FINANCIAL ACCOUNTING AND FINANCIAL STATEMENT ANALYSIS

MAJOR FINANCIAL FLOWS AND ACCOUNTING ADJUSTMENTS

FINANCIAL ACCOUNTING AND FINANCIAL STATEMENT ANALYSIS

Table of contents

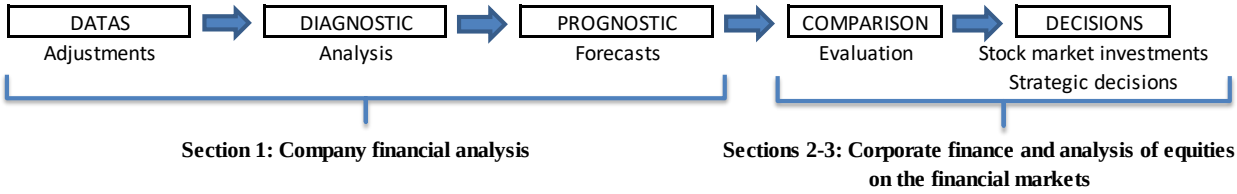
* final level

Abbreviations

Accruals	Non cash items
B/S	Balance sheet
BU	Business Unit
Capex	Capital Expenditures
CDS	Credit Default Swap
CEO	Chief Executive Officer
CFROI	Cash Flow Return on Investment
COGS	Cost of Goods Sold
CPI	Consumer Price Index
DM	Developed Markets
EBIT	Earnings Before Interest and Taxes
EBIDA	Earnings Before Interest, Depreciation and Amortization
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EBT	Earnings Before Taxes
EM	Emerging Markets
FCF	Free Cash Flow
FCFE	Free Cash Flow to the Equity
FCFF (or FCF)	Free Cash Flow to the Firm
IRR	Internal Rate of Return
MM	Modigliani Miller
NIBCLs	Non-Interest-Bearing Current Liabilities
NOPAT	Net Operating Profit After Taxes
NWC	Net Working Capital
P&L	Profit and loss
R&D	Research & Development
ROCE	Return on Capital Employed
OCF	Operating Cash Flow
OeCF	Operating Economic Cash Flow

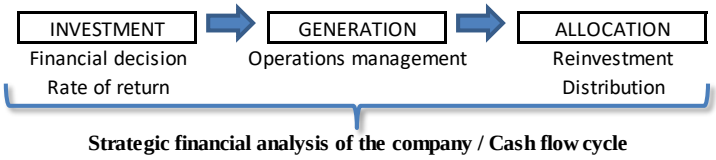
1. Introduction to financial analysis

Financial analysis is an important step in the investment process:



1. **Classic** financial analysis seeks to understand a company's strategy through its growth and profitability. It aims to give an idea of the company's operating and financial risks at the consolidated level and at the level of the different business units. It is therefore essential to be aware of:
   a. the main flows for analysis (profit, cash flows, etc.);
   b. the accounting adjustment necessary when there is a difference between the published figures and the economic reality;
   c. the analysis of the main ratios;
   d. the forecast of future flows.

2. It is complemented by **strategic** financial analysis which is used to determine if a company is capable of creating value in the long term for its shareholders. This second stage focuses on:
   a. the company's ability to find new investments at rates of return greater than the cost of capital;
   b. the growth in available cash produced by these investments and its allocation in the form of reinvestment or distribution to shareholders and other providers of capital.



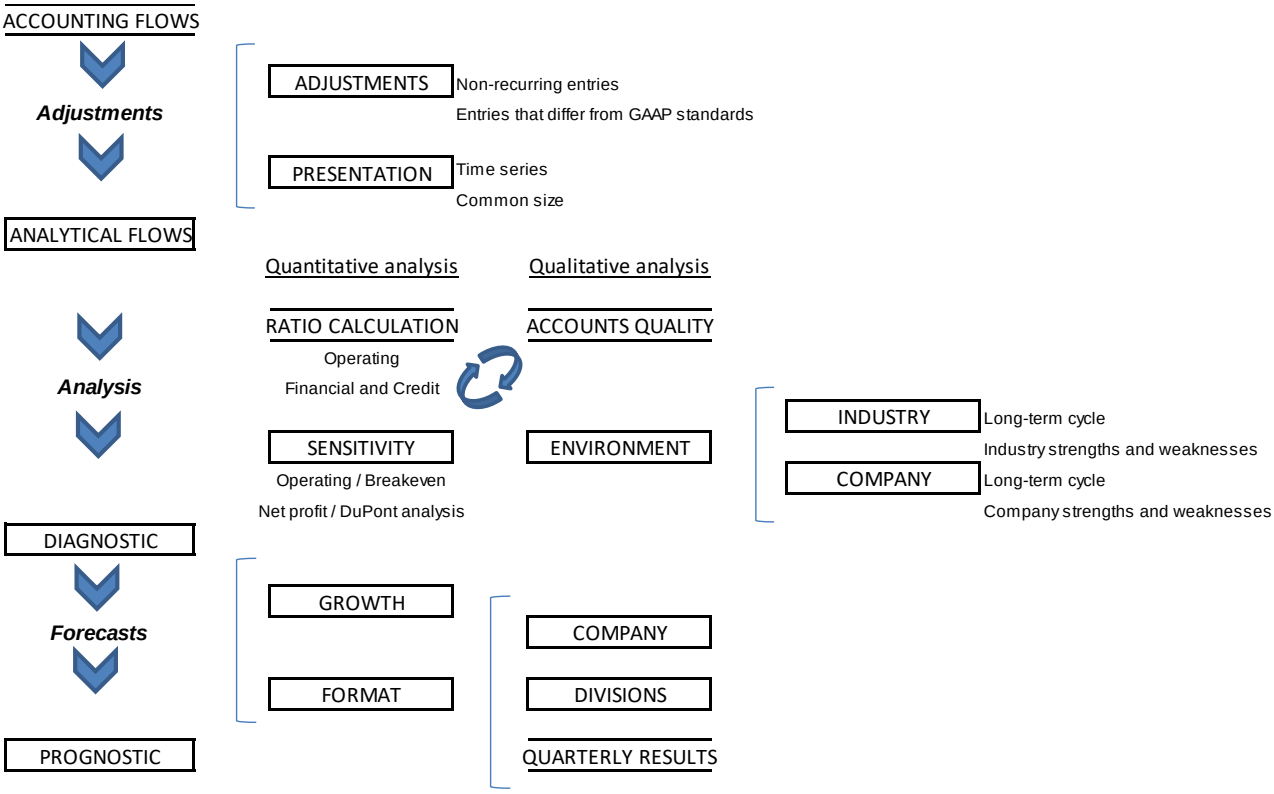
This strategic analysis of the company is of particular interest to:

- the board of directors, which must produce a strategy for using the capital invested and draw up management directives for the general management;
- the shareholders who must form an objective opinion on the soundness of this strategy.

Financial analysis has two quite distinct time horizons:

1. The announcement of the quarterly results provides a thorough review of a company's prospects. It is a short-term horizon where the investor is particularly attentive to any changes in the consensus view. Most financial analysts review their estimates after the telephone conferences that follow the publication of these results.
2. Strategic analysis looks at a more long-term horizon. Reorganisations aimed at creating greater shareholder value take time to become embedded in the company. A company with tens of thousands of employees cannot be completely transformed in a few months. Company timescales are often much longer than the impatience of short-term investors allows.

Financial communication and accounting transparency have progressed significantly over the past twenty years. However, it is still necessary to form one's own opinion of the appropriateness of the strategy and uncover the real situation of the company through or beyond its published figures.



2. Major financial flows and accounting adjustments

This section explains the major accounting flows associated with the company's two main approaches:

- The approach of the shareholder, who considers the equity to be a financial instrument that entitles the shareholder to participate in the company's profits. The main flows to be considered are profit, free cash flow to the equity (FCFE) and dividends.
- The approach represented by Modigliani Miller which views the company as a global capital invested which must produce returns in the form of free cash flow to the firm (FCFF).

None of these financial flows is more accurate than another but we shall see that the principal valuation methods (discounted cash flow – DCF, price/earnings – PE – ratio) use these two approaches.

2.1 Shareholder vision: net income and earnings per share (EPS)

For an equity investor, return on investment is of major importance. He may not be very concerned about the type of industry or products involved, as long as his investments earn returns commensurate with his risk appetite. Because of this lack of concern investors always look at measurements that are common to many organisations, among which EPS, or earnings per share, has gained prominence. It is a ratio that captures the earnings per share outstanding and is independent of the size of the firm, the type of industry, the nature of the products, the market characteristics, and so on. Because of its universal applicability it has become the most popular measure used by investors.

IAS 33 deals with the calculation of EPS. Under this standard enterprises whose shares are publicly traded have to disclose two EPS measures:

- basic earnings per share,
- diluted earnings per share.

2.1.1 Basic earnings per share

Basic earnings per share is calculated by dividing profit or loss attributable to ordinary shareholders by the weighted average number of ordinary shares outstanding during the period.

$$\text{Basic EPS} = \frac{\text{profit or loss attributable to ordinary shareholders}}{\text{weighted average number of ordinary shares outstanding during the period}}$$

The numerator corresponds to net income less preferred dividends.

For the calculation of the weighted average number of ordinary shares, two adjustments must be made:

- treasury stocks are excluded,
- ordinary shares that are issued without a corresponding change in resources (stock dividends, share splits…) are treated as if they had been issued at the beginning of the earliest period reported (i.e. as if these shares had always existed).

Example 1:
A company had 10'000 ordinary shares outstanding at the beginning of year N (of which 500 are treasury stocks). Its profit or loss for year N is CU 100'000. There are no preferred shares.

The following changes occurred during the period:

- April 1, N: issue of 5'000 ordinary shares
- October 1, N: repurchase of 500 ordinary shares by the enterprise
- November 1, N: distribution of 7'000 ordinary shares by incorporation of retained earnings into share capital (stock dividend).

The average number of ordinary shares outstanding during the period is:

(10'000 – 500) · 12/12 =	9'500
+5'000 · 9/12 =	3'750
- 500 · 3/12 =	- 125
+7'000 · 12/12 =	7'000
	20'125

$$\text{Basic EPS} = \frac{100'000}{20'125} = \text{CU } 4.97$$

In case of discontinued operations, the entity must also disclose another basic EPS based on profit or loss from continuing operations.

2.1.2 Diluted earnings per share

Diluted earnings per share are obtained by taking into account the effects of all dilutive potential ordinary shares.

A potential ordinary share is a financial instrument that may entitle its holder to ordinary shares. Examples of potential ordinary shares are convertible bonds, warrants, and stock options. A potential ordinary share is dilutive if its conversion to ordinary shares would decrease net profit per share.

For the calculation of diluted earnings per share, the profit or loss attributable to ordinary shareholders is increased by the after-tax amount of dividends and interest recognised in the period in respect of dilutive potential ordinary shares.

Similarly, the weighted average number of ordinary shares outstanding is increased by the number of additional ordinary shares, which would have been outstanding assuming the conversion of all dilutive potential ordinary shares. Additional ordinary shares are counted as if they had been issued at fair value.

Diluted earnings per share are thus calculated as follows:

$$\text{Diluted EPS} = \frac{\begin{array}{c}\text{profit or loss atributable to ordinary shareholders} \\ \text{+after tax interest on dilutive potential ordinary shares}\end{array}}{\begin{array}{c}\text{weighted average number of ordinary shares outstanding} + \text{number of ordinary} \\ \text{shares resulting from the conversion of all dilutive potential ordinary shares}\end{array}}$$

Example 1 (continued):
Other securities outstanding are:

- 5'000 bonds convertible into 2 ordinary shares
- 3'000 warrants. Each warrant entitles its holder to acquire one ordinary share for CU 150.

Average market price of the ordinary share in N: CU 200.
Interest on convertible bonds: CU 20'000 per year.
The income tax rate is 30 %.

Adjusted profit or loss attributable to ordinary shareholders:
100'000 + (20'000 · 70 %) = CU 114'000*

Adjusted number of outstanding ordinary shares:

weighted average number of ordinary shares	20'125
+number of ordinary shares resulting from the conversion of bonds: 5'000 · 2 =	10'000
+number of ordinary shares resulting from the exercise of warrants:	3'000
-number of shares issued had these shares been issued at fair value:	
(3'000 · 150) / 200 =	- 2'250**
= adjusted number of ordinary shares	30'875

Diluted earnings per share is thus:

$$\text{Diluted EPS} = \frac{114'000}{30'875} = \text{CU } 3.69$$

Explanations:

* After-tax interest on convertible bonds is added to the current profit or loss to obtain the profit or loss after conversion of these bonds.

** Only dilutive potential ordinary shares must be taken into account. If shares were issued at fair value, there would be no dilution. To obtain the number of dilutive potential shares it is thus necessary to deduct the number of shares that could be issued with the collected amount if the exercise price was equal to fair value.

2.2 Management vision: investments and free cash flow (FCF)

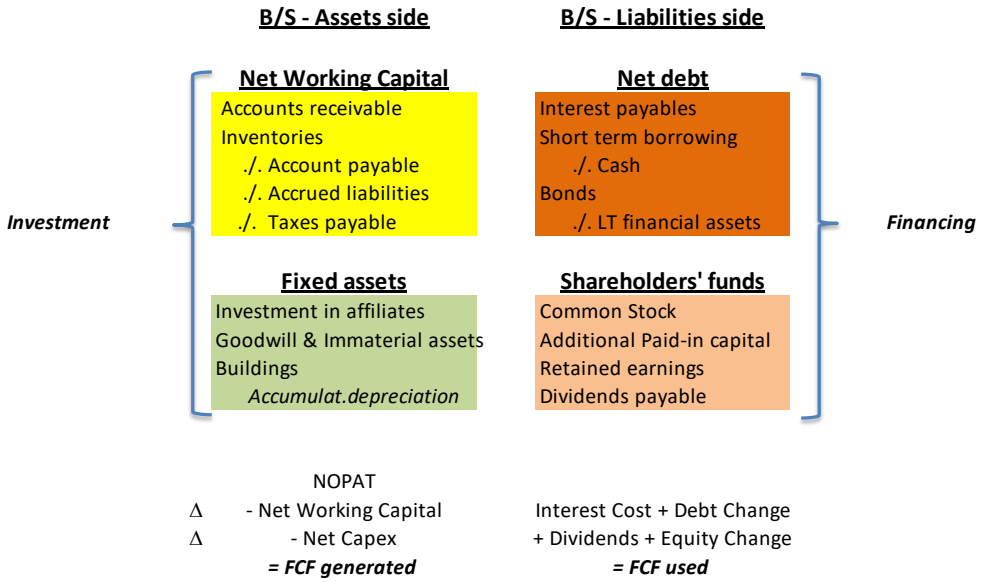
2.2.1 Modigliani Miller

Modigliani and Miller are known for having focussed on the cost of capital. This issue, which is dealt with in more detail in the corporate finance chapter, has shed light on the fact that a company's financial accounting is made of two basic blocs:

- Capital invested represented by the assets on the balance sheet, adjusted by a series of operations that we will now explain in detail. Management excellence is judged on its ability to generate net operating profit after taxes (NOPAT) or significant free cash flow (FCF) from this capital invested.
- This capital invested represented by the liabilities on the balance sheet is also adjusted. The free cash flows in this case are used to remunerate the providers of capital.

Accounting logic requires absolute equality between the creation of cash flow by the company on the assets side and the distribution of the same cash flow to the providers of capital.

Under this approach, the two main accounting aggregates used are operating profit and its variants (net operating profit after taxes - NOPAT, earnings before interest and taxes - EBIT, earnings before interests, taxes, depreciation and amortisation - EBITDA), investment net of amortisation/depreciation and free cash flow to the firm (FCFF)[1].



The balance sheet is therefore classified into **separate blocks**[2]:

- net assets are distributed between operating management (maturities of under one year for net working capital - NWC) and investments (maturities of over one year for fixed assets);
- liabilities are distributed between providers of capital with a contractually fixed rate (basically debt holders) and others with a variable remuneration depending on the company's results (basically the shareholders but also minority interests).

2.2.2 Basic example

We will start with an example in an "accounting view". In an analytical approach the accounts are reorganised.

First of all, the accounts must be analysed using net amounts between assets and liabilities. The logic behind this is to 'unravel' the balance sheet as presented in the annual reports. What matters for the purpose of the analysis is to measure the size of NWC for example compared to fixed assets. The size of a balance sheet is of little importance if it consists of items that can be offset against each other. A billion in long-term debts does not endanger the company if it is counterbalanced by 500 million in cash and a portfolio of debt instruments of the same size.

[1] All these accounting flows fall under Regulation G of the United States Securities and Exchange Commission (SEC) and are calculated differently by different companies.

[2] Intermittent or transitory non-operating assets can be brought together in a fifth category (non-operating) but it is generally small compared with the size of the balance sheet.

Once this operation has been completed, the focus is on determining the cash flow the company generates. The free cash flow to the firm (FCFF) account is the result of a profit and loss account and annual variations in the balance sheet. All items that belong in one of the categories described will receive identical treatment: the entry on the profit and loss account added to the annual variation on the balance sheet gives the amount shown in the economic cash flow account. Charges not related to a cash outflow must be taken into account. We will examine this point in more detail.

ACCOUNTING VIEW

Tax expenses will be split between operating charges and tax gains
To simplify, no tax deduction will be allowed for depredication

Profit and loss account

Gross profit	400
Operating expenses	-75
Rent expenses	-50
Taxes expenses	-25
Depreciation	-25
Interest expenses	-125
Profit	100
Dividend	-75
Ret.earnings	-25

EBITDA 275 (mix operating + financing)

B/S - Assets side

	Year 1	Year 2	Change
Short term			
Cash	150	200	50
Accounts receivable	-	200	200
Inventories	50	35	-15
Long term			
Investment in affiliates	15	35	20
Buildings (gross)	300	350	50
Accumulated depreciation	-100	-125	-25

B/S - Liabilities side

	Year 1	Year 2	Change
Short term			
Account payable	75	150	75
Accrued liabilities	75	50	-25
Taxes payable	-	25	25
Interest payable	-	25	25
Short term borrowing	65	120	55
Dividends payable	-	50	50
Long term			
Bonds	100	125	25
Common Stock	50	75	25
Additional Paid-in capital	50	50	0
Retained earnings	-	25	25

ANALYTICAL VIEW

Invest.capital - Assets side

	Year 1	Year 2	Change
NWC	-100	10	110
Accounts receivable	-	200	200
Inventories	50	35	-15
Account payable	-75	-150	-75
Accrued liabilities	-75	-50	25
Taxes payable	-	-25	-25
Fixed assets	215	260	45
Investment in affiliates	15	35	20
Buildings (gross)	300	350	50
Accumulat.depreciation	-100	-125	-25
Invested Capital	115	270	155

Invest.capital - Liabilities side

	Year 1	Year 2	Change
Net debt	15	70	55
Short term borrowing	65	120	55
Bonds	100	125	25
Cash	-150	-200	-50
Interest payables	-	25	25
Sharehold.' fds	100	200	100
Common Stock	50	75	25
Additional Paid-in capital	50	50	0
Retained earnings	-	25	25
Dividends payable	-	50	50
Invested Capital	115	270	155

Cash Flow - Generation

	Year 2
NWC / Operating	
P&L EBIDA	225
B/S Change in NWC	-110
Operating Cash Flow	115
Fixed assets / Investing	
P&L Depreciation	-25
B/S Change in net capex	-45
Gross capex	-70
CF Free Cash Flow to the Firm	45

Cash Flow - Use

	Year 2
Net debt / Financing	
P&L Interest expenses after taxes	-100
B/S Change in net debt	55
	-45
Shareholders' funds / Financing	
P&L Profit	-100
B/S Change in sh.funds	100
	0
CF Free Cash Flow to the Firm	-45

Further study #1: detailed classification of the balance sheet and profit and loss accounts shows the main items on balance sheets and profit and loss accounts classified according to the blocks described above:

Table 1: Profit and loss accounts and balance sheet distributed according to accounting categories

1 OPERATING (NET WORKING CAPITAL) - LESS THAN 1 YEAR

B/S
- OPERATING CASH
- INVENTORIES (RAW MATERIALS, SEMI-FINISHED, FINISHED GOODS)
- DEBTORS, ADVANCES PAID
  - ./. PROVISION FOR DOUBTFUL DEBTORS
- ./. CREDITORS, ADVANCES RECEIVED, FISCAL DEBTS
- OTHER OPERATING ASSETS
- ./. OTHER OPERATING LIABILITIES

P&L
- REVENUES
- VARIABLE COSTS
  - COST OF GOODS SOLD
  - MAINTENANCE COSTS
- FIXED COSTS
  - SELLING, MARKETING
  - ADMINISTRATIVE, GENERAL
  - R&D
- BOTH: PERSONAL, PENSION, RESTRUCTURING COSTS
- OTHER OPERATING INCOME
- OTHER OPERATING EXPENSES
- GAIN/LOSS ON OPERATING ASSETS SALES
- VALUE CHANGE IN OPERATING ASSETS (DEBTORS, INVENTORIES, CURRENCIES)

2 INVESTMENTS (FIXED ASSETS) - > MORE THAN 1 YEAR

B/S
- FIXED ASSETS (LAND, PPE, CONSTR.IN PROGRESS, EQUIPMENT, LEASINGS)
- INTANGIBLE ASSETS (BRANDS, LICENCES, ...)
- GOODWILL
- ASSOCIATES

P&L
- DEPRECIATION, AMORTIZATION
- GAIN/LOSS ON FIXED ASSETS SALES
- VALUE CHANGE IN FIXED ASSETS (IMPAIRMENTS)

3 NON OPERATING ASSETS

4 DISCONTINUED OPERATIONS, DEFFERED TAXES
- ASSET FOR SALE
- TRANSITORY/TEMPORARY ACCOUNTS
- DEFFERED TAXES

1 FINANCING WITH FUTURE REIMBURSEMENT

B/S
- INTEREST BEARING DEBT
  - FINANCIAL DEBT, BANK DEBT, LEASING (ST & LT)
  - ./. CASH AND EQUIVALENTS
  - ./. FINANCIAL ASSETS LONG TERM
- NON INTEREST BEARING LIABILITIES (NIBLICS)
  - PROVISION FOR RISK IDENTIFIED LONG TERM
  - PROVISION FOR PENSION LONG TERM
  - GUARANTEES, EARN OUT, ...

P&L
- INTEREST PAID / RECEIVED
- GAIN/LOSS ON FINANCIAL ASSETS SALES
- VALUE CHANGE IN FINANCIAL ASSETS (ACTUARIAL VALUE FOR PENSIONS)

2 FINANCING WITHOUT FUTURE FIXED REIMBURSEMENT

B/S
- "PRUDENT" PROVISIONS
- MINORITIES SHARE, NON CONTROLLING INTERESTS
- SHAREHOLDERS' EQUITY
  - SHARE CAPITAL
  - TREASURY SHARES
  - RETAINED EARNINGS
  - LEGAL, STATUTORY RESERVES
  - NET INCOME
  - VALUE ADJUSTEMENTS

P&L
- MINORITIES EARNINGS
- NET PROFIT

4 DISCONTINUED OPERATIONS, DEFFERED TAXES
- LIABILITIES FOR SALES
- TRANSITORY/TEMPORARY ACCOUNTS
- DEFFERED TAXES

1. Operating activities (net working capital) with short-term operating assets reduced by short-term operating liabilities.

2. Investment activities

3. Financing with future reimbursement (credits) where cash and long-term financial assets reduce the debt.

4. Financing without future reimbursement (provisions and shareholders' equity)
   - Liabilities are distributed between debt and shareholders' equity. If there is doubt as to their classification, the following steps are followed:
     - Will the liability be repaid with reasonable certainty in the future?
       - If the answer is no, the liability comes under shareholders' equity. Over-prudent provisions and minority interests fall into this category.
       - If the answer is yes, a second question must be asked: is the liability subject to regular interest payments or not?
         - If the answer to the second question is no, the liability falls into the non-interest bearing current liabilities (NIBCLs) category.
         - If the answer is yes, the liability goes under debt.

5. Non-operating assets that have been isolated for separate evaluation.

6. Non-recurring entries that concern impairments (reductions in value), asset revaluations, profit and/or loss on transfers, profit and/or loss on exchange rates. We have shown these elements separately in each category to highlight their special character. These non-recurring entries should not be taken into account in the forecasts. To simplify the calculations, only the first four categories are used in the examples that follow.

2.2.3 Further study #2: Global analytical table

	PROFIT AND LOSS Operating Revenues/Charges			BALANCE SHEET Change in Assets			FREE CASH FLOW Generation of FCF
Operating	Gross margin	400					400 Gross margin
	Op.expenses	-75					-75 Op.expenses
	Rent expense	-50					-50 Rent expense
		275 EBITDA					
	Op.tax expenses	-50					-50 Op.tax expenses
				Accounts receivables	-200		-200 Accounts receivables
				Inventories	15		15 Inventories
				Accounts payables	75		75 Accounts payables
				Accrued liabilities	-25		-25 Accrued liabilities
				Taxes payables	25		25 Taxes payables
		225 EBIDA	+		**-110 Δ NWC**	=	**115 Operating economic Cash flow**
		+			+		
Investing				Investment affiliates	-20		-20 Investment affiliates
				Building	-50		-50 Building
	Depreciation	-25		Acc.Depreciation	25		0 Depreciation
		-25 Depreciation	+		**-45 Δ LT assets**	=	**-70 Capex**
		=			=		
		200 NOPAT	+		**-155 Δ Inv.capital**	=	**45 FCF to the firm (asset side)**
	Capital holders Revenues/Charges			**Change in Liabilities**			**Use of FCF**
Financing	Interest after tax	-100					-100 Interest after tax
				Interest payable	25		25 Interest payable
				ST borrowing	55		55 ST borrowing
				Bonds payables	25		25 Bonds payables
				Cash	-50		-50 Cash
		-100 Financial results	+		**55 Δ Net debt**	=	**-45 Debtholders flows**
		+			+		
Financing	Dividends paid	-75					-75 Dividends paid
				Dividends payables	50		50 Dividends payables
				Common stock	25		25 Common stock
	Retained earnings	-25		Retained earnings	25		0 Retained earnings
		-100 Net income	+		**100 Δ Shareh.equity**	=	**0 Shareholders'flows**
		=			=		=
		-200 Wealth chg for cap.holders	+		**155 Δ Inv.capital**	=	**-45 FCF to the firm (liab.& Shareh. side)**

NB: +/- signs correspond to cash inflows or outflows

Table 2 seeks to improve the presentation of the basic example by showing the profit and loss, the balance sheet items and the free cash flow to the firm (FCFF) in a single block. The operating cycle of under a year generates earnings before interest, depreciation and amortisation (EBIDA)[3]. If the net working capital (NWC) requirements are added, operating economic cash flow is obtained. Variation in fixed operating assets (tangible and intangible) decreased by amortisation and depreciation for the year forms the company's net capital expenditure (capex). Free cash flow (FCF) is the addition of the variation of the profit and loss account (column 1) and the balance sheet (column 2).

- **Comments / Remarks:**
- Generation of free cash flow to the firm (FCFF) (45) in the previous example would have been greater without the marked increase in variation of debtors (200). The reasons for this need to be understood. It will be noted that overall capital invested rose substantially (from 115 to 270). The reason could be that it is a young company with rapidly expanding sales in need of additional working capital and fixed assets. One item argues for this hypothesis: the return on capital ratio is excellent (over 16 percent for the FCFF/capital invested ratio). This gives management an incentive to continue its development through new capital expenditure (capex).
- Use of free cash flow to the firm (FCFF): the FCFF (45) has been dedicated to the remuneration of creditors, in particular to the payment of interest charges (100). This is a considerable amount compared with the company's gross debt (a rise to 270 from 105). Either this charge includes an exceptional capital loss or recent debt was contracted at extremely high interest rates. The last hypothesis is unlikely given the low debt shown on the balance sheet.
- Tax charges are relatively modest (25) compared with EBIDA of 225 (earnings before interest, depreciation and amortisation). However, this percent rate is deceptive as the company has been able to deduct very high interest charges. In the hypothesis of a tax rate of 20 percent, this would mean a tax charge of 50 and a tax gain due to debt of 25. This distribution of the tax charge reduces the free cash flow to the firm (FCFF) on assets to 25.

Inputs for taxes

Simplified analysis	Before taxes	Taxes	After taxes	
Operating (EBIT)	250	-25	225	10%
Financing	-125		-125	0%
Total	125	-25	100	20%

Complete analysis:	Before taxes	Taxes	After taxes	Tax rate	
Operating	275	-55	220	20%	FCF after tax is lower as tax rate is artificially low
Investing	-25	5	-20	20%	
Financing	-125	25	-100	20%	
Total	125	-25	100	20%	

Here we show how depreciation would also impact taxes. To simplifiy we have assigned the whole intrest charges ex-financing to operating items.

[3] Throughout this chapter, in the interests of simplicity, all tax is allocated to operating and financial activities. Allocating some of the tax to investment activities would result in a substantial number of accounting complications. This point has no significant effect on the calculation of the ratios or on the analysis of the enterprise.

	PROFIT AND LOSS Operating Revenues/Charges			BALANCE SHEET Change in Assets			FREE CASH FLOW Generation of FCF	
Operating	Gross margin	400					400	Gross margin
	Op.expenses	-75					-75	Op.expenses
	Rent expense	-50					-50	Rent expense
		275 EBITDA						
	Op.tax expenses	-50					-50	Op.tax expenses
				Accounts receivables	-200		-200	Accounts receivables
				Inventories	15		15	Inventories
				Accounts payables	75		75	Accounts payables
				Accrued liabilities	-25		-25	Accrued liabilities
				Taxes payables	25		25	Taxes payables
		225 EBIDA	+		**-110 Δ NWC**	=	**115**	**Operating economic Cash flow**
		+			+			
Investing				Investment affiliates	-20		-20	Investment affiliates
				Building	-50		-50	Building
	Depreciation	-25		Acc.Depreciation	25		0	Depreciation
		-25 Depreciation	+		**-45 Δ LT assets**	=	**-70**	**Capex**
		=			=			
		200 NOPAT	+		**-155 Δ Inv.capital**	=	**45**	**FCF to the firm (asset side)**
	Capital holders Revenues/Charges			**Change in Liabilities**			**Use of FCF**	
Financing	Interest after tax	-100					-100	Interest after tax
				Interest payable	25		25	Interest payable
				ST borrowing	55		55	ST borrowing
				Bonds payables	25		25	Bonds payables
				Cash	-50		-50	Cash
		-100 Financial results	+		**55 Δ Net debt**	=	**-45**	**Debtholders flows**
		+			+		+	
Financing	Dividends paid	-75					-75	Dividends paid
				Dividends payables	50		50	Dividends payables
				Common stock	25		25	Common stock
	Retained earnings	-25		Retained earnings	25		0	Retained earnings
		-100 Net income	+		**100 Δ Shareh.equity**	=	**0**	**Shareholders'flows**
		=			=		=	
		-200 Wealth chg for cap.holders	+		**155 Δ Inv.capital**	=	**-45**	**FCF to the firm (liab.& Shareh. side)**

NB: +/- signs correspond to cash inflows or outflows

Table 2 - Reconciliation of the three accounts of the annual report

2.2.4 Further study #3: Non-cash charges

In the table above, free cash flow to the firm (FCFF) was calculated 'mechanically' taking as a hypothesis that the variation in balance sheet accounts, for example fixed assets, is entirely counterbalanced by a variation in cash or debt. We know this is not so and that there are many other accounting entries that have no cash counterpart. These entries, known as accruals, must therefore be removed from the FCFF calculation.

They are chiefly:

1. capital gains on transfer;
2. restructuring plans with accelerated amortisation and/or depreciation of assets;
3. charges associated with the exercise of employee options.

We will use the previous example again and consider that operating expenses include a charge of 10 million in the form of a 'prudent' provision. There is no counterbalancing cash outflow. An adjustment must therefore be made. The free cash flow (FCF) is increased by 10 to the figure of 55 million.

	PROFIT AND LOSS Operating Revenues/Charges			BALANCE SHEET Change in Assets			FREE CASH FLOW Assets
Operating	Gross margin	400					400 Gross margin
	Op.expenses	-65 (net of non cash items)					-65 Op.expenses
	Rent expense	-50					-50 Rent expense
		285 EBITDA					
	Taxes expense	-50					-50 Taxes expense
				Accounts receivables	-200		-200 Accounts receivables
				Inventories	15		15 Inventories
				Accounts payables	75		75 Accounts payables
				Accrued liabilities	-25		-25 Accrued liabilities
				Taxes payables	25		25 Taxes payables
		235 EBIDA	+		-110 Δ NWC	=	125 Operating economic Cash flow
		+			+		
Investing				Investment affiliates	-20		-20 Investment affiliates
				Building	-50		-50 Building
	Depreciation	-25		Acc.Depreciation	25		0 Depreciation
		-25 Depreciation	+		-45 Δ LT assets	=	-70 Capex
		=			=		
		210 NOPAT	+		-155 Δ Inv.capital	=	55 FCF to the firm (asset side)
	Capital holders Revenues/Charges			Change in Liabilities			Liabilities
Financing	Interest after tax	-100					
				Interest payable	25		
				ST borrowing	55		
				Bonds payables	25		
				Cash	-50		
		-100 Financial results	+		55 Δ Net debt	=	-100
		+			+		+
Financing	Dividends paid	-75					-75 Dividends paid
				Dividends payables	50		50 Dividends payables
				Common stock	25		25 Common stock
	Retained earnings	-35		Retained earnings	35		0 Retained earnings
				Various provisions	-10		-10 Various provisions
		-110 Net income	+		100 Δ Shareh.equity	=	-10 Shareholders'flows
		=			=		=
		-210 Wealth chg for cap.holders	+		155 Δ Inv.capital	=	-10 FCF to the firm (liab.& Shareh. side)

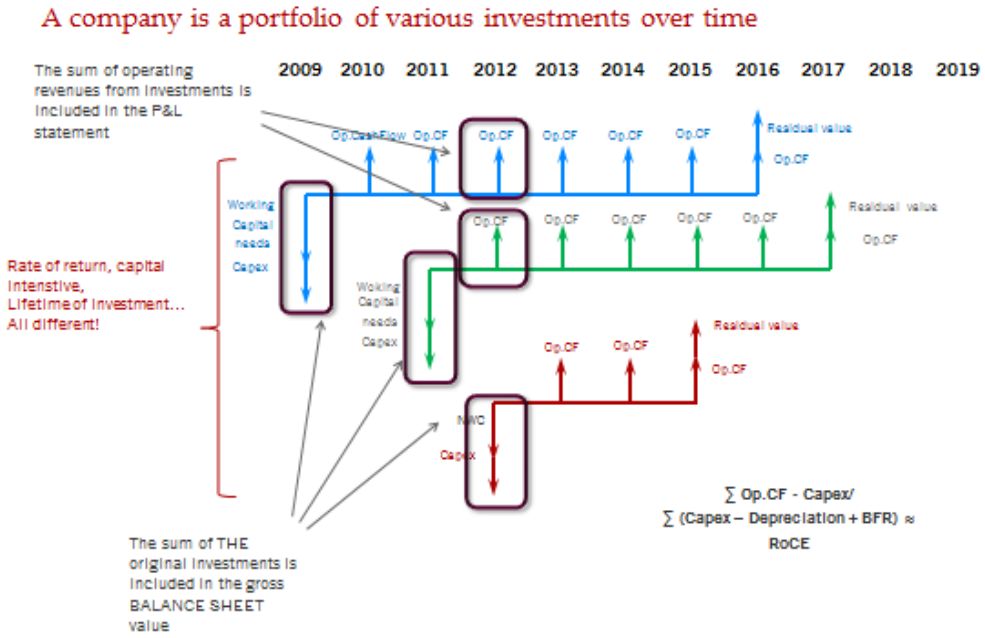
NB: +/- signs correspond to cash inflows or outflows

Entries in red have been changed owing to the non-cash charge of 10 being taken into account

An outside observer would have difficulty knowing if any particular charge had a cash counterpart. The best source of information remains the 'classic' cash flow account under the headings 'reversal of non-cash items' or 'restructuring expenses'. We will study a practical case using the Novartis example at the end of the chapter.

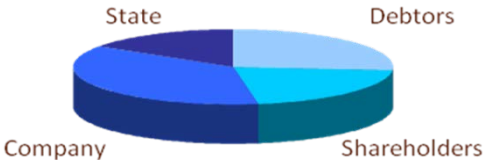
2.2.5 Conclusions

The analytical approach allows the free cash flows used to value the equities to be calculated 'logically'. It is attuned to the life of the company. The board of directors has new investment proposals submitted to it regularly emanating from the general management or the managers of the main business units. Its role is to choose the ones that will show the best profitability. The company's assets could be regarded as a portfolio of investments with different sizes, maturities and risk profiles producing different free cash flows.



The interpretation of **the return of capital** is based on the pie theory: the size of the pie is determined when we make the pie, but not when we eat it. In other words, its size does not depend on the number of slices. The analogy is clear: the total amount of profit is a function of the resources – physical, financial, human – at the disposal of the company as well as the ability of the management to adequately use these resources. How the profit is then shared among the beneficiaries is a pure question of distribution:

- the debtors will receive the interests, which are a function of the amount of debts and the interest rate;
- the State will take its share through taxes;
- the shareholders will get dividends, as decided at the shareholder's general meeting;
- the company itself will keep the residual amount, i.e. the non-distributed profit (reserves).



2.3 Reconciliation of the two approaches

2.3.1 General principles

The first concern of accounting was to protect creditors and ensure that the assets on the balance sheet had a value at least equal to their market value.

The law on accounting then changed with the rise of the power of the shareholder. The emphasis was then placed on the shareholders' equity account, which represents the state of the shareholder's wealth, and on the profit and loss account which measures the increase in that wealth over the financial year. The profit and loss result increases or reduces shareholder wealth. However the profit and loss account leaves room for a great deal of accounting manipulation, in particular through accruals and exceptional/extraordinary charges.

Many investors hoped that the comprehensive income account published since 2009 would be a means of identifying these non-standard entries. But it merely records variations in a few assets accounts (revaluation, exchange rate profit/loss). This is not enough to arrive at the indisputably 'true and fair' result the financial community dreams of.

The cash flow account avoids accruals, but has its own logic. For example, it does not record the profit or loss on assets but only the corresponding amount of cash received.

The most promising mode remains the shareholder value approach. It records variations in balance sheet and profit and loss items using the same logic as the cash flow accounts. But it orders these accounts very differently in capital invested and distributes the free cash flow to the firm (FCFF) to the providers of capital. The cash flow account helps to retrieve the non-cash entries in order to refine the result.

Current accounting methods have not (yet) adapted to this way of thinking. Current standards still leave companies too much latitude:

- absence of tax distribution between operating, financial and non-operating headings;
- mixing of operating and financial items in the cash flow account, in particular for the operating cash flow;
- unclear treatment of exceptional, extraordinary, recurring or non-recurring, continuous or non-continuous items.

These multiple approaches produce incomprehension in investors confronted with ever-changing flows and acronyms. In this section, we will reconcile the calculation of the main financial flows used still based on the figures in the initial example.

Shareholder approach:

- net profit, dividends
- operating cash flow (OCF)
- free cash flow to the equity (FCFE)

Management approach (according to Modgliani Miller):

- earnings before interests, taxes, depreciation and amortisation (EBITDA)
- operating economic cash flow (OeCF)
- free cash flow to the firm (FCFF)

		PROFIT AND LOSS				BAL.SHEET		CASH FLOW
OPERATING		EBITDA	+ T_{op} =	EBIDA	+	ΔNWC	=	OeCF
		+		+		+		+
INVESTING		Depreciat.	=	Depreciat.	+	ΔFix.Assets	=	Capex gross
		EBIT	+ T_{op} =	**NOPAT**	+	**ΔInv.Cap**	=	**FCFF**
FINANCING	Debt	I	+ I.t =	I(1-t)	+	ΔDebt	=	FCFD
		+	+	+		+		+
FINANCING	Equity	EBT	+ T	Net income	+	ΔEquity	=	FCFE

The upper side of the table shows the free cash flow generation (positive figures) while the lower side shows the use of these cash flows (negative figures).

These financial flows are used when valuing the company, assessing a project and analysing ratios.

We will see later that there is no need to have the entire profit and loss account or balance sheet to make forecasts. Just a few important variables, known as 'value drivers', can be used. In the table above, a relatively small number of value drivers (earnings before interests, taxes, depreciation and amortisation - EBITDA, total taxes, change in net working capital - NWC, depreciation, gross capital expenditure (capex), interest after tax, change in debt) allow most of the important flows to be forecast.

2.3.2 Operating economic cash flow and net income (shareholder approach)

Cash flow represents the flow of cash over a financial year, while income represents the profit available to the firm from its operations. The reconciliation occurs because of the use of the accrual concept for determining income.

Cash flow is affected by the difference between the beginning of the year accounts receivable and end-of-the-year accounts receivable and the sales during that year. Similarly, non-cash expenses like depreciation, amortisation and other write-offs affect cash flow. Cash flow is also affected by changes in payables and accrued liabilities. Thus cash flow is reduced whenever there is an increase in revenue and an increase in accounts receivable. Whenever there is an increase in expenses but also an increase in payables, then there is an increase in cash flow or a decrease in cash outflow. We therefore find that the cash flow statement is the link between the cash balances of a firm and the statement of comprehensive income prepared under the accrual concept.

Sales have an effect on cash flow only when the sales proceeds are collected. So the principal relation between income and cash flow is through the collection mechanism. The most important component in the cash flow statement affected by profit or loss is the cash flow from operations. The consolidated cash flow statement of a company is given below. Let us reconcile this company's relation between accounting profit and cash flow from operations.

net income
+ non-cash expense
- change in net working capital
- non-operating cash flows
= operating economic cash flow (OeCF)

The cash flow from operations has been arrived at by adjusting the figures from the statement of comprehensive income into three groups, namely:

1. Non-cash expenses
   adding the depreciation and amortisation on both tangible and intangible assets;
   deducting restructuring payments;
   adding minority interests;
   removing the net effect of currency translation.

2. Change in net working capital
   adjusting for the changes in net current assets and other operating cash flow items;
   adding taxes as per the income statement;
   deducting the actual taxes paid during the year.

3. Non-operating cash flows (not included in the example)
   deducting the income from associate companies;
   adding the interest and financial receipts including disinvestment gains.

2.3.3 Operating cash flow and FCFF

Free cash flow is defined as follows:

Earnings from operations before interest and taxes (EBIT)
- Taxes (calculated as EBIT x marginal tax rate)
+ Non cash relevant expenses (depreciation, provisions for doubtful debt, etc.)
- Non cash relevant revenues (adjustments for currency changes, etc.)
= Gross cash flow (= EBIDA)
- Changes in net working capital
- Gross capex
Free cash flow to the firm (FCFF)

The Modigliani Miller approach differs from the classic presentation of operating cash flow in several points:

Operating economic cash flow (OeCF)
+ Interest after tax (financing is removed)
- Gross capex
= Free cash flow to the firm (FCFF)

The corporate finance chapter gives detailed information on the various ways of calculating cash flow.

Shareholder Approach				Management/Modigliani Miller Approach		
Net income	OCF	FCFE		NOPAT	OeCF	FCFF
			Operations			
225	225	225	EBIDA	225	225	225
	-110	-110	Incr/Decr. NWC		-110	-110
			Investment			
-25		-25	+ Non cash charges	-25		-25
		-45	- Capex Net			-45
			Financing			
-100	-100	-100	Interest after tax			
		55	Incr./Decr. in Debt			
100	**15**	**0**		**200**	**115**	**45**

NB: Value drivers in different colors.

2.3.4 EBITDA and FCFF (MM approach)

If one wants to compare companies with dissimilar capital structures or even different tax regimes. In addition, companies do have some flexibility when it comes to assigning depreciable lives to property, plant and equipment and intangibles, so two otherwise identical companies but with different depreciation policies would not have the same income.

To try to circumvent this and to be able to determine the actual operating performance of a company without taking into consideration its financing and depreciation decisions as well as to exclude the effect of taxes, analysts and companies turn to Earnings Before Interest Taxes Depreciation and Amortisation (EBITDA). EBITDA to sales can thus be used to compare companies with different financing structures. It is a widely used measure and is often also used to measure management performance, as can be seen below.

Flowers Foods (USA)

> *EBITDA is used as the primary performance measure in the company's Annual Executive Bonus Plan. The company defines EBITDA as earnings from continuing operations before interest, income taxes, depreciation, amortization and income attributable to non-controlling interest. The company believes that EBITDA is a useful tool for managing the operations of its business and is an indicator of the company's ability to incur and service indebtedness and generate free cash flow. Furthermore, pursuant to the terms of our credit facility, EBITDA is used to determine the company's compliance with certain financial covenants. The company also believes that EBITDA measures are commonly reported and widely used by investors and other interested parties as measures of a company's operating performance and debt servicing ability because EBITDA measures assist in comparing performance on a consistent basis without regard to depreciation or amortization, which can vary significantly depending upon accounting methods and non-operating factors (such as historical cost). EBITDA is also a widely-accepted financial indicator of a company's ability to incur and service indebtedness.*

Indeed, EBITDA is quite popular in the private equity and leveraged buy-out sectors where the potential buyer plans to change the capital structure after the acquisition and wants to get a feel for the profitability of the company.

EBITDA is also very often seen in debt covenants, where, for instance, a company's debt is limited to a multiple of EBITDA.

In its simplest form, EBITDA is defined as:

	Net income before discontinued operations
+	Interest expense
+	Taxes
+	Depreciation
+	Amortisation
=	**EBITDA**

Alternatively, and even more simply, one can compute EBITDA from earnings before interest and tax (EBIT):

	Total sales
-	Operating costs
=	**EBIT**
+	Depreciation and amortization
=	**EBITDA**

The following example illustrates this concept. Company A and Company B are virtually identical companies, the only difference between them being their capital structure and their depreciation policy. This leads to very different net income figures, even though the underlying profitability is identical.

	Company A	**Company B**
Total sales	1'000.00	1'000.00
- cost of sales	800.00	800.00
- depreciation and amortisation	50.00	20.00
- sales, general and administrative expense	30.00	30.00
EBIT	120.00	150.00
Interest expense	7.50	0.00
Income before taxes	112.50	150.00
Income taxes	33.75	45.00
Net income	**78.75**	**105.00**
Total debt	150.00	0.00
Shareholder's equity	350.00	500.00
EBIT	120.00	150.00
+ Depreciation and amortisation	50.00	20.00
= EBITDA	170.00	170.00

Unfortunately, companies have widely varying definitions of EBITDA as they will try to include and exclude certain items (for instance, non-recurring items), so it usually up to the analyst to build his own version of EBITDA to render it comparable across companies, applying some skepticism and common sense.

EBITDA is sometimes used as a proxy for operating cash flow **or free cash flows**. It does not, however, take into account an important factor: working capital needs. These can be significant for a growing company, so using EBITDA might be very misleading. It is therefore usually wise to use this in combination with other measures.

EBITDA
- Taxes
- Change in NWC
- Gross capex
+ Non-cash charges
= FCF to the firm (FCFF)

Let us take the example given in section 2.2.2.

1. We try to replicate the table in section 2.3.1.
2. On this basis we intend to understand the relation between net income, operating cash flow, FCFF and EBITDA.

Answers:

1. Please note: The FCFs are generated by the net operational activity of the investments. Then they are 'consumed' as remuneration to the capital providers (this, for instance, is the reason for the negative figure with respect to the net result which refers to the remuneration of shareholders).

		PROFIT AND LOSS				BAL.SHEET		CASH FLOW
OPERATING		EBITDA	+ T_{op} =	EBIDA	+	ΔNWC	=	OeCF
		275	-50	225		-110		115
		+	+	+		+		+
INVESTING		Depreciat.	=	Depreciat.	+	ΔFix.Assets	=	Capex gross
		-25		-25		-45		-70
		EBIT	+ T_{op} =	**NOPAT**	+	**ΔInv.Cap.assets**	=	**FCFF**
		250	-50	**200**		**-155**		**45**
FINANCING	Debt	I	+ I.t =	I(1-t)	+	ΔDebt	=	FCFD
		-125	25	-100		55		-45
		+	+	+		+		+
FINANCING	Equity	EBT	+ T =	Net income	+	ΔEquity	=	FCFE
		-125	25	-100		100		0

2. The various aggregates used in this chapter and the relation between them.

	Net income	**100**
-	ΔNWC	110
+	Depreciation	25
=	**Operating cash flow**	**15**
+	Interest after taxe	100
-	Gross capex	70
=	**FCFF**	**45**
+	Taxes	50
+	ΔNWC	110
+	Gross capex	70
=	**EBITDA**	**275**

Shareholder Approach

	Net income	**100**
-	ΔNWC	110
+	Depreciation	25
+	Interest after taxes	100
=	**Operating Economic cash flow**	**115**
-	Gross capex	70
=	**FCFF**	**45**
+	Taxes	50
+	ΔNWC	110
+	Gross capex	70
=	**EBITDA**	**275**

Modigliani Miller Approach

2.4 Published figures and accounting adjustments*

So far, we have discussed the classification of accounting entries from the perspective of value creation analysis. We must now consider a second section: what to do when confronted with accounting decisions that are too aggressive or that are too obviously intended purely to maximise a company's short-term profit?

Analysts should not the take directly financial statements as they are, because even within the same accounting standards there are several accounting choices. Inventory valuation, depreciation of fixed assets, leasing, are just some common areas where these differences may occur. A good analyst will always go through the accounting policies disclosed in notes to the financial statements (generally the first note) and identify the accounting choices made by the enterprise. Then financial statements have to be brought to a common accounting policy basis and reported financial data has to be adjusted to create a more useful input for analytical tools.

*2.4.1 Entries that give a false image of the company**

There are two types of misleading entries:

1. Those classified as fraud, including the falsification of documents. They are prosecuted under criminal law (cf. Parmalat).
2. Those that, while being legal, maintain an over-optimistic vision of the company.
    a. **Income smoothing** is deliberately charging high discretionary expenses during good years and the restrained charging of such expenses during any bad year. The main purpose of this exercise is to give the market the impression that the firm has low volatility of earnings.
    b. **Big bath behaviour** refers to the tendency of firms to absorb all losses and expenses in one bad year. This is done with a view to cleaning up the balance sheet completely. Once the balance sheet has been completely sanitised, the market will discount all the bad points at one go, after which it will perceive the company as a turnaround case and react positively.

A restructuring plan that relates to several years and that is charged in a single financial year should have been distributed over the life of the plan. In the table below, a charge of 1,500 was posted in year 1 for a restructuring exercise that related to three years even though the restructuring effort was distributed equally over this period. The accounting result shows a net improvement in results (line a) whereas the economic result (line b), which distributes the initial charge over three financial years, shows no clear trend and a lack of profitability which extends into year 3.

	1	2	3
Result before restructuring	+500	+300	+500
Restructuring in year 1(a)	-1000	+300	+500
Phased restructuring (b)	0	-200	0

The first entry reflects the need to bring out all the probable losses immediately so as not to over-value shareholder's equity, which represents shareholder wealth. It is useful to the creditors. The second is motivated by the concern to make the accounts coincide with management's real performance. It is useful to the company's shareholders.

3. Tax consequences of rewriting an entry.

It is often difficult to take account of the tax factor if an entry is rewritten. The base information is missing. We do not know what tax rate was applied to a restructuring or to a financial penalty inflicted on a company, or we simply do not know the rate for capital gains in each country concerned. It is preferable for investors to rewrite tax entries only when they are absolutely certain of the facts.

Prudence is needed if an investor amends an entry in the course of a financial year, as it could be partly or totally taken into account through deferred taxes in subsequent years and the investor would not be aware of this given the lack of clarity of the entries associated with deferred taxes. There is a risk of not closing the initial corrective entry on time.

*2.4.2 Accounting definitions not recognised by international standards**

Going through a company's financial statements is often akin to going through a maze. Investors encounter a lot of noise in the form of financial or accounting elements that can make it difficult to see how a company is really performing and what its true profitability is. Companies have thus tried to make adjustments to numbers in the financial statements. These measures are usually known as "Non-GAAP financial measures" or Supplemental Financial Measures.

In brief, non-GAAP financial measures are supplemental financial measures of performance or liquidity used by companies and investors to gain additional insight to a company's performance and financial condition. The most common examples of non-GAAP financial measures are pro forma and adjusted earnings.

They have gained a lot of popularity both in the USA and increasingly in Europe too. There have also been a number of abuses, as it is very often in the company's best interests to present itself in the best light possible, given that management compensation can be based on non-GAAP measures and that better earnings can lead to higher multiples.

For this reason, in 2003, the SEC adopted a new regulation, known as **Regulation G**, to address companies' disclosure or release of financial information calculated and presented on the basis of methodologies other than in accordance with generally accepted accounting principles (GAAP). Other countries have since followed suit.

Regulation G requires public companies that disclose or release non-GAAP financial measures to include:

- a presentation of the most directly comparable GAAP financial measure
- a reconciliation of the disclosed non-GAAP financial measure to the most directly comparable GAAP financial measure
- a statement disclosing why management believes that presentation of the non-GAAP financial measure provides useful information to investors regarding its financial condition and results of operations

*2.4.2.1 Adjusted income**

We show below an example. In this case, Colgate explains its use of non-GAAP financial measures for the three months ended March 31, 2011 and the additional information is quite useful to understanding the underlying performance of the company.

Colgate (USA)

To supplement Colgate's condensed income statements presented in accordance with accounting principles generally accepted in the United States of America (GAAP), the Company has disclosed non-GAAP measures of operating results that exclude certain items. Operating profit, operating profit margin, effective tax rate, net income and earnings per share are discussed both as reported (on a GAAP basis) and excluding the impact of the one-time charge related to the transition to hyperinflationary accounting in Venezuela as of January 1, 2011. Management believes these non-GAAP financial measures provide useful supplemental information to investors regarding the underlying business trends and performance of the Company's ongoing operations and are useful for period-over-period comparisons of such operations.

Colgate's non-GAAP reconciliation for the three months ended March 31, 2011 and 2010 (in millions except per share amounts) (Unaudited)

	2011	2010		
	As Reported	As Reported[1]	Venezuela Hyperinflationary[2]	As Adjusted Non-GAAP[1]
Other (income) expense, net	$ 12	$ 235	$ 271	$ (36)
Operating profit	915	678	(271)	949
Operating profit margin	22.9%	17.7%		24.8%
Income before income taxes	899	662	(271)	933
Effective tax rate	32.5%	41.5%		29.5%
Net income including noncontrolling interests	607	387	(271)	658
Net income attributable to Colgate-Palmolive Company	$ 576	$ 357	$ (271)	$ 628
Earnings per common share[3]				
Basic	$ 1.17	$ 0.71	$ (0.55)	$ 1.26
Diluted	$ 1.16	$ 0.69	$ (0.52)	$ 1.21

[1] Includes a $46 pretax ($59 aftertax, $0.11 diluted earnings per share) gain related to the remeasurement of the Venezuelan balance sheet and lower taxes on accrued but unpaid remittances resulting from the currency devaluation in January 2010.

[2] Represents the one-time charge of transitioning to hyperinflationary accounting in Venezuela as of January 1, 2010. This amount primarily represents the premium paid to acquire U.S. dollar-denominated cash and bonds. Prior to January 1, 2010, these assets had been remeasured at the parallel market rate and then translated for financial reporting purposes at the official rate of 2.15.

[3] The impact of Non-GAAP adjustments on the basic and diluted earnings per share may not necessarily equal the difference between "As Reported" and "As Adjusted Non-GAAP" as a result of rounding.

The SEC prohibits measures that contain an untrue statement of material fact or omit a material fact that would make the presentation of the measure not misleading.

However, the SEC does not include the following in its definition of non-GAAP measures:

- operating and other statistical measures (such as unit sales, numbers of employees, numbers of subscribers, or numbers of advertisers)
- ratios or statistical measures that are calculated using exclusively one or both of:
  - financial measures calculated in accordance with GAAP (for instance, an operating margin calculated by dividing revenues into operating income with both elements calculated in accordance with GAAP)
  - operating measures or other measures that are not non-GAAP financial measures (for instance, sales per square foot or same store sales, if sales are calculated in accordance with GAAP)

This regulation has provided a bit more information on the motives and calculation of non-GAAP measures, but it certainly did not stop companies from using them. In the following sections, we will look at some of the most widely used non-GAAP elements and their uses and limitations.

Earnings reported under GAAP very often include non-recurring or unusual items that can obfuscate the underlying profitability of a company. These can include restructuring charges, legal settlements, goodwill impairments and a host of other items. Analysts typically want to get a feel for what the company really earned during that period, so companies provide these numbers in the form of adjusted net income (also called operating income or pro forma income).

This is clearly one of the most controversial non-GAAP measures, as there is no common definition and companies include or exclude very different items. It is also not surprising that adjusted net income is generally higher than GAAP earnings. There is also evidence that companies tend to report adjusted income when their GAAP earnings are likely to miss expectations.

So, are pro forma earnings used more to inform and enable investors to properly calculate a company's performance or are they used by management to manage expectations, maybe even mislead?

We would argue a bit of both, which is why pro forma earnings should always be treated with caution. Whilst it is undeniable that pro forma earnings can provide valuable information on a company's performance and can be used as a basis to forecast future earnings, analysts need to be vigilant and try to understand what the company is trying to achieve. It is also up to the analyst to use common sense in deciding what to use and not to use to derive his own pro forma earnings number and to do so in a consistent manner across companies

If the company publishes recalculated results, a very large part of the annual report loses its importance. The figures in the annual report are tied to IFRS or US GAAP standards but the company uses two or three freely selected aggregates to explain its performance to investors. This complicates even further the task of ascertaining management performance. The solution could be to publish an appendix to the overall accounts showing the adjusted results alongside the 'official' annual report. There would be a cost but the information would therefore be immediately available to all investors.

*2.4.2.2 Stock based compensation**

For instance, some companies (very often tech companies) will choose to exclude stock-based compensation from pro forma earnings. This, for example, is what Motorola Solutions has to say about it:

> **Motorola** (USA)
>
> *Stock-based compensation expense: The Company has excluded stock-based compensation expense from its non-GAAP operating expenses and net income measurements. Although stock-based compensation is a key incentive offered to our employees and the Company believes such compensation contributed to the revenue earned during the periods presented and also believes it will contribute to the generation of future period revenues, the Company continues to evaluate its performance excluding stock-based compensation expense primarily because it represents a significant non-cash expense. Stock-based compensation expense will recur in future periods.*

Motorola Solutions: reconciliation of published earnings to GAAP earnings

(Per diluted common share)	Fourth Quarter 2010††
GAAP Earnings from Continuing Operations	$0.61
Highlighted Items:	
Separation-related transaction costs	0.17
Reorganization of business charges	0.09
IP settlement	(0.17)
Total Highlighted Items	**0.09**
Stock-based compensation expense	0.14
Intangible assets amortization expense	0.12
Stock-Based Compensation Expense and Intangible Assets Amortization Expense	**0.26**
Total Non-GAAP Adjustments	**0.34**
Non-GAAP Earnings from Continuing Operations	**$0.95**

†† Earnings per share amount does not add up due to rounding

Source: Motorola Solutions

True, stock based compensation is a non-cash expense, but it does carry a real cost to shareholders, so should arguably be included.

*2.4.2.3 Non-recurring items**

Non-recurring items are also a controversial item. When they are transitory in nature, they can be excluded. An example of this is found below with Covidien.

Covidien: reconciliation of adjusted earnings to GAAP earnings

	Quarter Ended March 25, 2011							
	Sales	Gross profit	Gross margin percent	Operating income	Operating margin percent	Income from continuing operations before income taxes	Income from continuing operations	Diluted earnings per share from continuing operations
GAAP	$ 2,801	$ 1,596	57.0%	$ 615	22.0%	$ 570	$ 459	$ 0.92
Adjustments:								
Inventory charges [1]	-	8		8		8	5	0.01
Restructuring credits, net	-	-		(2)		(2)	(2)	-
As adjusted	$ 2,801	$ 1,604	57.3	$ 621	22.2	$ 576	$ 462	0.93

	Quarter Ended March 26, 2010							
	Sales	Gross profit	Gross margin percent	Operating income	Operating margin percent	Income from continuing operations before income taxes	Income from continuing operations	Diluted earnings per share from continuing operations
GAAP	$ 2,551	$ 1,453	57.0%	$ 545	21.4%	$ 529	$ 422	$ 0.83
Adjustments:								
Restructuring charges [2]	-	-		26		26	18	0.04
Impact of tax sharing agreement [3]	-	-		-		(13)	(13)	(0.03)
Tax matters [4]	-	-		-		-	8	0.02
As adjusted	$ 2,551	$ 1,453	57.0	$ 571	22.4	$ 542	$ 435	0.86

Source: Covidien

Covidien has some non-recurring items that are actually different from year to year. But what happens if these non-recurring items occur year after year?

One such example is Bank of America, which was somewhat of a serial acquirer, acquiring MBNA (credit cards) in 2006, US Trust in 2007 Countrywide in 2008 and finally Merrill Lynch in January 2009. Bank of America took merger and restructuring charges every single quarter between Q1 2007 and Q4 2008 and added those to pro forma earnings. Should one consider these as non-recurring or are they an integral part of the way the company is run?

Bank of America: reconciliation of GAAP net income / (loss) to operating earnings

	Q1 2007	**Q2 2007**	**Q3 2007**	**Q4 2007**	**Q1 2008**	**Q2 2008**	**Q3 2008**	**Q4 2008**
Net income	5'255	5'761	3'698	'268	1'210	3'410	1'177	-1'789
Merger and restructuring charges	11	75	84	140	170	212	247	306
Related income tax benefit	-41	-28	-31	-52	-63	-78	-64	-100
Operating income (loss)	**5'225**	**5'808**	**3'751**	**'356**	**1'317**	**3'544**	**1'360**	**-1'583**

Well, fast forward to 2010. Bank of America recorded goodwill impairment charges of USD 10.4bn in the third quarter and USD 2.0bn in the fourth quarter, relating to the Global Card Service unit (which included MBNA), respectively to its Consumer Real Estate Services unit (i.e. Countrywide). Whilst excluding these charges does provide a basis for forecasting future earnings, these goodwill impairments also reflect management failings in its M&A strategy.

Of course, that is not all. Though Bank of America did stop excluding restructuring expenses from non-GAAP operating earnings, it does – as do other companies – present significant items impacting earnings in its results presentation (see below). Street analysts will typically exclude some or all of these items in their operating earnings estimate and for use to forecast future earnings. Again, some of these items will be helpful but others look to be related to the underlying business and could be a result of bad management decisions in the past.

Bank of America's Q1 2011 results presentation – significant items

Significant items in 1Q11 earnings include ($ in billions, except EPS)	Pre-tax	Approximate EPS Impact [1]
Revenue		
Representations and warranties provision	$ (1.0)	$ (0.06)
Negative fair value adjustment on structured liabilities	(0.6)	(0.04)
Equity investment gains	1.1	0.07
Debt securities gains	0.5	0.03
Trading DVA loss	(0.4)	(0.02)
Expense		
Litigation expense	(0.9)	(0.06)
Mortgage-related assessments and waivers	(0.9)	(0.06)
Retirement eligible stock-based compensation expense	(1.0)	(0.06)
Merger and restructuring charges	(0.2)	(0.01)
Provision		
Loan loss reserve reduction	2.2	0.14

Source: Bank of America

In conclusion, pro forma earnings can be useful, provided that one understands what management is doing and why and that one uses the same treatment consistently across companies.

*2.4.3 Rewriting of entries in the case of different accounting standards**

Analysts look at financial statements of enterprises to arrive at decisions regarding investment, future growth, etc. For that purpose, they use many analytical tools that we are going to see in the next sections. But before looking at these analytical tools we have to make sure that financial statements are brought to a common platform. This is partially achieved, as we have seen in the previous sections, by following accounting standards.

When comparing two companies, the first thing that we have to do is to make sure that they are following the same accounting standards. Necessary adjustments have to be done by recalculating the various items in the balance sheet, income statement and cash flow statement in order to be sure that there is uniformity in the accounting policies used.

Analysts work has been greatly smoothed in the last decade. In Europe, differences between accounting standards have been drastically reduced because all listed companies follow now the IFRS (since 2005). On the other hand, the IFRS standards have moved closer to the US GAAP and therefore significant differences have been eliminated. We can now compare two European companies without worrying too much about accounting differences, and even a comparison between American and European companies is possible. In addition, in November 2007, the SEC eliminated the longstanding requirement to reconcile financial statements to U.S. GAAP for those foreign private issuers that use IFRS. Now, the SEC is focusing on IFRS for domestic U.S. companies with further announcements expected soon.

The accounting choices and methods have been presented in the previous sections. In the present context, everything has to be put together and the appropriate adjustments have to be done to the balance sheet, income statement and cash flow statement. Note that although it is quite often that the necessary data is missing, analysts should still at least try to make these adjustments. Keep in mind that even the worst adjustment (an approximate adjustment for instance) is better than no adjustment. Here are some examples of frequent adjustments.

Example:
Your department is specialized in the financial analysis of a portfolio of enterprises that are closely followed. Below you can find the main accounting choices used by most of the firms in the portfolio:

- Straight line depreciation method for all fixed assets;
- FIFO for inventory valuation;
- Capitalizing the interest cost.
- Development costs are not capitalized.

As a freshly recruited analyst, you are in charge of following a new investment opportunity that your company is considering in COMPAR. You are asked to draw a comparison based on different analytical tools with other firms from the portfolio. But before computing different ratios, you want to make sure that COMPAR is using the same accounting methods as the other firms.
Therefore, you start by going through the financial statements and the notes of COMPAR 2007. You discover following information:

- COMPAR is using the double declining balance method to depreciate the equipment. Compared to the straight line depreciation method, the double declining balance method is increasing the depreciation expense by 8 000 monetary units in 2007 (24 000 for all the previous years).
- COMPAR is using the weighted average cost method to value the inventories leading to an initial balance of 16 000 and a final balance of 19 000 monetary units. If the company would have used the FIFO method the initial balance would have been 17 500 and the final balance 20 000 monetary units.
- The company has constructed a building in 2006; works have started on the 1st of January and the building was finished on the 31st of December. The total cost of the building was 100 000 monetary units. The weighted average interest cost of the borrowings of the enterprise during 2006 was 5%. From the cash flow statements you can see that the interest paid by the enterprise in 2006 was 1 500 monetary units. COMPAR has started to use the building beginning 2007, and therefore recorded a depreciation expense based on an estimated useful life of 50 years (straight line depreciation method). COMPAR decided not to capitalize the interest cost (option allowed by the standard at that time).
- A note discloses the fact that the company has been involved in a legal proceeding with tax authorities, the amount claimed being 8 000 monetary units. However, the management estimates that there are no reasons for concern and therefore no provision has been recognized. You just remember that you have seen in the today's newspaper that COMPAR has finally lost the case and that it will be forced to pay the amount.
- A note is disclosing the fact that the insurance value of the buildings is 1 250 000 monetary units. From the balance sheet, you see that the net book value of the buildings by the end of 2007 was 830 000.
- A note is disclosing the fact that COMPAR capitalizes the development costs. These expenses occurred in 2005 (5 000 monetary units) and are amortized using the straight line depreciation method with an estimated useful life of 5 years.

Ignore the effect of taxation in your adjustments.

Solution:
Note that none of the adjustments above influence the cash flow of the year 2007. Therefore we will focus on the necessary adjustments on the income statement and on the balance sheet.

1. Depreciation Adjustment

For the year 2007 the depreciation expense has to be decreased by 8 000 monetary units. On the other hand, the net value of the equipment is increasing with the same amount. A similar adjustment is needed for all the previous years. The net income from the previous years can be found in retained earnings, and therefore we will increase directly the retained earnings by 24 000 and increase the net value of the equipment with the same amount.

Overall:

- Depreciation expense is decreasing by 8 000;
- The net value of the equipment is increasing by 32 000 (= 8 000 + 24 000);
- Retained earnings is increasing by 32 000 (= 8 000 + 24 000).

2. Inventory adjustment

First we need to increase the final balance of inventories by 1 000 (= 20 000 – 19 000). This amount corresponds to the cost of goods sold that we need to decrease with the same amount. The initial balance is affecting the cost of goods sold and the retained earnings. Therefore we need to transfer 1 500 (= 17 500 – 16 000) from retained earnings to the cost of goods sold.

Overall:

- the inventories are increasing by 1 000;
- the cost of goods sold is increasing by 500 (= 1 500 – 1 000);
- retained earnings is increasing by 1 000 (the transfer is not affecting the total of retained earnings).

3. Capitalized interest adjustment

Assuming that the construction process has been constant during the year, the amount of interest that can be capitalized is ((0 + 100 000)/2) * 5% = 2 500. However, because COMPAR has paid only 1 500 monetary units, the interest cost that may be capitalized is 1 500. Therefore we are increasing the value of the buildings by 1 500 and in the same time increasing the retained earnings (interest expense from the previous year) with the same amount.

Further, we have to adjust the depreciation expense for 2007 on the new basis. The depreciation expense is increasing by 30 (= 1 500 /50) while the net value of the buildings is decreasing with the same amount.

Overall:

- the value of the buildings is increasing by 1 470 (= 1 500 – 30);
- the depreciation expense is increasing by 30;
- the retained earnings is increasing by 1 470 (= 1 500 – 30).

4. Provision adjustment

We know now that the management's estimation was wrong, and therefore we can correct the financial statements. We are going therefore to recognize a provision for 8 000 and an expense for the same amount.

Overall:

- the provision is increasing by 8 000;
- the expense with provisions is increasing by 8 000;
- the retained earnings is decreasing by 8 000.

5. Revaluation of buildings adjustment

The value of the buildings has to be increased by 430 000 (= 1 250 000 – 830 000). The same amount will appear directly in equity (comprehensive income) as a revaluation reserve.

Overall:

- the value of the buildings is increasing by 430 000;
- the value of the revaluation reserve is increasing by 430 000.

6. Development cost adjustment

The development costs have to be eliminated from the balance sheet. Their net value is 2 000 (= 5 000 – 3·1 000) and therefore we have to decrease the assets by 2 000 and decrease retained earnings by 2 000. In the same time we have to cancel the amortization for 2007 of 1 000 (no effect on the total of retained earnings). The amortization for 2005 and 2006 is already in the retained earnings and no correction is needed.

Overall:

- the value of the development costs is decreasing by 2 000;
- the value of the amortization is increasing by 1 000;
- the retained earnings are decreasing by 2 000.

Adjustments 1 to 6 are summarized in the tables below:

Balance sheet	Adj.#1	Adj.#2	Adj.#3	Adj.#4	Adj.#5	Adj.#6
Assets						
Buildings			+ 1 470		+ 430 000	
Equipment's	+ 32 000					
Development costs						- 2 000
Inventories		+ 1 000				
(-) Liabilities						
Provisions				+ 8 000		
(=) Equity						
Retained earnings	+32 000	+ 1 000	+ 1 470	- 8 000		- 2 000
Revaluation reserve					+ 430 000	

Income statement	Adj.#1	Adj.#2	Adj.#3	Adj.#4	Adj.#5	Adj.#6
Revenues						
(-) Expenses						
Cost of goods sold		+ 500				
Depreciation exp.	- 8 000		+ 30			- 1 000
Provision exp.				+ 8 000		
(=) Profit/Loss	+8 000	- 500	- 30	- 8 000		+ 1 000

*2.4.4 Specific case: capitalisation of research and development (R&D) costs**

Most companies consider research and development expenditure as operating expenses charged each year to the profit and loss account. However it is clear that these research costs could have an impact on future profit, not just for the current year. Logically, they should be considered as investments.

However, most accounting standards do not allow these charges to be capitalised. An American pharmaceutical company is obliged to post them directly to the profit and loss account (SFAS 2), whereas European companies can amortise development expenses over their estimated life, which is usually 10 to 15 years (a solution allowed by IAS 9).

This accounting choice has an impact on assets, profitability and the level of operating cash flow. A company that posts its research and development as a charge usually reduces its results.

To determine what the exact impact of these accounting choices will be, we need to produce a restatement. There are various 'practical' means. Below we have given a version using straight-line amortisation of these charges[4].

We have reintroduced Novartis' historic research and development[5] expenditure into the balance sheets with an average tax rate of 20 percent. The object is to reconstitute the research and development assets as if they had been capitalised, given an estimated life of 10 years and straight-line amortisation. This period is close to the period indicated in Note 11 of the group's annual report: intangible assets for the products marketed at present by Novartis are amortised over a period of 12 to 13 years. Annual amortisation is the sum of these amounts (5,653 million in 2013).

	2'003	2'004	2'005	2'006	2'007	2'008	2'009	2'010	2'011	2'012	2'013
R&D Expenses	3'700	4'000	4'800	5'300	6'400	6'800	7'300	8'100	9'200	9'116	9'642
R&D Exp.after taxes	2'960	3'200	3'840	4'240	5'120	5'440	5'840	6'480	7'360	7'293	7'714
Amort 1	(296)	(320)	(384)	(424)	(512)	(544)	(584)	(648)	(736)	(729)	(771)
Amort 2	(286)	(296)	(320)	(384)	(424)	(512)	(544)	(584)	(648)	(736)	(729)
Amort 3	(276)	(286)	(296)	(320)	(384)	(424)	(512)	(544)	(584)	(648)	(736)
Amort 4	(265)	(276)	(286)	(296)	(320)	(384)	(424)	(512)	(544)	(584)	(648)
Amort 5	(228)	(265)	(276)	(286)	(296)	(320)	(384)	(424)	(512)	(544)	(584)
Amort 6	(209)	(228)	(265)	(276)	(286)	(296)	(320)	(384)	(424)	(512)	(544)
Amort 7	(210)	(209)	(228)	(265)	(276)	(286)	(296)	(320)	(384)	(424)	(512)
Amort 8	(192)	(210)	(209)	(228)	(265)	(276)	(286)	(296)	(320)	(384)	(424)
Amort 9	(176)	(192)	(210)	(209)	(228)	(265)	(276)	(286)	(296)	(320)	(384)
Amort 10	(160)	(176)	(192)	(210)	(209)	(228)	(265)	(276)	(286)	(296)	(320)
Amortization	(2'298)	(2'458)	(2'666)	(2'898)	(3'200)	(3'535)	(3'891)	(4'274)	(4'734)	(5'177)	(5'653)
P&L adjustement	1'402	1'542	2'134	2'402	3'200	3'265	3'409	3'826	4'466	3'939	3'989
Asset R&D	13'938	14'840	16'222	17'796	20'018	22'258	24'564	27'153	30'238	32'797	35'333
RoR&D	10.1%	10.4%	13.2%	13.5%	16.0%	14.7%	13.9%	14.1%	14.8%	12.0%	11.3%

The adjustment produces a rise in net profit (less R&D charges but with R&D amortisation capitalised). In 2013, the adjustment was USD 3,989 million. According to Damodaran[6], research and development profitability can be measured by dividing the last amount by the reconstituted research and development assets, i.e. a return of 11.3 percent in 2013.
We have not used this adjustment in the cash flow calculation. However, we will include it in the calculation of return on capital invested as it is a good illustration of the sensitivity of a company's profitability to the accounting value of its assets.

2.5 Presentation of historic figures

After bringing the financial statements on a same accounting policy basis, they are ready for comparison. Analysts should go through the financial statements and try to see the story that they are telling. Two sets of tools are available in this stage and they are used interchangeably:

- Time series analysis;
- Common size analysis.

[4] This method can be applied to other types of charges that have a long-term impact such as advertising expenses or software development costs.

[5] We have taken core research and development expenses and their history as mentioned on page 62 of the 2013 annual report.

[6] Research and development expenses, implications for profitability, Damodaran, Stern School.

2.5.1 Time series analysis

Analysts conduct **time series analysis** by reviewing consecutive financial statements from period to period. These types of analysis are useful for both the firm and the analysts. Enterprises use these for projections, comparison of actual performance with projections, comparison with past trends, etc. Analysts use it for trend analysis and hence, investment decisions.

Time series analysis of balance sheets is used to analyse the balance sheets of the same firms over a period of time. With respect to the balance sheet, it gives the growth rates of various assets. It also tells the analyst about the growth in fixed assets. This can be compared with the growth in sales and net income and valuable insight can be obtained. Time series analysis is also very important for the income statements, as it tells about growth rates. From this we can find the growth rates of sales, as well as profits.

However, the most important information revealed by time series analysis is the trend. For instance, a 10% increase in inventories is worth noticing. This trend should be compared with other related items. If the inventory increase is correlated with a decrease of 5% in sales, an investigation and explanation is needed. Analysts need to look for reasons behind differences in these interrelated rates and consider the implications on their analysis.

2.5.2 Common size analysis

In **common size analysis**, the financial statements of different enterprises are compared. As we know, due to scale effects it is not possible to compare them straight away. Therefore, a common size percentage is used. For the balance sheet it is usual to express the total of assets as 100% and analyse afterwards different groups or subgroups as percentage of total assets. For the income statement, most of the times, each item is taken as a percentage of total sales. Then the financial statements of various firms become comparable, as they will be to a base of 100.

The common size analysis compares the performance of various firms, either in the same industry or across industries for a particular year. This tool is very important for investment analysis because they are not very much bothered about absolute values, but are bothered about the relative strengths of different enterprises. Thus, we can find that common size basis of balance sheet and income statement analysis helps the analyst to compare firms that are different in size, which belong to different industries, and whose balance sheet and income statement have different items.

Through the common size and time series analysis it is possible to compare items like total current assets, total fixed assets, short-term and long-term liabilities, proportion of different expenses through time and between different companies. But this analysis will also not be as detailed as the analysts would like it to be.

Example:
We have taken the Novartis figures with accounting adjustments. These adjustments are described in detail in the next section (analysis of Novartis).

Solution:
It is obvious that because of its size, Novartis cannot be compared directly with other firms. This is why, as a first step we need to get a common size percentage for both the balance sheet and the income statement. Different groups are created and the level of detail depends on the purpose of the analysis. Below are some data that may be useful in time series and common size analysis. Assets and liabilities are expressed as a percentage of total assets in the balance sheet, while the expenses are expressed as a percentage of total sales in the income statement.

Adjusted figures	2011	2011 %	2012	2012 %	2013	2013 %
Net Working Capital	2'235	2.3%	1'779	1.7%	1'019	1.0%
Trade receivables	10'323	10.5%	10'051	9.8%	9'902	9.5%
Inventories	5'930	6.0%	6'744	6.6%	7'267	6.9%
Other current assets	2'756	2.8%	3'090	3.0%	3'392	3.2%
Trades payables	4'989	-5.1%	5'593	-5.4%	6'148	-5.9%
Other current liabilities	11'785	-12.0%	12'513	-12.2%	13'394	-12.8%
Property, plant and Equipment	15'627	15.9%	16'939	16.5%	18'197	17.4%
Intangible assets	65'325	66.6%	67'513	65.6%	67'633	64.6%
Investment in associated companies	8'622	8.8%	8'840	8.6%	9'225	8.8%
Other assets + deferred taxes	6'275	6.4%	7'870	7.6%	8'659	8.3%
Financial net debt	14'178	14.5%	10'490	10.2%	7'273	6.9%
Current debt	6'374	6.5%	5'945	5.8%	6'776	6.5%
Cash and equival., mark.securities	5'075	-5.2%	8'119	-7.9%	9'222	-8.8%
Long term debt	13'855	14.1%	13'781	13.4%	11'242	10.7%
Other long term financial assets	976	-1.0%	1'117	-1.1%	1'523	-1.5%
Other liabilities + deferred taxes	14'553	14.8%	17'096	16.6%	14'172	13.5%
Minorities	96	0.1%	126	0.1%	129	0.1%
Shareholders'equity	69'257	70.6%	75'229	73.1%	83'109	79.4%
of which share capital	1'016	1.0%	1'001	1.0%	1'001	1.0%
of which retained earnings	68'241	69.6%	74'228	72.1%	82'108	78.4%
Invested capital	98'084	100.0%	102'941	100.0%	104'683	100.0%

Adjusted figures	2011	2011 %	2012	2012 %	2013	2013 %
Sales & Other revenues	59'492	100.0%	57'505	100.0%	58'831	100.0%
Cost of goods sold	15'653	-26.3%	15'658	-27.2%	16'673	-28.3%
Fixed costs and Depreciation	27'930	-46.9%	27'005	-47.0%	27'673	-47.0%
EBIT	15'909	26.7%	14'842	25.8%	14'485	24.6%
Taxes on operations	2'566	4.3%	2'330	4.1%	2'210	3.8%
NOPAT	13'343	22.4%	12'512	21.8%	12'275	20.9%
Non operating income after tax	779	1.3%	755	1.3%	877	1.5%
Net interest expense after tax	632	-1.1%	691	-1.2%	619	-1.1%
Minorities	132	0.2%	113	0.2%	117	0.2%
Net income (Novartis sh.stake)	13'358	22.5%	12'463	21.7%	12'416	21.1%

In this form the financial statement can be easily compared to other firms. From the above tables it is possible to compare for instance Novartis total trade receivables of 9.8% for 2012 and 9.5% for 2013 with the trade receivables of other companies. We can also see that 79.4% out of the total assets are financed through equity which leaves 20.6% to be financed through liabilities. By comparing these percentages in between companies, we may have a clearer picture of the main differences. As most of the time additional information is missing, the best thing the analyst can do is make informed guesses. In addition we can see that the percentages have not changed dramatically from one year to another, which may be interpreted as a sign of stability. In order to draw conclusions based on the time series analysis, two years are not enough to isolate the trend. A time series analysis on a longer term (six years for instance) could be valuable.

2.6 The Novartis case

Summarised below are the different accounting operations we have been studying in this chapter:

1. Classification of balance sheet and profit and loss account items using the shareholder value creation approach.
2. Rewriting of entries if they do not comply with international standards or the accounting principles generally followed by competitors.

Depending on the company, it may be appropriate to begin by rewriting accounting entries. This is the case with Novartis, which publishes pro forma profit that is different from the IFRS profit while giving all the items needed to reconstitute the figures.

2.6.1 Rewriting accounting entries

Novartis publishes pro forma results known as 'core results'.

> *Core results and FCF are non-IFRS measures.*
>
> *The core results exclude the amortization of intangible assets, impairment charges, expenses related to the integration of acquisitions as well as other income and expense items that are, or are expected to accumulate within the year to be, over a USD 25 million threshold that management deems as exceptional.*
>
> *Novartis believes that investor understanding of the Group's performance is enhanced by disclosing core measures of performance because, since they exclude these items which can vary significantly from year to year, the core measures enable better comparison across years.*
>
> *Because of their non-standardized definitions, the core measures (unlike IFRS measures) may not be comparable to the calculation of similar measures of other companies. As an internal measure of Group performance, these core measures have limitations and the performance management process is not solely restricted to these metrics.*

Based on the information given on page 178 of the 2013 annual report, the table below shows the adjustments necessary to arrive at Novartis' 'core operating income' and 'core earnings'.

2013	**Published**	1. Amorti. & Imp.	2. Roche	3. Restructur.	4. Taxes	**Adjusted**	**Restatements page 178**
Sales	57920					57920	
Other revenues	911					911	
COGS	19'608	-2'894		-41		16673	
Gross profit	39223	2894	0	41	0	42158	
Marketing	14'549			-27		14522	
R&D	9'852	-171		-39		9642	
G+A	3'060			-25		3035	
Other income	1'367	-53		-506		808	
Other expenses	-2'219	202		735		-1282	
Operating income	10910	3214	0	361	0	14485	Core operating income
Income from associates (AT)	600		277			877	
Interest expenses	-683					-683	
Other financials	-92			44		-48	
Income before taxes	10735	3214	277	405	0	14631	
Taxes	1'443	540	47	68		2'098	
Net income	**9292**	**2674**	**230**	**337**	**0**	**12533**	**Core earnings**
Non controlling	117					117	
Shareholders Novartis	9175	2674	230	337	0	12416	

Four types of rewriting of accounting entries can be discerned:

1. Amortisation of intangible assets (column 1)
   Novartis posted USD 2,955 million in 2013 to amortisation of intangible assets, in particular on acquired research rights. An amount of USD 2,894 million is charged to the cost of goods sold (COGS) heading and the balance is distributed between different accounts according to the information noted on page 178 of the annual report.
2. Adjustment of the participation in the pharmaceutical company Roche (column 2)
3. Provisions/expenses posted for the various restructuring plans (column 3)
   Considering the sums allocated to restructuring plans as 'extraordinary' is debatable. We would tend to consider them as operating costs. As these amounts 'only' represent 5.8 percent of the group's adjusted profit, we have not amended Novartis' core figures.
4. Tax impact of these entries (net income to core earnings line).
   We do not know what the real tax impact of each entry was but we do know that all the restatement entries produced a rise in the tax charge of USD 655 million (2,098 adjusted less 1,443 disclosed). The increase in the tax charge is compared to the overall reduction in charges of USD 3,896 million (core operating income of 14,485 less operating income of 10,910), giving an estimated average rate of tax on these entries of 16.8 percent. We have allocated the tax charge to the restatements of the first three columns.

So as not to complicate the exercise, we have not added other rewritten entries to the profit and loss account despite the large amounts of information available in the notes to the annual report.

For the balance sheet we have merely reincorporated the amortisation of intangible assets after tax into shareholders' equity and fixed assets.

	2011	2012	2013
Figures published by Novartis			
1. Sh.funds + minorities	65,940	69,263	74,472
2. Intangible assets + goodwill	61,912	61,421	58,867
Restatements			
3. Yearly restatements	3,413	2,679	2,674
4. Cumulated figures	3,413	6,092	8,776
Figures used for the analysis			
5. Sh.funds + minorities (1+4)	69,353	75,355	83,238
6. Intangible assets + goodwill (2+4)	65,325	67,513	67,633

The consolidated result according to the International Financial Reporting Standards (IFRS) was USD 9,292 million in 2013. We considered that USD 2,674 million after tax associated with the amortisation of intangible assets, USD 230 million associated with taking account of all the effects of the Roche participation and USD 337 million associated with site reorganisation and restructuring operations should be reincorporated into that figure. It can be seen that in the restatement of the core accounts a multinational has some margin of manoeuvre in the publication of its results.

Ultimately, the core profit per share is markedly higher than the IFRS results but this is a fact accepted by the vast majority of sell-side financial analysts who take Novartis' adjusted figures without making any notable correction to them. This does not mean that the financial community is not interested in accounting. There are firms, such as CFRA, that provide ratings on the accounting quality of listed companies and produce restatements. Financial information providers, such as Reuters or Bloomberg, also adjust the results. However, most of the time these adjustments are in a disorganised way and are not related to IFRS standards. Bloomberg for example published a 'normalised' profit for Novartis of USD 9,712 million in 2013.

2.6.2 Classification of profit and loss items using the shareholder value creation approach

The second step consists of attributing profit and loss items to one of the categories (operating, investment, financing through debt, financing through shareholders' equity, and finally non-operating activities).

PROFIT AND LOSS (Accounting View - Adjusted figures)

Adjusted figures	2011	2012	2013
Volume sold	59'492	57'505	58'831
Sales & Other revenues	59'492	57'505	58'831
Cost of goods sold	15'653	15'658	16'673
Gross profit	43'839	41'847	42'158
Fixed costs out of depreciation	25'789	25'262	25'838
EBITDA	18'050	16'585	16'320
Depreciation on PPE	2141	1743	1835
EBIT	15'909	14'842	14'485
Net interest expense	753	820	731
Interest on interest bearing debt	699	655	664
Income on interest bearing assets	-59	92	62
Other financials	5	-257	-129
EBT	15'156	14'022	13'754
Taxes	2'445	2'201	2'098
Investments in associates	779	755	877
Net income	13'490	12'576	12'533
Minorities	132	113	117
Net income shareholders'stake	13'358	12'463	12'416

PROFIT AND LOSS (Analytical View - Adjusted figures)

Adjusted figures	2011	2012	2013
Volume sold	59492	57'505	58'831
Sales & Other revenues	59492	57'505	58'831
Cost of goods sold	15653	15'658	16'673
Gross profit	43'839	41'847	42'158
Fixed costs out of depreciation	25789	25'262	25'838
EBITDA	18'050	16'585	16'320
Depreciation on PPE	2141	1743	1835
EBIT	15'909	14'842	14'485
Taxes on operations	2'566	2'330	2'210
NOPAT	13'343	12'512	12'275
Non-operating income after tax	779	755	877
Total invested capital contribution	14'122	13'267	13'152

Novartis (adjusted figures)	2011	2012	2013
Net interest expense after tax	632	691	619
Interest on interest bearing assets	699	655	664
Income on interest bearing assets	-59	92	62
Other financials	5	-257	-129
Group net income	13'490	12'576	12'533
Minorities	132	113	117
Net income shareholders' stake	13'358	12'463	12'416
Total invested capital distribution	14'122	13'267	13'152

Comments / Remarks:

- The adjustment entries include all the restatement entries from the previous section. The reduction in fixed and variable charges as well as the increase in taxes are clearly stated.
- We have broken down the net interest charges into the various components using the information from the annual report to do this. We have therefore divided this item into three items: interest charges paid on debt, interest yield received on cash, capital gains and losses from transfers and changes in value. We will see later that it is important to have an idea of the interest rate paid by the company on its debt as this has an impact on leverage.
- In line with normal practice, we have allocated taxes between operating and financial activity at the same rate.
- The Roche participation is recorded after tax.
- Because of the group's low debt ratio, the shareholders receive almost all the operating profits. For Novartis, analysis of the operating side is therefore essential and balance sheet analysis takes a less important role. Novartis is not very sensitive to leverage or to variations in interest rates.
- Non-operating activity represents only 5 to 6 percent of the contribution of assets in capital invested.
- The share of depreciation compared with operating profit is relatively low (about 12 percent). Most of Novartis' creation of shareholder value comes from 'intellectual' activities. The group is not considered as 'capital intensive'.

2.6.3 Classification of balance sheet items using the shareholder value creation approach

The same exercise can be performed for the balance sheet. This second step allow a distinction to be made between operating and non-operating activity on the assets side of the balance sheet as well as liabilities associated with debt and liabilities associated with shareholders' equity.

BALANCE SHEET (Accounting View - Adjusted figures)

	2011	2012	2013
Cash and equival., mark.securities	5'075	8'119	9'222
Trade receivables	10'323	10'051	9'902
Inventories	5'930	6'744	7'267
Other current assets	2'756	3'090	3'392
Property, plant and Equipment	15'627	16'939	18'197
Goodwill & Intangible assets	65'325	67'513	67'633
Investment in associated companies	8'622	8'840	9'225
Other long term financial assets	976	1'117	1'523
Other assets	418	505	525
Deferred taxes	5'857	7'365	7'375
Assets for disposal	0	0	759
Total Assets	120'909	130'283	135'020

	2011	2012	2013
Trades payables	4'989	5'593	6'148
Provisions and Other current liab.	10'079	10'443	10'935
Current income tax liab.	1706	2070	2459
Current debt	6'374	5'945	6'776
Long term debt	13'855	13'781	11'242
Deferred taxes LT	6'761	7'286	6'904
Other NIBLICS (provisions)	7'792	9'810	7'268
Minorities	96	126	129
Shareholders'equity	69'257	75'229	83'109
of which share capital	1'016	1'001	1'001
of which retained earnings	68'241	74'228	82'108
Liabilites available for sale			50
Total Liabilities & Equity	120'909	130'283	135'020

BALANCE SHEET (Analytical view - Adjusted figures)

	2011	2012	2013
Net Working Capital	2'235	1'778	1'019
Trade receivables	10'323	10'051	9'902
Inventories	5'930	6'744	7'267
Other current assets	2'756	3'090	3'392
Trades payables	4'989	5'593	6'148
Other current liabilities + taxes	11'785	12'513	13'394
Property, plant and Equipment	15'627	16'939	18'197
Intangible assets	65'325	67'513	67'633
Other assets	418	505	525
Investment in associated comp.	8'622	8'840	9'225
Deferred taxes, asset for sale	5'857	7'365	8'134
Invested capital	98'084	102'941	104'733

	2011	2012	2013
Financial net debt	14'178	10'490	7'285
Current debt	6'374	5'945	6'776
Cash and equival., mark.securities	5'075	8'119	9'210
Long term debt	13'855	13'781	11'242
Other long term financial assets	976	1'117	1'523
Other liabilities / NIBLICS	7'792	9'810	7'268
Minorities	96	126	129
Shareholders'equity	69'257	75'229	83'097
of which share capital	1'016	1'001	1'001
of which retained earnings	68'241	74'228	82'096
Deferred taxes liabilities, liab.for sale	6'761	7'286	6'954
Invested capital	98'084	102'941	104'733

Comments / Remarks:

- We took the net figures for working capital requirements and debt. Net working capital requirements are almost nil which shows that this activity does not consume a great deal of capital at Novartis.
- Most of the fixed assets consist of intangible assets (goodwill and acquired rights). This is the consequence of external growth operations, in particular Alcon, but also smaller though regular acquisitions of patents and drug exploitation rights.
- Companies subject to the equity method should in principle be considered as operating assets. Is this the case for the Roche participation? Novartis does not have a representative on Roche's board of directors and the synergy between the two companies is limited. Should this participation therefore be considered a financial investment and allocated to debt reduction? The size of the participation and Novartis' expressed intention in the past of increasing its participation show a strategic intention. We classify it 'by convenience' in the non-operating assets, and we will evaluate it separately from the rest of the capital invested.
- We have isolated the deferred taxes of both sides of the capital invested given the uncertain nature of their use.

2.6.4 Classification of the cash flow items using the shareholder value creation approach

The third step in the Novartis analysis is linked to cash flow. To do this, we will take the diagram shown in the previous section.

Financial accounting and financial statement analysis

	PROFIT AND LOSS Operating Revenues/Charges		BALANCE SHEET Change in Assets		FREE CASH FLOW Assets	
Operating	Gross margin	42,158			42,158	Gross margin
	Fix.costs out of depreciation	-25,838			-25,838	Fix.costs out of depreciation
		16,320 EBITDA			16,320	EBITDA
	Operating taxes	-2,210			-2,210	Operating taxes
			Trade receivables	149	149	Trade receivables
			Inventories	-523	-523	Inventories
			Other current assets	-302	-302	Other current assets
			Trades payables	555	555	Trades payables
			Other current liabilities	881	881	Other current liabilities
		14,110 EBIDA	+	**760 Δ NWC**	=	**14,870 Operating economic Cash flow**
		+		+		+
Investing			Intangible assets	-120	-120	Intangible assets
			Gross Building	-3,093	-3,093	Gross Building
	Depreciation on PPE	-1,835	Acc.Depreciation PPE	1,835	0	Depreciation on PPE
			Other LT assets	-20	-20	Other LT assets
		-1,835 Depreciation	+	**-1,398 Δ LT assets**	=	**-3,233 Capex**
		+		+		+
	Investment in associates	877 (after taxes)	Investment in associates	-385	492	Investment in associates
			Deferred taxes,a sset for sale	-769	-769	Deferred taxes,a sset for sale
		877 Δ Non operating	+	**-1,154 Δ Non operating**	=	**-277 Δ Non operating**
		=		=		=
		13,152 Contribution to results	+	**-1,792 Δ Invested capital**	=	**11,361 FCF to the firm (asset side)**
	Capital holders Revenues/Charges		**Change in Liabilities**		**Liabilities**	
Financing	Interest exp. after taxes	-619			-619	Interest exp. after taxes
			Current debt	831	831	Current debt
			Cash and marketable securities	-1,103	-1,103	Cash and marketable securities
			Long term debt	-2,539	-2,539	Long term debt
			Other long term financial assets	-406	-406	Other long term financial assets
			Other liabilities/NIBLICS	-2,542	-2,542	Other liabilities/NIBLICS
		-619 Financial results		**-5,759 Δ Net debt**	=	**-6,378 Debtholders flows**
		+		+		+
Financing	Minorities	-117	Minorities	3	-114	Minorities
	Dividends	-6,100			-6,100	Dividends
	Retained earnings	-6,316	Retained earnings	7,880	1,564	Retained earnings
		-12,533 Shareholders'wealth change		**7,883 Δ Shareh.equity**	=	**-4,650 Shareholders'flows**
		+		+		+
	Deferred taxes, liabilities for sale		Deferred taxes, liabilities for sale	-332	-332	Deferred taxes, liabilities for sale
		0 Δ Non operating		**-332 Δ Non operating**	=	**-332 Δ Non operating**
		=		=		=
		-13,152 Wealth change for capital holders		**1,792 Δ Invested capital**	=	**-11,361 FCF to the firm (liab.& Shareh. side)**

Comments / Remarks:

- Operating economic cash flow is considerable at almost USD 15 billion with working capital that makes a small positive contribution (USD 760 million) to the free cash flow (FCF).
- Novartis' net capital expenditure is fairly small (USD 3,223 million) underlining the 'intellectual' nature of the group's added value (knowledge sciences).
- Taking account of non-operating activities, the overall free cash flow to the firm (FCFF) generated by Novartis' assets is approximately USD 11,361 million.
- USD 6,378 million of this cash flow is used to reduce debt, particularly long-term debt and to reduce provisions and non-interest-bearing current liabilities (NIBCLs) which are more difficult to interpret.
- In the end, given the modest consumption of FCFF by minority interests and non-operating liabilities, most of the FCFF is attributed to Novartis shareholders, either in the form of dividends (USD 6,100 million) or in the form of securities repurchases (not mentioned in the table).

This table shows that the FCFF is made up of the profit and loss account and balance sheet variation. But these figures do not represent the creation of net cash. A number of entries not associated with cash, extraordinary or non-operating items may skew the FCFF calculation.

We will therefore take several alternative measures of FCFF:

- FCFF that only includes items deemed recurring by an outside observer (recurring FCFF);
- FCF published by Novartis on page 155 of the annual report;
- the classic cash flow published on page 188 of the annual report.

The results obtained on the table in section 2.6.5 are similar.

Column 1: The 'mechanically' calculated FCFF simply balances the accounts without taking account of non-cash entries. This is the starting point for any examination but it must be refined.

Column 2: The recurring FCFF consists of adding non-cash charges that could influence the results and removing non-operating items (investments in associates) – which will be valued separately – as well as non-recurring items. We have used as a basis note 23 of the annual report, which states:

23.1) ADJUSTMENTS FOR NON-CASH ITEMS

	2013 USD millions	Restated 2012[1] USD millions
Taxes	1 443	1 542
Depreciation, amortization and impairments on		
Property, plant & equipment	1 835	1 743
Intangible assets	3 090	3 177
Financial assets	65	34
Income from associated companies	– 600	– 552
Gains on disposal of property, plant & equipment, intangible, financial and other non-current assets, net	– 395	– 294
Equity-settled compensation expense	730	746
Change in provisions and other non-current liabilities	807	857
Net financial income	775	820
Total	**7 750**	**8 073**

[1] Restated to reflect the adoption of revised IAS19 on *Employee Benefits* (see Note 30).

The compensation of USD 730 million which represents the cost of exercising options has been reincorporated. The other non-cash items have already been taken into account in the restatements of Novartis' core results. The FCFF calculated in this way amounts to USD 11,598 million.

Column 3: The FCF published by Novartis includes a number of entries that arise from financing (net interest, net result on the sale of financial assets, modifications to the provisions account). These last items should not form part of the FCFF figure. By reclassifying the items using value creation criteria, we arrive at an FCFF of USD 10,093 million.

Column 4: Starting from the classic cash flow account, we took the items that appear under reversal of non-cash items but that Novartis had not reincorporated into its core figures. Items linked to group financing were excluded. The FCFF was estimated at USD 11,252 million.

Novartis' 2013 FCFF is therefore between USD 10,093 and 11,598 million, i.e. an average of approximately USD 11,100 million. For Novartis, FCFF is not very different from the 'mechanical' calculation, but this is not the case for all companies.

In order not to produce a proliferation of restatement entries, we will take the 'mechanical' FCFF amount of USD 11,360 million for our ratio calculations.

Financial accounting and financial statement analysis

FREE CASH FLOW Assets	FCF "RECURRING" Assets	FCF "Novartis" Annual report p.155	Cash Flow statements Annual report p.188
42,158 Gross margin	42,158 Gross margin	15,900 Operating income + Depreciation	
-25,838 Fix.costs out of depreciation	-25,108 Cash costs incl.compensation	335 Other operating	
16,320 EBITDA	17,050 EBITDA	16,235 EBITDA	17,488 Net income, financial items and cash reversals
-2,210 Operating taxes	-2,210 Operating taxes	-2,024 Taxes paid	-2,024 Taxes paid
149 Trade receivables	149 Trade receivables		
-523 Inventories	-523 Inventories	-562 Inventories	
-302 Other current assets	-302 Other current assets	-177 Net current assets	-739 Change in net current assets
555 Trades payables	555 Trades payables		
881 Other current liabilities	881 Other current liabilities		
14,870 Operating economic Cash flow	**15,600 Operating economic Cash flow**	**13,472** Operating economic Cash flow	**14,725** Op.cash flow ex-financials
+	+	+	+
-120 Intangible assets	-120 Intangible assets	-353 Purchase and proceeds Intangibles	-395 Purchase and proceeds Intangibles
-3,093 Gross Building	-3,093 Gross Building	-3,004 Purchase and proceeds PPE	-3,004 Purchase and proceeds PPE
0 Depreciation on PPE	0 Depreciation on PPE		
-20 Other LT assets	-20 Other LT assets	-22 Purchase and proceeds Other non current	-22 Purchase and proceeds Other non current
-3,233 Capex	**-3,233 Capex**	**-3,379 Capex**	**-3,421 Capex**
+	+	+	+
492 Investment in associates	Non operating		-52 Acquisitions in SME
-769 Deferred taxes,a sset for sale	-769 Deferred taxes,a sset for sale		
-277 Δ Non operating	**-769 Δ Non operating**	**0 Δ Non operating**	**-52 Δ Non operating**
=	=	=	=
11,361 FCF to the firm (asset side)	**11,599 FCF to the firm recurring**	**10,093 FCF to the firm "Novartis"**	**11,252 FCF calculated from Cash flow statements**
Liabilities			
-619 Interest exp. after taxes		-90 Net interest	-536 Financials net
831 Current debt			596 Current debt
-1,103 Cash and marketable securities			-1,082 Net change in cash
-2,539 Long term debt			-2,022 Long term debt
-406 Other long term financial assets		150 Purchase and proceeds Financial assets	243 Purchase and proceeds Financial assets
-2,542 Other liabilities/NIBLICS		-208 Change in NIBLICS and provisions	-1,015 Restructuring payments and cahs from provisions
-6,378 Debtholders flows		**-148 Debtholders flows**	**-3,816 Debtholders flows**
+			+
-114 Minorities			-99 Minorities
-6,100 Dividends			-6,100 Dividends
1,564 Retained earnings			-1,237 Treasury shares net of stock options proceeds
-4,650 Shareholders'flows			**-7,436 Shareholders'flows**
+			
-332 Deferred taxes, liabilities for sale			
-332 Δ Non operating			
=		=	=
-11,361 FCF to the firm (liab.& Shareh. side)		**9,945 FCF "Novartis"**	**-11,252 FCF calculated from Cash flow statements**

2.6.5 Conclusions

In the case of Novartis, the amounts resulting from the 'internal' calculations (as published by the company's management) and the external calculations (which an investor can do superficially) are not very different. Novartis has a good level of accounting transparency. However, this should not be extrapolated to other companies, even in the same sector. Even greater attention should be given when there are too many large discrepancies between the different methods, which can be a sign of significant non-cash entries.

We cannot insist too much on the time needed for these calculations and the necessary trade-off between a better understanding of the accounting reality and the treatment of the figures published by the profession. Experience shows that the vast majority of financial analysts stick to the figures published/readjusted by the company (Novartis' core accounts, for example) in order to save time.