses, unused tax credits and temporary differences for which no deferred tax was recognized. In 2012 this item also relates to NSN's German tax losses and temporary differences for which no deferred tax was recognized.

2013: The income tax expense should be 60 but it is 202

→ Form 2012 you expect an benefit of 304 (it is positive)

=> there is a diff a 600

=> 10% of sales

The only important amount is the realizability of deferred tax assets

! Look at the footnote of the footnote! Finish tax losses: it tells you that the previous amount of tax losses that Nokia has recognized on the balance sheet (they thought they were going to heal) are not the same value, they are not worth what it says on the balance sheet because the future positive income will never occur.

⇒ Write of the loses

⇒ You will see it on realizability of deferred tax assets

⇒ It shows you that your business is going down the drain, but you think you are going to recover. In the end if it turns out to be the case that you don't have recovered! You are screwed twice because you need to write them

→ DFA: very very intangible asset!

Netting of DTAs and DTLs

Example of BMW

in € million	Deferred tax assets		Deferred tax liabilities	
	2021	2020	2021	2020
Intangible assets	4	17	3,494	3,354
Property, plant and equipment	74	49	665	673
Leased products	300	282	4,493	3,203
Other investments	5	6	1	1
Sundry other assets	886	1,013	4,646	3,966
Tax loss carryforwards	1,061	476	—	—
Capital losses	490	348	—	—
Provisions	6,070	6,655	29	33
Liabilities	4,303	3,717	601	852
Eliminations	3,936	3,721	1,826	1,766
	17,129	16,284	15,755	13,848
Valuation allowances on tax loss carryforwards	-140	-138	—	—
Valuation allowances on capital losses	-490	-348	—	—
Netting	-14,297	-13,339	-14,297	-13,339
Deferred taxes	2,202	2,459	1,458	509

Netting = offsetting

= I owe you 60 something and you owe me 20 => so you owe me 40 and on the balance sheet we put 40

It is allowed under tax accounting under one condition: that it is related to the same party.

Temporary vs Permanent Differences

- Most differences between financial reporting and tax returns are a matter of timing, and therefore *temporary* differences, giving rise to DTA or DTL.
- However, differences between financial and tax reporting caused by an item that does not reverse over time result in *permanent* differences.
- Permanent tax differences never give rise to deferred taxes.
- Two types of permanent tax differences:
 1. Tax-exempt revenues (e.g., revenues from a good cause; government incentives for promoting diversity etc.)
 2. Nondeductible expenses – Examples:
 - Fines and penalties for the company. Tax codes rarely ever allow a deduction in the event of a fine, but fines are often deducted from net income in the financial reporting.
 - Meals and entertainment.
 - Life insurance costs for executives.
- The tax footnote is required to show effects of permanent differences.

E. Exercises on accounting for taxes

Tax information from the footnotes for Diageo (2019):

	United Kingdom			Rest of world			Total		
	2019 £ million	2018 £ million	2017 £ million	2019 £ million	2018 £ million	2017 £ million	2019 £ million	2018 £ million	2017 £ million
Current tax									
Current year	150	131	50	713	503	541	863	634	591
Adjustments in respect of prior years	(3)	71	4	52	(2)	16	49	69	20
	147	202	54	765	501	557	912	703	611
Deferred tax									
Origination and reversal of temporary differences	29	40	40	(19)	127	94	10	167	134
Changes in tax rates	(2)	(11)	5	(52)	(360)	(14)	(54)	(371)	(9)
Adjustments in respect of prior years	5	95	13	25	2	(17)	30	97	(4)
	32	124	58	(46)	(231)	63	(14)	(107)	121
Taxation on profit from continuing operations	179	326	112	719	270	620	898	596	732

After offsetting deferred tax assets and liabilities where appropriate within territories, the net deferred tax liability comprises:

	2019 £ million	2018 £ million
Deferred tax assets	138	122
Deferred tax liabilities	(2,032)	(1,987)
	(1,894)	(1,865)

- Additional information:
 - Amount of taxes paid in 2019 = 805
 - Side question: where do we find this amount? Cash flow statement
- Required:
 - How did the DTA change in 2019? Increase of 16 (so we debit it)
 - How did the DTL change in 2019? Increase of 45 (so we credit it)
 - What was the tax expense in 2019? Tax expense of 898
 - How does the recording of the income tax expense, the DTA and DTL in the journal or on the T-accounts occur for Diageo in 2019?

<i>In the Journal:</i>		
Tax Expense	D 898	C
Deferred Tax Assets	16	
@		PLUG
	Tax Liabilities	64
	Deferred Tax Liabilities	45
	Cash	805

- Extra exercises on Blackboard: Ahold, Colgate-Palmolive and Under Armour.

F. (TCJA in the US)

Tax Cuts and Jobs Act in the US

1. Tax rate down from 35% to 21%
2. Repatriation tax on previously undistributed foreign earnings
3. Additional tax on cash held abroad

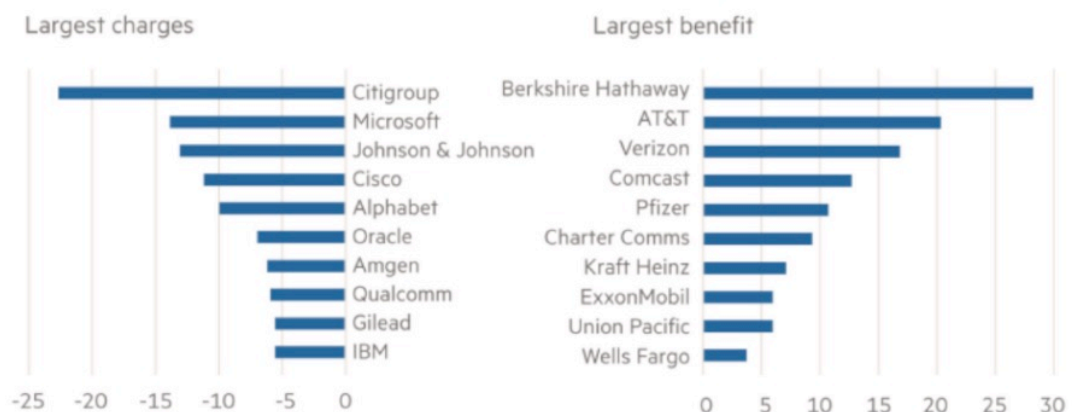
Tax Cuts and Jobs Act (TCJA) and SEC Staff Accounting Bulletin 118 (SAB 118)

On December 22, 2017, the United States enacted into law new U.S. tax legislation, referred to as the TCJA. This law includes provisions for a comprehensive overhaul of the corporate income tax code, including a reduction of the statutory corporate tax rate from 35% to 21%, effective on January 1, 2018. This new legislation also eliminated or reduced certain corporate income tax deductions as well as introduced new provisions that taxed certain foreign income not previously taxed by the United States. The TCJA also includes a provision for a tax on all previously undistributed earnings of U.S. companies located in foreign jurisdictions. Undistributed earnings in the form of cash and cash equivalents is taxed at a rate of 15.5% and all other earnings are taxed at a rate of 8.0%. This tax is payable over 8 years and will not accrue interest.

In December 2017, the SEC provided regulatory guidance for accounting of the impacts of the TCJA, referred to as SAB 118. Under the guidance in SAB 118, the income tax effects, which the accounting under ASC 740 is incomplete, are reported as a provisional amount based on a reasonable estimate. The reasonable estimate is subject to adjustment during a "measurement period", not to exceed one year, until the accounting is complete. The estimate is also subject to the finalization of management's analysis related to certain matters, such as developing interpretations of the provision of the TCJA, changes to certain estimates and amounts related to the earnings and profits of certain subsidiaries and the filing of tax returns.

Tax Cuts and Jobs Act caused big accounting adjustments

One-off tax benefit/expense recorded by the top 100 US companies* (\$bn)



TCJA impact for Verizon

Years Ended December 31,	(dollars in millions, except per share amounts)		
	2017	2016	2015
Operating Revenues			
Service revenues and other	\$ 107,145	\$ 108,468	\$ 114,696
Wireless equipment revenues	18,889	17,512	16,924
Total Operating Revenues	126,034	125,980	131,620
Operating Expenses			
Cost of services (exclusive of items shown below)	29,409	29,186	29,438
Wireless cost of equipment	22,147	22,238	23,119
Selling, general and administrative expense (including net gain on sale of divested businesses of \$1,774, \$1,007 and \$0, respectively)	30,110	31,569	29,986
Depreciation and amortization expense	16,954	15,928	16,017
Total Operating Expenses	98,620	98,921	98,560
Operating Income	27,414	27,059	33,060
Equity in losses of unconsolidated businesses	(77)	(98)	(86)
Other income (expense), net	(2,010)	(1,599)	186
Interest expense	(4,733)	(4,376)	(4,920)
Income Before Benefit (Provision) For Income Taxes	20,594	20,986	28,240
Benefit (provision) for income taxes	9,956	(7,378)	(9,865)
Net Income	\$ 30,550	\$ 13,608	\$ 18,375

Liabilities and Equity

Current liabilities		
Debt maturing within one year	\$ 3,453	\$ 2,645
Accounts payable and accrued liabilities	21,232	19,593
Other	8,352	8,102
Total current liabilities	33,037	30,340
Long-term debt	113,642	105,433
Employee benefit obligations	22,112	26,166
Deferred income taxes	31,232	45,964
Other liabilities	12,433	12,240
Total long-term liabilities	179,419	189,808

Back to BMW: Statutory vs. Actual Tax

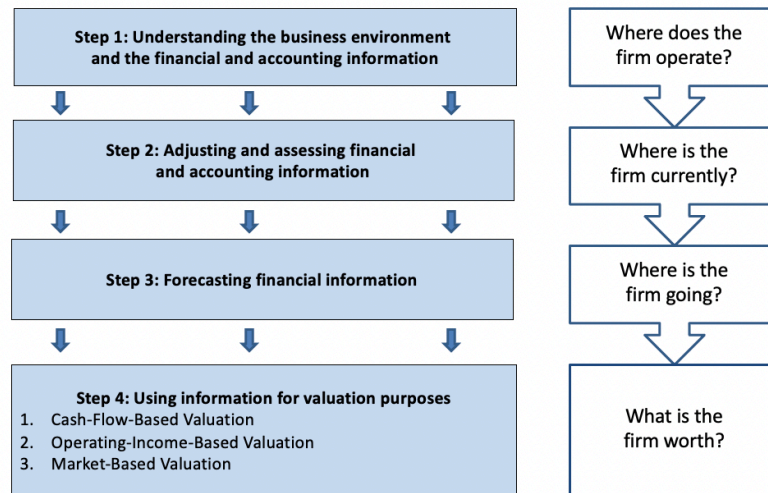
in € million	2018	2017*
Profit before tax	9,815	10,675
Tax rate applicable in Germany	30.8 %	30.7 %
Expected tax expense	3,023	3,277
Variances due to different tax rates	-359	-1,026
Tax increases (+) / tax reductions (-) as a result of non-deductible expenses and tax-exempt income	141	58
Tax expense (+) / benefits (-) for prior years	-16	-104
Other variances	-214	-205
Actual tax expense	2,575	2,000
Effective tax rate	26.2 %	18.7 %

Variances due to different tax rates were influenced in particular by the reduction in the US federal corporate income tax rate, which was required to be taken into account in the measurement of deferred taxes as of 31 December 2017. This resulted in a reduction in tax expense of €977 million.

- SIGN lower
- Diff of 1 BILION: look at footnote → 20% of the sales
- Huge tax saves for companies with much in the EU

9. VALUATION BASICS

Stock Valuation Process



A. Making Accounting Adjustments

- Making accounting adjustments to financial statements before they are usable for valuation purposes is often necessary.
- Making these adjustments is often debatable and subjective. (It is not an exact science)
- Many of the adjustments have to do with:
 - Making numbers **comparable** with each other
 - Gross profit for BMW vs Daimler
 - R&D treatment of BMW vs R&D treatment of Ford Motor Co.
 - **Rewriting** the balance sheet and income statement
 - NOPAT versus NNE ($NI = NOPAT - NNE$ or $NOPAT = NI + NNE$)
 - NOA versus EQ and NNO ($NOA = EQ + NNO$)
 - (3a.) Undoing accounting **conservatism** in BS and IS
 - (3b.) Transforming accounting earnings into **economic earnings**
 - Examples of 3a and 3b:
 - Reversing accelerated depreciation / undoing impairments
 - Capitalizing advertising expenses
 - Capitalizing R&D expenses
 - Undoing inventories under LIFO
 - Estimating and capitalizing internally generated brands → book value closer to market value

Exercise on accounting adjustment: Capitalization of R&D expenses – See Excel doc “Lecture 9 – Materials” sheet “R&D Cap”

- Suppose we spent the amount of 10,673 on R&D in 2015. R&D expenditure grows at a rate of 17% per year. In accounting earnings (ACC EARN), we fully expense the amount spent on R&D. To achieve economic earnings (ECON EARN), we capitalize the R&D expense and amortize it to zero over a period of 5 years.

- Questions:
 - What is the effect of this alternative treatment of R&D on *economic* earnings in 2015-2019?
 - The cumulative effect = last row
 - The single effect = 9th row
 - How does the *economic* balance sheet look like in 2015-2019?
 - You can see it in Value of R&D Asset
 - Why would analysts capitalize R&D expenses?
 - Because it is an attempt to bring the accounting earning to the economic earnings. You're better off with economics earnings then accounting earnings.

Solution:

Solution:

	2015	2016	2017	2018	2019
R&D Expense as reported in ACC EARN	10,673	12,487	14,610	17,094	20,000
2015	2,135	2,135	2,135	2,135	2,135
2016		2,497	2,497	2,497	2,497
2017			2,922	2,922	2,922
2018				3,419	3,419
2019					4,000
R&D Amortization Expense in ECON EARN	2,135	4,632	7,554	10,973	14,973
Effect on Current- Year ECON EARN	8,538	7,855	7,056	6,121	5,027
Cumulative Amount SPENT on R&D	10,673	23,160	37,771	54,865	74,865
Cumulative R&D Amortization Expense	2,135	6,767	14,321	25,294	40,267
Value of R&D Asset	8,538	16,394	23,450	29,571	34,598
Cumulative Effect on Economic Earnings	8,538	16,394	23,450	29,571	34,598

Note: A red arrow points from the 2015 R&D Expense (10,673) to the 2015 R&D Amortization Expense (2,135), with the text "10,673 / 5" above it.

Why? Capitalizing R&D (arguably) brings earnings and operating assets closer to underlying economics.

You're better off with economics earnings then accounting earnings.

B. Forecasting Financial Statements

4-step procedure:

1. **Forecast revenues.**
2. **Forecast operating expenses.** We assume a relation between revenue and each specific operating expense account. Probably the relation will be more one-on-one for COGS than for SG&A and R&D.
3. **Forecast operating and nonoperating assets, liabilities and equity.** We assume a relation between revenue and balance sheet accruals such as inventories and receivables.
4. **Adjust short-term investments or short-term debt to balance the balance sheet.** We use marketable securities and short-term debt to balance the balance sheet. We then recalculate net nonoperating expense (interest/dividend income or interest expense) to reflect any adjustments we make to nonoperating asset and liability account balances.

Forecasting Revenues

- Use historical growth rates in sales
- Use Industry growth rates
- Use analyst forecasts (Example: AB Inbev)
 - Forecasts of financial numbers by professional analysts
 - Forecasts usually per share and mostly focus on earnings

- Other numbers that are sometimes forecasted (primarily for big companies): sales, equity, OCF, FCF and long-term growth
- Application for sales forecasts of AB Inbev: See excel file “Lecture 9 – Materials” in the sheet “Sales forecasts ABI”
- Consider how the forecasts evolved in 2020 and 2021 on the sales of AB Inbev, as the forecast date approaches the date on which the true sales of the company are disclosed to investors.

Forecasting Other Items

- **Cost of goods** sold are impacted via increased inventory purchases in anticipation of increased demand, added manufacturing personnel, and greater depreciation from new manufacturing PPE.
- **SG&A** increase concurrently with, or in anticipation of, increased revenues, although not as much in line with revenues as COGS; these expenses include increased costs for buyers, higher advertising costs, payments to sales personnel, costs of after-sale customer support, logistics costs, IT costs and administrative costs. Potential for economies of scale.
- **Cash** and changes in cash is usually the result of “everything else” and used as the plug.
- **Accounts Receivable, Accounts Payable and Unearned Revenues** increase directly with increases in revenues as more products and services are sold on credit.
- **Inventories** normally increase in anticipation of higher sales volume to ensure a sufficient stock of inventory available for sale.

Forecasted Income Statement for P&G

EXHIBIT 11.2 Forecast of P&G's FY2020 Income Statement						
\$ millions	FY2019 Actual	% of Net Sales	Computations	FY2020 Est.	% of Net Sales	Explanation
Net sales.....	\$67,684	100.0%	$\$67,684 \times 1.035$	\$70,053	100.0%	Use P&G's guidance that sales will increase about 3.5%. Sales forecast equals current sales $\times (1 + \text{growth rate } \%)$.
Cost of products sold.....	34,768	51.4%	$\$70,053 \times 51.4\%$	36,007	51.4%	Assume COGS as % of sales will remain unchanged from FY2019.
Selling, general, and administrative expense...	19,084	28.2%	$\$70,053 \times 28.2\%$	19,755	28.2%	Assume SG&A as % of sales will remain unchanged from FY2019.
Goodwill & indefinite lived intangibles impairment charges.....	8,345	12.3%	none	0		The Goodwill impairment charge is a transitory item and we eliminate that expense in FY2020.
Operating income.....	5,487	8.1%	subtotal	14,291	20.4%	
Interest expense.....	509	0.8%	computed	483	0.7%	Interest expense is discussed below.
Interest income.....	220	0.3%	no change	220	0.3%	Assume no change in interest revenue.
Other nonoperating income, net.....	871	1.3%	none	0	0.0%	FY2019 nonoperating income relates to the dissolution of a partnership and early extinguishment of debt, and we assume none for FY2020 given no evidence of planned divestitures or debt retirement.
Earnings from continuing operations before income taxes.....	6,069	9.0%	subtotal	14,028	20.0%	
Income taxes on continuing operations.....	2,103	3.1%	$\$14,014 \times 17.5\%$	2,455	3.5%	Assume effective tax rate of 17.5% per P&G guidance.
Net earnings.....	3,966	5.9%	subtotal	11,573	16.5%	
Less: Net earnings attributable to noncontrolling interests.....	69	0.1%	$\$11,562 \times 1.7\%$	197	0.3%	Assume noncontrolling interests as % of net earnings (1.7%) continues.
Net earnings attributable to P&G.....	<u>\$ 3,897</u>	<u>5.8%</u>	subtotal	<u>\$11,376</u>	<u>16.2%</u>	

Forecasted Assets for P&G

EXHIBIT 11.3 Forecast of P&G's FY2020 Balance Sheet						
\$ millions, except per share amounts	2019 Actual	% of Sales	Computations	2020 Est.	% of Sales	Explanation
Current assets						
Cash and cash equivalents	\$ 4,239	6.3%	Plug	\$ (1,550)	0.1%	Plug to balance the balance sheet.*
Available-for-sale investment securities	6,048	8.9%	no change	6,048	8.6%	Assume no change.
Accounts receivable	4,951	7.3%	$\$70,053 \times 7.3\%$	5,114	7.3%	Forecast working capital accounts as a % of sales using prior year's % unless information suggests otherwise.**
Inventories	5,017	7.4%	$\$70,053 \times 7.4\%$	5,184	7.4%	
Prepaid expenses and other current assets	2,218	3.3%	$\$70,053 \times 3.3\%$	2,312	3.3%	
Total current assets	22,473	33.2%	subtotal	17,108	26.7%	
Property, plant, and equipment, net	21,271	31.4%	$\$3,328 - \$2,604$	21,995	31.4%	CAPEX estimates are from P&G guidance, and depreciation expense is computed as a % of prior year PPE, gross.
Goodwill	40,273	59.5%	no change	40,273	57.5%	Assume no changes because goodwill is not amortized.
Trademarks and other intangible assets, net	24,215	35.8%	(\$359)	23,856	34.1%	Apply estimated amortization expense from footnotes of P&G.
Other noncurrent assets	6,863	10.1%	no change	6,863	9.8%	Assume no change.
Total assets	\$115,095	170.0%	subtotal	\$110,095	159.5%	

Forecasted Liabilities and Equity for P&G

Current liabilities						
Accounts payable	\$ 11,260	16.6%	$\$70,053 \times 16.6\%$	\$ 11,629	16.6%	Forecast working capital accounts as % of sales unless information suggests otherwise.
Accrued and other liabilities	9,054	13.4%	$\$70,053 \times 13.4\%$	9,387	13.4%	
Debt due within one year	9,697	14.3%	$(\$3,388) + \$2,009$	8,318	16.1%	Use footnotes to get current maturities of long-term debt. Assume other debt remains unchanged.
Total current liabilities	30,011	44.3%	subtotal	29,334	46.1%	
Long-term debt	20,395	30.1%	(\$2,009)	18,386	24.3%	Use footnotes to get current maturities of long-term debt to be repaid.
Deferred income taxes	6,899	10.2%	$\$70,053 \times 10.2\%$	7,145	10.2%	Assume no change as a % of sales.
Other noncurrent liabilities	10,211	15.1%	$\$70,053 \times 15.1\%$	10,578	15.1%	Assume no change as a % of sales.
Total liabilities	67,516	99.8%	subtotal	65,443	95.7%	
Shareholders' equity						
Convertible Class A preferred stock	928	1.4%	no change	928	1.3%	Assume no change in paid-in capital accounts.
Nonvoting Class B preferred stock	0	0.0%	no change	0	0.0%	
Common stock, stated value \$1 per share	4,009	5.9%	no change	4,009	5.7%	
Additional paid-in capital	63,827	94.3%	no change	63,827	91.1%	Assume no change.
Reserve for ESOP debt retirement	(1,146)	(1.7)%	no change	(1,146)	(1.6)%	
Accumulated other comprehensive income (loss)	(14,936)	(22.1)%	no change	(14,936)	(21.3)%	Assume no change.
Treasury stock	(100,406)	(148.3)%	(\$7,000)	(107,406)	(153.3)%	Use P&G guidance.
Retained earnings	94,918	140.2%	$\$11,573 - \$7,500$	98,794	141.0%	Increased by forecasted net income less forecasted dividends.
Noncontrolling interest	385	0.6%	+\$197	582	0.8%	Increased by net income allocated to noncontrolling interests.
Total shareholders' equity	47,579	70.3%	subtotal	44,652	63.7%	
Total liabilities and shareholders' equity	\$115,095	170.0%	subtotal	\$110,095	159.5%	

C. The basics of valuation

Valuation Fundamentals

- 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 Equity (Eq_L) + Value of Debt (D)
- Value of the firm = Value of the operations + tax advantage
- Value of the firm = Sum of all future Free Cash Flows
- Free Cash Flows = Dividends + Interests

- Value of the firm = $V_L = E_{qL} + D$
- Future payoffs must be estimated: \rightarrow Dividends (E_{qL})
- Discount rate must be estimated: \rightarrow Free Cash Flows (V_L)
- \rightarrow Cost of equity = $E(R_L)$
- \rightarrow Cost of operations = $E(R_U)$

Recap of Valuation Fundamentals

- Miller Modigliani – Part 1 (MM1)
- Value of the firm (V_L) = Value of Equity (E_{qL}) + Value of Debt (D)
- V_U = Value of the operations, assuming no debt (Unlevered)
- $V_U = FCF / E(R_U)$ \rightarrow in which $E(R_U)$ = cost of the operations
 - ($u \rightarrow$ unleveraged)
 - FCF = Free cash flow of the firm
- $E(R_U) = R_f + \beta_U[E(R_m) - R_f]$ \rightarrow Using the CAPM
- Recall that: $V_L = V_U$ in perfect capital markets (theory of Miller Modigliani)
- And therefore: $WACC = E(R_U)$
- MM1: Capital structure is irrelevant for the value of the firm
- MM2: Cost of the equity increases with increasing leverage
 - $E(R_L)$ = cost of equity = required return by investors before they invest in equity.
 - If we have debt, $E(R_L)$ is the result of both our operations ($E(R_U)$), as well as how we finance our activities and at what price (R_D).

$$\triangleright E(R_L) = E(R_U) + [E(R_U) - R_D] \times [D / E_{qU}]$$

- $E(R_U) = E(R_L) \times [E_{qL} / (E_{qL} + D)] + R_D \times [D / (E_{qL} + D)] = WACC$
- “market” version of our framework seen in Lecture 3.
- Introducing taxes changes the picture somewhat, in favor of Debt (D) users, since interest expenses are tax deductible.
- Tax benefits in perpetuity: $\zeta c D$
- $V_L = V_U + \zeta c D \rightarrow$ (Recall that $V_L = V_U$ in the absence of Debt or Taxes)
- Implication: $WACC < E(R_U)$
- $WACC = E(R_U)(1 - \zeta c \frac{D}{V_L})$

$$V_L = E_{q_L} + D$$

\downarrow

WACC

\downarrow

$E(R_L) =$
cost of equity

\downarrow

$R_D =$
cost of debt

- $WACC = E(R_L) (E_{q_L}/V_L) + R_D (D/V_L) (1 - \zeta_c)$
 - Cost of capital is the required rate of return. It reflects the risk involved with holding on to an individual stock.
 - It reflects only undiversifiable risk (or market 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: $\beta_i = \frac{COV(R_i, R_m)}{\sigma^2(R_m)}$
 - Weighted sum of all betas equals 1.
 - $\beta_U = \beta_L \times (E_{q_L}/(E_{q_L}+D)) + \beta_D \times (D/(E_{q_L}+D))$
 - $\beta_U = \beta_L / (1 + D/E_{q_L})$
- When it's not mentioned if its levered or not in the most case it is levered.

Cost of capital

Return	Coca-Cola	PepsiCo	Mc Donalds	Alphabet	Walt Disney	Exxon	Macy's	Ford	Nike	Boeing	Halliburton	NYSE (Market)
2011	5.04%	0.47%	26.71%	9.96%	-13.02%	10.22%	42.38%	-35.61%	25.36%	13.84%	-14.46%	5.53%
2012	2.31%	1.82%	-13.69%	11.23%	70.66%	-2.89%	9.78%	24.20%	11.26%	4.25%	1.39%	7.26%
2013	12.25%	20.03%	8.65%	61.24%	22.87%	12.59%	26.74%	19.81%	21.38%	79.14%	33.70%	26.50%
2014	1.37%	10.95%	-6.11%	-4.55%	32.91%	-11.47%	12.06%	0.76%	30.22%	-9.95%	-22.59%	7.52%
2015	0.77%	2.83%	18.74%	47.01%	11.70%	-16.59%	-42.37%	-8.78%	6.60%	4.93%	-12.63%	-2.23%
2016	-4.30%	3.27%	-6.91%	2.36%	-12.64%	15.57%	-28.36%	-13.81%	-6.26%	-0.32%	60.76%	13.42%
2017	9.91%	13.97%	37.06%	34.92%	0.83%	-5.30%	-11.95%	2.94%	32.03%	81.42%	-8.92%	25.08%
2018	3.42%	-8.59%	-0.34%	-0.81%	16.37%	-18.51%	2.26%	-38.67%	5.22%	5.03%	-45.74%	-5.63%
2019	17.22%	22.13%	8.27%	27.31%	33.54%	2.26%	-39.06%	21.15%	26.98%	0.17%	-7.20%	22.34%
2020	-0.41%	9.04%	8.90%	30.84%	5.98%	-39.55%	-5.66%	-5.48%	34.65%	-34.36%	-22.76%	13.90%
E(R)	4.76%	7.59%	8.13%	21.95%	16.92%	-5.37%	-3.42%	-3.35%	18.74%	14.41%	-3.84%	11.37%
$\sigma(R)$	6.18%	8.98%	15.07%	20.76%	23.73%	16.04%	26.34%	20.94%	13.01%	35.15%	28.81%	10.43%
$\sigma^2(R)$	0.0038	0.0081	0.0227	0.0431	0.0563	0.0257	0.0694	0.0438	0.0169	0.1235	0.0830	0.0109
$Cov(R_i, R_m)$	0.0039	0.0082	0.0041	0.0108	-0.0006	0.0061	-0.0006	0.0141	0.0064	0.0202	0.0149	
β_L	0.3563	0.7558	0.3796	0.9888	-0.0586	0.5618	-0.0520	1.2985	0.5925	1.8532	1.3705	
E(R _L)	4.69%	8.84%	4.94%	11.25%	0.39%	6.83%	0.46%	14.46%	7.14%	20.22%	15.21%	

- Application of cost of capital estimates ($E(R_L)$) for some US firms using CAPM
- See excel file "Lecture 9 – Materials" in the sheet "Cost of Capital"
- Betas available on Damodaran's website:
https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/Betas.html

10. CASH FLOW – BASED VALUATION

Dividend Discount Model

- Estimates the current value of all future expected dividends.
- Equates current stock price to the present value of all future expected dividends to estimate $E(R_L)$

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

- $E(R_L)$ = cost of *equity* capital
- Two methods to forecast future dividends:
 - Perpetuity model → Assumes zero growth
 - Constant growth model → Gordon growth model

Gordon Growth Model: Example

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?

$$Eq_L = \frac{1.50}{1.076} + \frac{1.50}{(1.076)^2} + \frac{2.25}{(1.076)^3} + \frac{2.75}{(1.076)^3} \cdot \frac{0.076 - 0.02}{0.076 - 0.02}$$

$$Eq_L = 1.39 + 1.30 + 1.81 + 39.42 = 43.92$$

→ The value of the firm on year 3 !!

Dividend Discount Model: Shortcomings and Caveats

- A large percentage of publicly traded companies do not issue dividends
→ Zero payout may continue indefinitely
 - Some companies have unusually high dividend payouts given their profit levels
→ Sustaining may not be possible
 - More difficult to find analysts' forecasts of dividends than forecasts of earnings or sales
 - Does not consider stock buybacks
- Creates challenges in forecasting dividends and generating reliable forecasts

Discounted Cash Flow (DCF) Model

The DCF valuation of a company involves 5 steps:

1. Forecast free cash flows for the horizon period (typically 3-5 years).
2. Forecast/estimate the WACC = $E(R_U)(1 - \zeta c \frac{D}{V_L})$.
3. Forecast and discount FCF for the post-horizon period, called the terminal period. Usually, this includes a long-term growth rate.

- Sum the present values of the horizon and terminal periods to yield firm value V_L .
- Subtract the value of the firm's net debt (D) from the value of the firm to extract Eq_L . Divide Eq_L by the number of shares outstanding to yield the estimated per share stock price.

Basic DCF:

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

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:

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

Free Cash Flow

- What is free cash flow?
- Pay attention!!!
 - Free cash flows to the firm (FCFF) → Dividends + Interests
 - We use this one
 - Free cash flows to the equity (FCFE) → Dividends
- How to measure free cash flow?
- Some would assess or calculate FCFF as follows:
 - Operating Cash Flow (OCF) – CAPEX
 - In which: $OCF = NI - (\text{Changes in WC}) + \text{Depreciation and Amortization}$
 - NET CAPEX !! (that's why we do – dep and amortization)
 - Problem / dangers:
 - Operating cash flow starts with net income. Therefore, nonoperating expenses such as interest expenses may already have been subtracted.
 - Operating cash flow from the cash flow statement may not yet have subtracted certain operating items such as taxes paid.
 - Some cash flow statements include dividend payables as operating item

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)

- 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 Issues)
- = **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)**

One more time...

...Free Cash Flow to the Firm

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

Changes in NOA capture:

- New Investments (CAPEX)
- Depreciation / Amortization
- Changes in Working Capital

Free cash flow firm for LVMH (2020)

NOPAT (2020) = 5,380.6

- NOA (2020) = 66,649
- NOA (2019) = 67,768

– Change in NOA = - (-1,119)

FCFF for LVMH (2020) = 6,499.6

Free cash flow firm for Pernod Ricard (2021)

NOPAT (2021) = $2,423 - [667 + (433 \times 0.30)]^{(*)}$ = 1,626.1

- NOA (2021) = $29,300 - 7,471 = 21,829$
- NOA (2020) = $28,915 - 6,859 = 22,056$

– Change in NOA = - (-227)

FCFF for Pernod Ricard (2021) = 1,853.1

(*) Before extraordinary items because of COVID 19

Income Statement of Pernod Ricard (2022)

€ million	30.06.2021	30.06.2022
Net sales	8,824	10,701
Cost of sales	(3,531)	(4,228)
Gross margin after logistics expenses	5,293	6,473
Advertising and promotion expenses	(1,393)	(1,698)
Contribution after advertising and promotion	3,900	4,775
Structure costs	(1,477)	(1,751)
Profit from recurring operations	2,423	3,024
Other operating income/(expenses)	(62)	(62)
Operating profit	2,361	2,963
Financial expenses	(410)	(308)
Financial income	39	48
Financial income/(expense)	(371)	(260)
Corporate income tax	(667)	(676)
Share of net profit/(loss) of associates	(4)	5
Net profit of discontinued and held for sale activities	0	-
Net profit	1,318	2,031

$$\text{NOPAT (2022)} = 3,024 - [676 + (322 \times 0.33)] = 2,242$$

- $\text{NOA (2022)} = 32,673 - 8,561 = 24,112$
- $\text{NOA (2021)} = 21,829$

$$- \text{Change in NOA} = - 2,283$$

$$\text{FCFF for Pernod Ricard (2022)} = - 41$$

Is having a negative FCFF problematic for Pernod Ricard?

No they are investing now to have more benefits into the future.

DCF1 for BMW

- Application #1 of the DCF valuation model to BMW in 2022
- Assumptions:
 1. WACC estimated with CAPM ($R_f = 2\%$; $E(R_M) = 9\%$; $\text{Beta}(U) = 0.47$; Tax rate = 30%)
 2. Sales forecasts: historical growth rate of 5.89% (based on 2010-2021)
 3. Long-term terminal growth of 1%
 4. EBIT margin constant at historical margin of 11.49% (based on 2010-2021)
 5. Working capital: (1) grows with sales (2) operating current assets minus operating current liabilities, including all receivables (total of 80,731 in 2021)
 6. Capex growth = sales growth = working cap growth = 5.89%
 7. In terminal growth: capex growth is equal to the LT growth
- Required:
 1. Estimate V_L and Eq_L for these assumptions and the current values of BMW.

DCF2 for BMW

- Application #2 of the DCF valuation model to BMW in 2022
- Assumptions:
 1. WACC estimated with CAPM ($R_f = 2\%$; $E(R_M) = 9\%$; $\text{Beta}(U) = 0.47$; Tax rate = 30%)
 2. Sales forecasts: historical growth rate of 5.89%
 3. Long-term terminal growth of 1%
 4. **NOAT and NOPM of 2021 and remaining constant**

- NOAT is **0.72**, based on NOA of 153,830 (see balance sheet) and Sales of 111,239.
- NOPM is **8.43%**, based on NOPAT of 9,380 (see income statement) and Sales of 111,239.
- **Parsimonious forecasting!**
- Required:
- Estimate V_L and Eq_L for these assumptions and the current values of BMW.

DCF3 for BMW

- Application #3 of the DCF valuation model to BMW in 2021
- Assumptions:
 1. WACC estimated with CAPM ($R_f = 2\%$; $E(R_M) = 9\%$; Beta (U) = 0.47; Tax rate = 30%)
 2. Sales forecasts: historical growth rate
 3. Long-term terminal growth of 1%
 4. NOAT from 2021 and NOPM from 2018-2021, and both remaining constant
 - NOAT is based on NOA of 153,830
 - NOPM is 6.78%, based on the average NOPM between 2018 and 2021.
 - As in DCF2: Parsimonious forecasting!
- Required:
 1. Estimate V_L and Eq_L for these assumptions and the current values of BMW.
 2. What if we would use an alternative unlevered beta of 0.70 (source: Finbox, for Auto industry)?

DCF4 for BMW

- Application #4 of the DCF valuation model to BMW in 2022
- Assumptions:
 1. WACC estimated with CAPM ($R_f = 2\%$; $E(R_M) = 9\%$; Beta(U) = 0.47 or 0.70 ; Tax rate = 30%)
 2. Sales forecasts done by professional analysts (means, from Sep 15, 2022) for 2022-2025 (Terminal value starting in 2025 instead of 2026, discounting TV by 3 instead of 4 years!).
 3. Long-term terminal growth of 1%.
 4. NOAT and NOPM constant at 0.72 and 8.43%.
- Required:
 1. Estimate V_L and Eq_L for these assumptions and the current values of BMW using DCF
 - parsimonious forecasting, using both unlevered betas.

DCF for BMW: Conclusions

- Based on a market risk premium of 7% and an unlevered beta of 0.47 we estimate a (low) WACC for BMW of 4.4%.
- Application of the DCF valuation model using parsimonious forecasting (DCF2, DCF3 and DCF4) through a constant NOPM and NOAT requires much less assumptions than the "traditional" approach (DCF1) to calculate free cash flows.
- Using historic data between 2010 and 2021 to estimate profit margins and the low beta (U) of 0.47, leads to valuations estimates that are well above the current market value of BMW (See DCF1 and DCF2). Based on our estimates, we conclude BMW to be undervalued and would recommend a BUY investment decision.
- Using historic data from 2018 to 2021 with slightly lower estimates of future profit margins leads to significantly lower valuations (See DCF3 and DCF4).

- The biggest difference in estimated value stems from using alternative betas, and hence the estimated WACC: with a beta(U) of 0.47, we always find higher estimated values than the actual values, and always recommend to SELL the stock.
- However, when using the (industry) beta (U) of 0.7, we find that estimated values are much more in line with the current market value of BMW (especially in DCF 4, where we find an estimated VL of 150 bn, which is almost equal to the actual VL of 147.4 bn).

DCF for Pernod Ricard (2022)

- Application of the DCF valuation model to Pernod Ricard on June 30, 2022, using parsimonious forecasting.
- Assumptions:
 1. WACC estimated with CAPM ($R_f = 2\%$; $E(R_M) = 9\%$; 3 Betas(U) of 0.42; 0.51 and 0.65 ; Tax rate = 33%)
 2. Sales forecasts: (1) historic growth rates and (2) analyst forecasts
 3. Long-term terminal growth of 2%
 4. NOAT and NOPM constant, using 2022 values
- Required:
 1. Estimate V_L and Eq_L under unlevered betas of 0.42, 0.51 and 0.65.
 2. What if we use alternative terminal growth rates of 1% (bear) and 3% (bull) with a beta (U) of 0.51?
 3. What if the WACC is underestimated, and we decide to use the industry-averaged betas from Damodaran of 0.71?
 4. Using an **alternative assessment of WACC** as:

$$WACC = E(R_L) (Eq_L/V_L) + R_D (D/V_L) (1 - \zeta_c) = 0.06304 = 6.30\%$$
 And for which: Levered beta = 0.74 \rightarrow $ER_L = 7.18\%$
 Interests paid (2022) = 275 (see p. 205 of the annual report)
 Interest-carrying debt = 11,172 (see bal. sheet)
 Estimated $R_D = 275/11,172 = 2.46\%$

Solution :

- Estimate V_L and Eq_L under the three different unlevered betas.
 Actual V_L for Pernod Ricard = 45,907 + 8,640 = 54,547

VL for Pernod Ricard from DCF valuation	Unlevered Beta		
	0.42	0.51	0.65
Historic Sales Forecasts	67,560	55,231	43,009
Analyst Sales Forecasts	75,715	61,116	46,671

Investment Recommendation	Unlevered Beta		
	0.42	0.51	0.65
Historic Sales Forecasts	BUY	HOLD	SELL
Analyst Sales Forecasts	BUY	BUY/HOLD	HOLD/SELL

- What if we use alternative terminal growth rates of 1% (bear) and 3% (bull)?

VL for Pernod Ricard from DCF valuation	LT Growth	
	1%	3%
Historic Sales Forecasts	48,358	68,137
Analyst Sales Forecasts	52,949	76,453

Investment Recommendation	LT Growth	
	1%	3%
Historic Sales Forecasts	HOLD/SELL	BUY
Analyst Sales Forecasts	HOLD	BUY

- What if we use an industry - WACC suggested by Damodaran of 0.71?

VL for Pernod Ricard from DCF valuation	Beta = 0.71 (industry)
Historic Sales Forecasts	39,280
Analyst Sales Forecasts	42,274

Investment Recommendation	Beta = 0.71 (industry)
Historic Sales Forecasts	SELL
Analyst Sales Forecasts	SELL

→ These V_L estimates are likely too low because PR is less risky than its mean industry peer

- Using an alternative WACC of **6.30%** (alternative approach):

VL for Pernod Ricard from DCF valuation	Levered Beta = 0.74
Historic Sales Forecasts	42,043
Analyst Sales Forecasts	45,578

Investment Recommendation	Levered Beta = 0.74
Historic Sales Forecasts	SELL
Analyst Sales Forecasts	HOLD/SELL

Homework: DCF for Diageo

- Application of the DCF valuation model on Diageo on June 30, 2022, using parsimonious forecasting.
- Assumptions:
 1. WACC estimated with CAPM ($R_f = 2\%$; $E(R_M) = 9\%$; Mean Beta(U)= 0.48 ; Tax rate = 21%)
 2. Sales forecasts: (1) historic growth rates and (2) analyst forecasts
 3. Long-term terminal growth of 2%
 4. NOAT and NOPM constant
- Required:
 1. Estimate V_L and Eq_L for these assumptions and the current values.
 2. Estimate V_L and Eq_L for terminal growth rates of 0.5% (bear) and 2.5% (bull), given the unlevered beta of 0.48. Re-estimate using a beta (U) of 0.37 (Yahoo) or 0.69 (Infront).
 3. What if the WACC is underestimated? How does the valuation estimation look like when using Damodaran's betas from the industry: unlevered beta = 0.71?
 4. What is the WACC the market assumes for Diageo, *implied* by the current market value and given the assumptions maintained in question 1? For a discussion: see Lecture 11.
- See Toledo in excel file "Diageo – Valuation 2022 – DCF" and the corresponding PPT-files with the solutions in the Exercises folder.

Concluding Remarks on DCF for Pernod Ricard and Diageo

- Estimates V_L and Eq_L can come very close to the current actual value of Pernod Ricard, by means of reasonable/realistic assumptions.
- If anything, Diageo still seems undervalued despite its high value.
- Estimates V_L and Eq_L are sensitive to changes in long-term growth rates and even more so for changes in the estimates of WACC (and $E(R_U)$).
- Estimates start with estimates of sales. An alternative approach would be to use analyst forecasts of earnings and adjust these to estimate FCFFs.

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)

11. 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)

$$V_{L(0)} = NOA_0 + \sum_{t=1}^n \frac{NOPAT_t - (r NOA_{t-1})}{(1+r)^t}$$

$NOA_0 \rightarrow$ REAL, no estimate

- Residual operating income (ROPI) is computed as follows:

$$ROPI_t = NOPAT_t - (r \times NOA_{t-1})$$

➤ in which

- ✓ NOPAT is net operating profit after tax,
- ✓ r is the weighted average cost of capital (WACC),
- ✓ NOA is Net Operating Assets.
- What you need to generate on your operations versus what you actually generate!
 - $NOPAT - (r, NOA)$ What you actually generate – what you need to generate
- ROPI-Model still focuses on V_L , but shifts the focus from the income statement (and cash flow statement) to the balance sheet.

We start with the DCF model:

$$V_L = \sum_{t=1}^n \left(\frac{FCF_t}{(1+wacc)^t} \right) = \sum_{t=1}^n \left(\frac{FCF_t}{(1+r)^t} \right)$$

When we then replace $FCF_t = NOPAT_t - (NOA_t - NOA_{t-1})$

$$\text{And we add } 0 = NOA_0 + \frac{NOA_1 - (1+r)NOA_0}{(1+r)^1} + \frac{NOA_2 - (1+r)NOA_1}{(1+r)^2} + \frac{NOA_3 - (1+r)NOA_2}{(1+r)^3} + \dots$$

We get the following identity (after some algebra):

$$V_{L(0)} = NOA_0 + \sum_{t=1}^n \frac{NOPAT_t - (r NOA_{t-1})}{(1+r)^t}$$

The ROPI valuation of a company involves 5 steps:

1. Forecast ROPI for the horizon period (typically 3-5 years).
2. Forecast/estimate the WACC = $E(R_U)(1 - \zeta c \frac{D}{V_L})$.
3. Forecast and discount ROPI for the post-horizon period, called the terminal period. Usually, this includes a long-term growth rate.
4. Sum the present values of the horizon and terminal periods to yield firm value V_L .
5. Subtract the value of the firm's net debt (D) from the value of the firm to extract Eq_L . Divide Eq_L by the number of shares outstanding to yield the estimated per share stock price.

ROPI for Pernod Ricard (2022)

- Current accounting and market data for the fiscal period June 30, 2022:
 - Sales = 10,701
 - NOPAT = 2,242
 - NOA = 24,112
 - Market cap (Eq_L) = 45,907
 - Net Debt (D) = 8,640
 - $VI = 54,547$
- Assumptions necessary for application ROPI-Model (**ROPI-BASE**):
 - WACC(1) = $E(R_U)(1 - \zeta c \frac{D}{V_L})$.
 - ER_U = Based on CAPM using $R_f = 2\%$; $E(R_M) = 9\%$; Beta(U) of 0.51
Tax rate = 33%
 - LT growth = 2%
 - Sales forecasts based on historic growth rates. We use a historic growth rate of 3.03% (as an alternative to the 2.16% from the DCF analyses).
 - NOPM = $2,242 / 10,701 = 20.95\%$ and remaining constant
 - NOAT = $10,701 / 24,112 = 0.444$ and remaining constant

Required:

1. Estimate the value of the operations V_L for Pernod Ricard and the value of the equity Eq_L using the ROPI-model (**ROPI-BASE**). What is your conclusion when comparing your estimate with the current enterprise value of 54,547 mio?
2. How does your value estimation for Pernod Ricard change when:
 - a. Changing the terminal growth rate to 1% or 2.5%?
 - b. Using the alternative unlevered beta of 0.53 (average of the 3 beta's)?
 - c. Using the alternative assessment of WACC [$E(R_L) (Eq_L/V_L) + R_D (D/V_L) (1 - \zeta c)$] with a levered beta of 0.74 (Infront Analytics).
 - d. Using analyst forecasts of sales for 2023-2026 (and TV in 2027).

- e. What is the *implied* WACC for Pernod Ricard that the market *implicitly* uses, given the assumptions in ROPI-BASE and given current market prices?

1. Estimate V_L and Eq_L using the ROPI-model (with the ROPI-BASE assumptions). What is your conclusion when comparing your estimate with the current enterprise value of 54,547 mio?

	Current Performance	Horizon Period				Terminal Period
	2022 (ACT)	2023 (EST)	2024 (EST)	2025 (EST)	2026 (EST)	TV (2027+)
Sales	10,701	11,026	11,360	11,705	12,060	12,302
NOPAT	2,242	2,310	2,380	2,452	2,527	2,577
NOA	24,112	24,844	25,598	26,375	27,175	27,718
NOPM	0.2095	0.2095	0.2095	0.2095	0.2095	0.2095
NOAT	0.444	0.444	0.444	0.444	0.444	0.444
ROPI		1,037	1,069	1,101	1,135	1,143
Discount Factor ($1/(1+WACC)^t$)		0.9499	0.9022	0.8570	0.8140	
Present value of horizon ROPI		985	964	944	924	
Sum present value of horizon ROPI	3,817					
Present value of terminal ROPI	28,372					
NOA	24,112					
Total firm value (VL)	56,300					
Value of the Net Debt (D)	8,640					
MCAP (EqL)	47,660					
Total shares outstanding	262					
Est. Price per Share	182.00					

$$1,037 = 2,310 - [0.0528 \times 24,112]$$

- Investment recommendation: Hold (weak Buy)
- Other conclusion (perhaps more insightful...): The ROPI model seems very much capable of estimating firm value, assuming current stock prices are efficient.

2.

- a. Estimate V_L and Eq_L using the ROPI-BASE model and assumptions, changing the terminal growth rate to 1% or 2.5%.

VL for Pernod Ricard from ROPI valuation	LT Growth Rate	
	1%	2.5%
Firm Value VL	49,189	61,775

Investment Recommendation	LT Growth Rate	
	1%	2.5%
Firm Value VL	Weak Sell / Hold	Weak Buy / Hold

- b. Estimate V_L and Eq_L using the ROPI-model, using the alternative unlevered beta of 0.53 (average of the 3 unlevered beta's).

VL for Pernod Ricard from ROPI valuation	Unlevered Beta = 0.53
Firm Value VL	54,075

Investment Recommendation	Unlevered Beta = 0.53
Firm Value VL	Hold

c. Estimate V_L and Eq_L using the ROPI-model, using the alternative assessment of $WACC = (E(R_L) (Eq_L/V_L) + R_D (D/V_L) (1 - \zeta_c))$

VL for Pernod Ricard from ROPI valuation	Alternative WACC Calculation with
	Beta (L) = 0.74
Firm Value VL	42,676

Investment Recommendation	Alternative WACC Calculation with
	Beta (L) = 0.74
Firm Value VL	Sell

=> Advise will be to sell the stock!

d. Using analyst forecasts of sales for 2023-2026 (and TV in 2027).

VL for Pernod Ricard from ROPI valuation	Analyst Forecasts of Sales
Firm Value VL	61,116

Investment Recommendation	Analyst Forecasts of Sales
Firm Value VL	Hold / Weak Buy

61,116 is EXACTLY the same estimated VL as we forecasted using the DCF model with analyst forecasts of sales! Conclusion? *Both models are equivalent to one another.*

Implied cost of capital (WACC)

- Until now, our objective was to estimate V_L .
- An alternative use of these valuation models (DCF and ROPI) is to use V_L as given (an input) and estimate one of the other valuation parameters!
- In other words, we reverse engineer the DCF or ROPI model to estimate either the WACC or the long-term growth rate.
- These parameters, WACC or long-term growth, are then considered to be the implied parameters.
- An implicit assumption is that the current stock price is efficient and reflects all relevant information.

e. What is the implied WACC for Pernod Ricard that the market uses, given the assumptions in ROPI-BASE and given current market prices?

PERNOD RICARD			WACC inputs		Actual Values (June 30, 2022)	
Growth Assumptions:	Historic growth		Rf	0.02	Price per share	175.3
Short-term growth rate:	0.0303		E(RM)	0.09	# shares	261,876,560
Long-term (terminal) growth:	0.0200		Beta (U)	0.51	MCAP (EqL)	45,907
WACC (1)	0.053825		E(RU)	0.0557	Net Debt (D)	8,640
NOPM and NOAT:	Constant		Tax Rate	33%	VL	54,547

	Current Performance		Horizon Period		Terminal Period	
	2022 (ACT)	2023 (EST)	2024 (EST)	2025 (EST)	2026 (EST)	TV (2027+)
Sales	10,701	11,026	11,360	11,705	12,060	12,302
NOPAT	2,242	2,310	2,380	2,452	2,527	2,577
NOA	24,112	24,844	25,598	26,375	27,175	27,718
NOPM	0.2095	0.2095	0.2095	0.2095	0.2095	0.2095
NOAT	0.444	0.444	0.444	0.444	0.444	0.444
ROPI		1,012	1,043	1,075	1,107	1,115
Discount Factor (1/(1+WACC))		0.9489	0.9005	0.8545	0.8108	
Present value of horizon ROPI		961	939	918	898	
Sum present value of horizon ROPI	3,716					
Present value of terminal ROPI	26,719					
NOA	24,112					
Total firm value (VL)	54,547					
Value of the Net Debt (D)	8,640					
MCAP (EqL)	45,907					
Total shares outstanding	262					
Est. Price per Share	175.30					

The estimated WACC for Pernod Ricard implied by the current actual firm value and assumptions is **5.3825%**.

ROPI for BMW (2022)

- Calculation of the actual values for 2021:
 - Sales (2021) = 111,239
 - NOPAT (2021) = 9,380
 - NOA (2021) = 153,380 (!!!!!)
 - Market cap (EqL) = 59,940 (on Dec 31, 2021)
 - Net Debt (D) = 87,454
 - Firm Value V_L = 147,394 (On Dec 31, 2021)
- Assumptions for application on BMW – ROPI 1 and ROPI 2
 - WACC = Equals $E(R_U)(1 - \zeta_c \frac{D}{V_L})$.
 - $E(R_U)$ = Based on CAPM using $R_f = 2\%$; $E(R_M) = 9\%$; Beta(U) of 0.47, 0.70, or 0.59 (average); Tax rate = 30%
 - LT growth = 1% (reflecting depressed outlook for traditional car makers)
 - NOPM = 6.78% and remaining constant (historic data, see excel file)
 - NOAT = 0.7253 and remaining constant
 - Sales Forecasts based on historic growth rate of 5.89% → ROPI 1
 - Sales Forecasts are the means of analyst forecasts done in September 2022 → ROPI 2

Required:

- Estimate the value of the firm V_L for BMW and the value of the equity Eq_L using the ROPI-model using the following assumptions: R_f of 2%, $E(R_M)$ of 9%, NOPM of 6.78%, NOAT of 0.72, ST sales growth of 5.89%, LT-growth of 1%, three different betas(U). Actual V_L for BMW = 59,940 + 87,454 = 147,394

Solutions – see excel file “BMW – Valuation – ROPI” :

VL for BMW from ROPI valuation	Unlevered Beta		
	0.47	0.59	0.70
Historic Sales Forecasts	188,543	151,516	127,308
Analyst Sales Forecasts	191,610	151,927	125,958

Investment Recommendation	Unlevered Beta		
	0.47	0.59	0.70
Historic Sales Forecasts	BUY	HOLD	SELL
Analyst Sales Forecasts	BUY	HOLD	SELL

Conclusions:

- Investment recommendation strongly dependent on the estimated WACC.
- Historic forecasts or analyst forecasts yield qualitatively the same results.
- With an “average” beta, we once again get close to the current value of BMW
- Note that $Eq_L < \text{book value of equity}$ ($59,940 < 75,132$), or $MTBV < 1$. Equivalently, NOA (153,380) exceeds V_L (147,394), which shows a firm with a low stock valuation → Valuing firms with low multiples is difficult, you need to put expectations lower or WACC higher

HOME EXERCISE: ROPI - Model for Diageo (2022)

- Calculation of the actual values for fiscal period ending June 30, 2022:
 - Sales = 15,452
 - NOPAT = 3,685
 - NOA = 23,719
 - Market cap (Eq_L) = 80,531
 - Net Debt (D) = 15,060
- Assumptions necessary for application ROPI-Model:
 - $WACC(1) = E(RU)(1 - \zeta_c \frac{D}{V_L})$.
 - ERU = Based on CAPM using $R_f = 2\%$; $E(R_M) = 9\%$; Beta(U) of 0.48 (mean of the 3 betas available); Tax rate = 21%
 - LT growth = 1.5%
 - Sales Forecasts are based on analyst forecasts done in September 2022.
 - NOPM = remaining constant
 - NOAT = remaining constant

Question 1 (ROPI1):

- Estimate the value of the operations V_L for Diageo and the value of the equity Eq_L using the ROPI-model.
- What is your conclusion when comparing your estimate with the current market values of 80,531 (equity) and 95,591 (firm value) mio GBP?

Question 2 (ROPI2):

How does your value estimation for Diageo change when (a.) changing the terminal growth rate to 1%, and (b.) using an alternative beta (U) of 0.69 (beta provided by Infront_analytics)?

Question 3 (ROPI3):

What is the implied WACC the market uses for Diageo, given sales forecasts of, analysts and given an estimated growth rate of 1.5%?

⇒ Answers on Toledo

ROPI Valuation Model: Overview

$$V_{L(0)} = NOA_0 + \sum_{t=1}^n \frac{NOPAT_t - (WACC \times NOA_{t-1})}{(1 + WACC)^t}$$

- The sum of all residual operating income is the difference between the current book value of the operations (NOA) and the market value of the operations (V_L).
- The ROPI-Model focuses on residual income (what you generate in top of your required return), rather than on the total FCF.
- The ROPI-Model still focuses on V_L but shifts the focus from the income statement (and cash flow statement) to the balance sheet.

Comparing DCF with ROPI Models

Advantages and Drawbacks of DFC 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 investment in assets are treaded 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 Much harder for firms with (longer periods of) negative FCFFs (e.g. MBW in 2016-2018)	When the firm reports positive FCFFs When volatility in FCFFs is limited

ROPI	<p>Focuses on key value drivers including NOAT and NOPM.</p> <p>Uses balance sheet and income statement items, including accrual accounting principles</p> <p>Still usable when FCFFs are negative</p> <p>Reduces the weight placed on the terminal period value</p>	<p>Somewhat less intuitive than DCF</p> <p>When a lot of assets (e.g. brands and R&D) are not recognized in NOA</p>	<p>When most economic assets and liabilities are reported on the balance sheet</p> <p>Performs better than DCF when firms have losses (and/ or negative FCFFs)</p>
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12. MARKET – BASED VALUATION

Market-Based Valuation

- Market-based valuation or relative valuation or valuation using multiples.
- The value of an asset or a firm is compared to the values assessed by the market for similar or *comparable* assets or companies.
- Selection of peers is necessary when using market multiples and this will also determine the valuation estimation.
- Two main types:
 - Valuation using Income Statement Multiples
 - Valuation using Balance Sheet Multiples
- Unlike DCF, DDM or ROPI models, valuation through multiples has no theoretical underpinning.
- Two basic components (two sets of choices to make):
 1. Standardization of market prices - prices are converted into a multiple of earnings, book values, sales... → Which one to choose?
 2. Similar or comparable firms → How to select peers?
- Relative valuation involves three steps:
 3. Identification of comparable firms/assets.
 4. Converting these values into standardized values (scaling)
 5. Comparing the standardized value or multiple for the firm being analyzed to the standardized values for the comparable company (companies).

How to select comparable firms?

- The two most often used selection criteria for peers are:
 - Firm size
 - Industry
- 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 V
 - SIC 2085 = Distilled liquors V
 - SIC 2086 = Soft drinks X
- Example: BMW is in **SIC 3711**, as are all car manufacturers.
 - SIC 37 = Transportation
 - SIC 371 = Motor vehicles and equipment
 - SIC 3711 = Passenger cars
- Most often you need to go to the 3-digit level (e.g., Continental is in SIC 3714 while Airbus is in SIC code 3721)
- Potential issues with selecting industry peer firms:
 - Arbitrary choices are unavoidable
 - Should Coca-Cola be included in the Pernod Ricard peer group?
 - Should AB Inbev be included?
 - Selecting peers for diversified firms is a challenge. Examples:
 - General Mills (cereals and pet food)
 - BASF (chemicals, health care and agriculture)
 - LVMH (Champagne, Apparel, Cosmetics, Watches...)
 - P&G (Diapers, Razors,...)
 - No brainers?
 - Coca-Cola vs. PepsiCo?
 - Coca cola only drinks vs. PepsiCo also food
 - Mercedes vs. BMW?
 - Mercedes has also vans but BWM has not
 - Airbus and Boeing ; Pernod Ricard and Diageo ; Shell and Total
 - Peers are not necessarily competitors. Some argue to use firms that are "prone to the same market forces". Examples:
 - Starbucks and McDonald's
 - Coca-Cola and Nike
 - Hilton and Airbnb
 - What about (partial/imperfect) monopolies? E.g. Google and Amazon
 - What about very powerful firms? E.g. Apple and Microsoft

Comparable Firms for Pernod Ricard

	company	country	sic	sales
Peer group 2 with 3 firms	DIAGEO	UK	2085	15,452
	PERNOD RICARD	FRA	2084	10,701
	DAVIDE CAMPARI	ITA	2085	2,173
	REMY COINTREAU	FRA	2084	1,313
Peer group 1 with 10 firms	SCHLOSS WACHENHEIM	GER	2084	355
	ITALIAN WINE BRANDS	ITA	2084	313
	LAURENT-PERRIER	FRA	2084	306
	VRANKEN-POMMERY	FRA	2084	301
	ADVINI	FRA	2084	280
	MARIE BRIZARD WINE	FRA	2085	167
	BERENTZEN	GER	2085	146

- We consider two different peer groups for Pernod Ricard
- Comparability is affected by different fiscal period! For Diageo and Pernod Ricard the FYE is June 30, 2022.

- Data: See Excel file “Pernod Ricard – Valuation 2022 – Multiples”

Earnings Multiples

- Intuitive as a multiple is to investigate how many times the earnings generated map into the value of the asset.
- Cash flow multiples are pointless.
- Price-to-earnings ratios are the most widely used multiple.
- We illustrate the mechanisms of using (1) NOPAT, (2) EBITDA and (3) Net Income as the basis for valuation:
 1. NOPAT → Firm Value V_L → V_L / NOPAT
 2. EBITDA → Firm Value V_L → V_L / EBITDA
 3. NI → Equity Value Eq_L → P/E – ratio (Eq_L / NI)

V_L / NOPAT

PEER FIRMS	EBIT	PRICE	CSHO	CASH	ST DEBT	LT DEBT	MCAP	VL	NOPAT	NOPAT Multiple
DIAGEO	4,807	35.31	2,281	2,421	1,607	14,888	80,543	94,617	3,365	28.12
DAVIDE CAMPARI	423	12.86	1,162	805	273	1,271	14,932	15,672	296	52.92
REMY COINTREAU	334	214.00	52	116	106	364	11,096	11,449	234	48.91
SCHLOSS WACHENHEIM	24	19.80	8	8	29	34	157	212	17	12.63
ITALIAN WINE BRANDS	24	41.50	9	60	35	147	365	487	17	28.79
LAURENT-PERRIER	76	103.50	6	126	9	340	615	838	54	15.67
VRANKEN-POMMERY	30	18.00	9	15	364	306	161	815	21	39.35
ADVINI	8	19.10	4	25	78	110	75	238	5	43.93
MARIE BRIZARD	6	1.31	112	54	3	3	147	98	4	24.71
BERENTZEN-GRUPPE	4	6.34	5	28	9	1	30	13	3	4.27
<i>Average (10)</i>										29.93
<i>Median (10)</i>										28.46
<i>Average (3)</i>										43.32
Actual Multiple										
PERNOD RICARD	3,013	175.30	262	2,527	1,355	9,817	45,907	54,552	2,109	25.87

Conclusions and interpretation:

- The median NOPAT valuation multiple is 28.46 for the large peer group (close to the mean).
- If we apply this multiple to the NOPAT of 2,109 for Pernod Ricard, we estimate a V_L of $2,109 \times 28.46 = 60$ bn, which is slightly above its actual V_L of 54.6 bn.
- Using the alternative, small, peer group, we find a significantly smaller NOPAT multiple for Pernod Ricard.
- We conclude that Pernod Ricard is valued at par when using the peer group of 10 firms. However, when only considering its 3 closest peers, Pernod Ricard seems highly undervalued.

V_L / EBITDA

PEER FIRMS	PRICE	CSHO	CASH	ST DEBT	LT DEBT	MCAP	VL	EBITDA	EBITDA Multiple
DIAGEO	35.31	2,281	2421	1607	14888	80,543	94,617	5,299	17.86
DAVIDE CAMPARI	12.86	1,162	805	273	1,271	14,932	15,672	503	31.17
REMY COINTREAU	214.00	52	116	106	364	11,096	11,449	374	30.58
SCHLOSS WACHENHEIM	19.80	8	8	29	34	157	212	39	5.44
ITALIAN WINE BRANDS	41.50	9	60	35	147	365	487	31	15.65
LAURENT-PERRIER	103.50	6	126	9	340	615	838	83	10.06
VRANKEN-POMMERY	18.00	9	15	364	306	161	815	45	17.97
ADVINI	19.10	4	25	78	110	75	238	21	11.21
MARIE BRIZARD	1.31	112	54	3	3	147	98	12	8.00
BERENTZEN-GRUPPE	6.34	5	28	9	1	30	13	13	1.00
<i>Average (10)</i>									14.89
<i>Median (10)</i>									13.43
<i>Average (3)</i>									26.54
Actual Multiple PERNOD RICARD	175	262	2527	1355	9817	45,907	54,552	3,394	16.07

Conclusions and interpretation:

- The average (median) EBITDA valuation multiple is 14.89 (13.43) for the large peer group.
- If we apply the average multiple to the EBITDA of 3,394 for Pernod Ricard, we estimate a V_L of 3,394 x 4.89 = 50.5 bn, which is a bit lower than its current (actual) V_L of 54.6 bn.
- Using the average EBITDA multiple of the 3 large peers, we estimate V_L of Pernod Ricard at 90 bn, or 26.54 x 3,394) suggesting that Pernod Ricard is undervalued.

We conclude that Pernod Ricard's value is somewhat undervalued or 'at par' with expectations.

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

company	NI	EPS	MCAP	PRICE	PE-Ratio
DIAGEO	3,249	1.42	80,543	35.31	24.79
DAVIDE CAMPARI	285	0.25	14,932	12.86	52.43
REMY COINTREAU	213	4.10	11,096	214.00	52.22
SCHLOSS WACHENHEIM	10	1.32	157	19.80	15.04
ITALIAN WINE BRANDS	15	1.65	365	41.50	25.13
LAURENT-PERRIER	50	8.45	615	103.50	12.25
VRANKEN-POMMERY	8	0.93	161	18.00	19.35
ADVINI	4	1.02	75	19.10	18.67
MARIE BRIZARD	7	0.06	147	1.31	22.28
BERENTZEN-GRUPPE	4	0.76	30	6.34	8.31
Average (10)					25.05
Median (10)					20.82
Average (3)					43.15
Actual Multiple					
PERNOD RICARD	1,996	7.62	45,907	175.30	23.00

Conclusions and interpretation:

- When considering the median (mean) PE of the peer group, we see that the PE-ratio for Pernod Ricard is marginally higher (lower).
- We conclude that Pernod Ricard seems accurately valued, based on the NI multiple (PE-ratio) of both peer groups.
- When only considering the 3 closest peers, Pernod Ricard seems highly undervalued.

Book Value Multiples

- Another intuitive multiple is to investigate how book value of the equity and the operating assets maps into the value of the asset.
- Market-to-book is the second most widely used multiple.
- We illustrate the mechanisms of using (1) NOA and (2) Book Value of Equity as the basis for valuation:

1. NOA \rightarrow Firm Value V_L $\rightarrow V_L$ / NOA
2. BVE \rightarrow Equity Value Eq_L \rightarrow Market-to-Book

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

V_L / NOA

company	EQUITY	CASH	STDEBT	LTDEBT	MCAP	V_L/NOA
DIAGEO	7,798	2,421	1,607	14,888	80,543	3.99
DAVIDE CAMPARI	2,372	805	273	1,271	14,932	4.21
REMY COINTREAU	1,661	116	106	364	11,096	5.43
SCHLOSS WACHENHEIM	175	8	29	34	157	0.93
ITALIAN WINE BRANDS	160	60	35	147	365	1.60
LAURENT-PERRIER	501	126	9	340	615	1.14
VRANKEN-POMMERY	380	15	364	306	161	0.79
ADVINI	94	25	78	110	75	0.93
MARIE BRIZARD	174	54	3	3	147	0.85
BERENTZEN-GRUPPE	49	28	9	1	30	0.69
Average (10)						2.06
Median (10)						1.03
Average (3)						4.54
Actual Multiple						
PERNOD RICARD	15,944	2,527	1,355	9,817	45,907	2.10

Conclusions and interpretation:

- The average (median) Q multiple for the large peer group is 2.06 (1.03), compared with an actual Q for Pernod Ricard of 2.10, which is considerably higher. Pernod Ricard looks overvalued.
- However, when only considering the three largest peers (which are likely more representative for Pernod Ricard), we again come to the opposite conclusion.
- Caveat:
 - Accounting conservatism may heavily distort the Tobin's Q multiple.
 - Likely, Diageo has fewer of its brands recognized in the balance sheet than Pernod Ricard, which artificially inflated this multiple for Diageo and understates it for Pernod Ricard. (Look at what is put on the balance sheet is very important!)

Market-to-Book Multiple

company	EQUITY	MCAP	MTB
DIAGEO	7,798	80,543	10.33
DAVIDE CAMPARI	2,372	14,932	6.30
REMY COINTREAU	1,661	11,096	6.68
SCHLOSS WACHENHEIM	175	157	0.90
ITALIAN WINE BRANDS	160	365	2.28
LAURENT-PERRIER	501	615	1.23
VRANKEN-POMMERY	380	161	0.42
ADVINI	94	75	0.80
MARIE BRIZARD	174	147	0.84
BERENTZEN-GRUPPE	49	30	0.62
<i>Average (10)</i>			3.04
<i>Median (10)</i>			1.06
<i>Average (3)</i>			7.77
Actual Multiple			
PERNOD RICARD	15,944	45,907	2.88

Conclusions and interpretation:

- The median (average) MTB valuation multiple is 1.06 (3.04) for the 10 peers, which is lower (comparable) to Pernod Ricard's MTB value of 2.88.
- Based on this comparison, Pernod Ricard looks either overvalued or at par.
- However, when only considering the three largest peers (which are likely more representative for Pernod Ricard), we again come to the opposite conclusion. The MTB value of Pernod Ricard's closest competitor Diageo, particularly, is much higher.
- The same caveats as for the NOA multiple apply here.

Market-Based Valuation Analysis for Pernod Ricard: Conclusion

	Multiple Indicator	Multiple Value (10 peers)	Multiple Value (3 peers)	Pernod Ricard Value	Comparison with 10 peers	Comparison with 3 peers	Recommendation
1	VL/NOPAT	28.46	43.32	25.87	At Par	Undervalued	HOLD/BUY
2	VL/EBITDA	13.43	26.54	16.07	At Par	Undervalued	HOLD/BUY
3	PE-ratio	20.82	43.15	23.00	At Par	Undervalued	HOLD/BUY
4	VL/NOA	1.03	4.54	2.10	Overvalued	Undervalued	?
5	MTB-ratio	1.06	7.77	2.88	Overvalued	Undervalued	?

Conclusions of the market-based valuation analysis:

- Investment recommendation strongly dependent on the multiple used as well as the peer group considered.
- Compared to its direct peers Diageo, Campari and Cointreau, Pernod Ricard seems undervalued and the recommendation is to buy the stock.
- Compared *only* to Diageo, and focusing on earnings-based multiples, Pernod Ricard seems valued at par.

⇒ Conclusion:

1. Outcome and valuation depends on the chosen peers.
2. Outcome and valuation depends on the chosen multiple.
3. No fundamentals underlying the use of multiples. Basically, you assume the peers are valued “correctly”.

- The peers can be overvalued!

4. When is market-based valuation most useful?

→ To value non-listed firms

→ To value segments (parts) of firms

Exercise for BMW on Toledo !

➔ The real conclusion is we do not have a conclusion!!