

# APPLIED ACCOUNTING

## A Balance Analysis

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Applying for number of credits: 4  
Total number of words: 9429  
(With number of words from financial statements: 900)

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## 4 Abbreviations

A	Assets
AR	Accounts Receivable
CA	Current Assets
CL	Current Liabilities
COGS	Cost Of Goods Sold
EBIT	Earnings Before Interest and Taxes
FASB	Financial Accounting Standards Board
FL	Financial Leverage
GAAP	Generally Accepted Accounting Principles
INV	INVENTORY
L	Liabilities
LTDTC	Long Term Debt To Capital
NCA	Non Current Assets
NCL	Non Current Liabilities
NWC	Net Working Capital
OE	Owner's Equity
PC	Personal Computer
R&D	Research And Development

## **5 Abstract**

This document was written as a course document for Rushmore course '1101 Accounting'. I will not explain what Accounting is. I will also not focus on describing vocabulary used in Accounting. I will apply accounting. In this paper I will analyse the year 2000 balance of the company ALCATEL.

## 6 Introduction

In today's business more and more people analyse financial statements. Most often analysts work for banks, magazines or companies. Banks must be able to analyse financial data in order to determine if they will give a company credit or not. Magazines must be able to analyse financial data in order to give their readers hints on which companies the readers can invest in and in which they can not. Company's accountants must be able to interpret the company's data in order to make the company profitable and to increase the company's efficiency.

In chapter 7 (page 6) I will give you the 3 financial statements of Alcatel's year 2000 balance.

In chapter 8 (page 11) I will make a balance analysis of the statements given in chapter 7.

In chapter 9 (page 24) I will critically evaluate some ratios with the numbers out of the financial reports. When useful, I will compare Alcatel's figures with data from Siemens.

Remark: the wording *owner's equity* is a common used term in accounting. This term is used without considering the number of owners. The wording *shareholders' equity* (used in Alcatel's financial statements) means the same. I will use *owner's equity*.

## 7 ALCATEL's Year 2000 Financial Statements

### 7.1 The Balance Sheet

**Figure 1: Example Of A Balance Sheet**

Balance Sheet	
As of December 31, 2000	
<p style="text-align: center;"><b>Assets</b></p> <p style="text-align: right;">Inventory      \$20,000</p>	<p style="text-align: center;"><b>Liabilities</b></p> <p style="text-align: right;">Debt              \$10,000</p> <p style="text-align: center;"><b>Owner's Equity</b></p> <p style="text-align: right;">Common Stock \$10,000</p>

You see that the left and the right side reflect the same amount of money. The company's assets have a value of \$20,000 and they were financed by a debt of \$10,000 and by the owner's investment of \$10,000.

Due to the size of ALCATEL's balance it is impossible to display the figures in the manner given above. However, keep in mind that *assets* are always equal to the sum of *liabilities* and *owner's equity*.

**Figure 2: The Fundamental Accounting Equation**

$$Assets (A) = Liabilities (L) + Owner's Equity (OE)$$

**Figure 3: Alcatel's Year 2000, Assets In Balance Sheet**

(ALCATEL 2000, 40)

<b>ASSETS (in millions of Euro)</b>	<b>2000</b>	<b>1999</b>	<b>1998</b>
Goodwill, net	7,043	7,054	4,036
Other intangible assets, net	504	313	4,447
<b>Intangible assets, net</b>	<b>7,547</b>	<b>7,367</b>	<b>4,447</b>
Property, plant and equipment	11,941	10,401	9,817
Depreciation	(7,283)	(6,578)	(6,188)
<b>Property, plant and equipment, net</b>	<b>4,658</b>	<b>3,823</b>	<b>3,629</b>
Share in net assets of equity affiliates	1,152	1,045	1,182
Other investments and miscellaneous, net	3,327	2,528	2,218
<b>Investments and other non-current assets</b>	<b>4,479</b>	<b>3,573</b>	<b>3,400</b>
<b>TOTAL NON-CURRENT ASSETS (NCA)</b>	<b>16,684</b>	<b>14,763</b>	<b>11,477</b>
<b>Inventories and work in progress</b>	<b>7,415</b>	<b>3,960</b>	<b>3,468</b>
Trade receivables and related accounts	10,659	8,461	7,726
Other accounts receivable	5,160	3,427	3,157
<b>Account receivable</b>	<b>15,819</b>	<b>11,888</b>	<b>10,882</b>
Marketable securities, net	443	669	1,894
Cash (net)	2,617	2,926	1,919
<b>Cash and cash equivalents</b>	<b>3,060</b>	<b>3,595</b>	<b>3,813</b>
<b>TOTAL CURRENT ASSETS (CA)</b>	<b>26,294</b>	<b>19,443</b>	<b>18,163</b>
<b>TOTAL ASSETS</b>	<b>42,978</b>	<b>34,206</b>	<b>29,640</b>

**Figure 4: Alcatel's Year 2000, Liabilities And Owner's Equity In Balance Sheet**

(ALCATEL 2000, 41)

<b>LIABILITIES AND SHAREHOLDERS' EQUITY (in millions of Euro)</b>	<b>My remark</b>	<b>2000 before appropriation</b>	<b>1999 after appropriation</b>	<b>1998 after appropriation</b>
Capital stock (Euro 2 nominal value: 1,212,210,685 shares A and 16,500,000 shares O Issued at December 31, 2000; Euro 10 nominal value: 199,895,247 shares A At December 31, 1999 And 198,710,296 shares A at December 31, 1998)		2,457	1,999	1,212
Additional paid-in capital		9,558	7,025	7,272
Retained earnings	(1)	3,979	4,315	3,675
Cumulative translation adjustments		(350)	(570)	(989)
Net Income	(2)	1,324	-	-
Less treasury stock at cost		(2,023)	(1,237)	(1,257)
<b>SHAREHOLDERS' EQUITY</b>	<b>(A)</b>	<b>14,945</b>	<b>11,532</b>	<b>9,913</b>
MINORITY INTERESTS		435	463	438
Accrued pension and retirement obligations		1,292	1,256	1,232
Accrued contract costs and other reserves		3,655	3,768	4,045
<b>TOTAL RESERVES FOR LIABILITIES AND CHARGES</b>	<b>(B)</b>	<b>4,947</b>	<b>5,024</b>	<b>5,277</b>
Bonds and notes issued		4,972	3,462	2,134
Other borrowings		2,418	2,383	1,971
<b>TOTAL FINANCIAL DEBT</b> (of which medium and long-term portion)	<b>(C)</b>	<b>7,390</b> 5,577	<b>5,845</b> 3,478	<b>4,105</b> 2,318
Customers' deposits and advances		1,560	1,107	1,046
Trade payables and related accounts		5,743	4,109	3,416
Debts linked to bank activities		932	1,126	1,082
Other payables	(3)	7,026	5,000	4,364
<b>TOTAL OTHER LIABILITIES</b>	<b>(D)</b>	<b>15,261</b>	<b>11,342</b>	<b>9,908</b>
<b>TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY</b>	<b>(E)</b>	<b>42,978</b>	<b>34,206</b>	<b>29,640</b>

Some remarks for your understanding:

- $(E) = (A) + (B) + (C) + (D)$ .
- (3) includes: social payables, taxes, government grants and dividends to be paid.
- Numbers in brackets are subtracted. Other numbers are added.



## 7.2 The Income Statements

**Figure 5: ALCATEL's Year 2000 Income Statement**

(ALCATEL 2000, 39)

(in millions of Euro)	2000	1999	1998
Net sales	31,408	23,023	21,259
Cost of sales	(22,193)	(16,412)	(15,426)
<b>Gross profit</b>	<b>9,215</b>	<b>6,611</b>	<b>5,833</b>
Administrative and selling expenses	(4,136)	(3,228)	(3,027)
R&D costs	(2,828)	2,109	(1,809)
<b>Income from operations</b>	<b>2,251</b>	<b>1,275</b>	<b>997</b>
Financial income (loss)	(435)	(181)	(4)
Restructuring costs	(143)	(380)	(406)
Other revenue (expense)	623	925	2,207
<b>Income before amortisation of goodwill, taxes and purchased R&amp;D</b>	<b>2,296</b>	<b>1,639</b>	<b>2,795</b>
Income tax	(497)	(368)	(199)
Share in net income of equity affiliates	125	210	177
<b>Consolidated net income before amortisation of goodwill and purchased R&amp;D</b>	<b>1,924</b>	<b>1,481</b>	<b>2,774</b>
Amortisation of goodwill	(576)	(471)	(424)
Purchased R&D	(21)	(329)	-
Minority interests	(3)	(37)	(9)
<b>NET INCOME</b>	<b>1,324</b>	<b>644</b>	<b>2,340</b>
Ordinary Shares (A)			
Basic earnings per share (in Euro)*	1.25	0.70	2.77
Diluted earnings per share (in Euro)	1.20	0.69	2.63
ALCATEL tracking stock (O) (Optronics Division)**	0.14	-	-
Basic earnings per share (in Euro)	0.14	-	-
Diluted earnings per share (in Euro)			

Some remarks for your understanding:

- Numbers in brackets are subtracted. Other numbers are added.

### 7.3 The Cash Flow Statements

Figure 6: ALCATEL's Year 2000 Cash Flow Statement

(ALCATEL 2000, 42)

(in millions of Euro)	My remark	2000	1999	1998
<b>Cash flows from operating activities</b>				
Net income		1,324	644	2,340
Minority interests		3	37	9
Adjustments to reconcile income before minority interests To net cash provided by operating activities:				
- Depreciation and amortisation, net*		1,786	1,850	1,239
- Changes in reserves for pension obligations, net		24	(116)	73
- Changes in other reserves, net		(344)	(125)	(351)
- Net (gain) loss on disposal of non-current assets		(915)	(862)	(2,250)
- Share in net income of equity affiliates (net of dividends received)		(47)	(133)	(102)
<b>Working capital provided by operations</b>	<b>(1)</b>	<b>1,831</b>	<b>1,295</b>	<b>958</b>
<b>Net change in current assets and liabilities:</b>	<b>(2)</b>			
- Decrease (increase) in accounts receivable		(2,147)	(453)	(577)
- Decrease (increase) in inventories		(3,330)	(333)	(7)
- Increase (decrease) in accounts payable and accrued expenses		2,089	588	156
- Changes in reserves on current assets (including accrued contract costs), net		312	(21)	157
<b>NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES</b>	<b>(3)</b>	<b>(1,245)</b>	<b>1,076</b>	<b>687</b>
<b>Cash flows from investing activities</b>				
- Proceeds from disposal of fixed assets		107	191	125
- Capital expenditures		(1,834)	(1,224)	(1,012)
- Decrease (increase) in loans		(962)	(20)	(47)
- Cash expenditures for acquisition of consolidated companies, net of cash acquired, and for acquisition of unconsolidated companies	(9)	(834)	(2,173)	(920)
- Cash proceeds from sale of previously consolidated companies, net of cash sold, and from sale of unconsolidated companies	(10)	1,579	750	2,960
<b>Net cash provided (used) by investing activities</b>	<b>(4)</b>	<b>(1,944)</b>	<b>(2,476)</b>	<b>1,106</b>
<b>NET CASH FLOW AFTER INVESTMENT</b>	<b>(5)</b>	<b>(3,189)</b>	<b>(1,400)</b>	<b>1,793</b>
<b>Cash flows from financing activities</b>	(headline)			
- Increase (decrease) in short-term debt		(889)	(352)	(2,758)
- Proceeds from issuance of long-term debt		2,565	1,756	602
- Proceeds from issuance of shares		1,490	110	277
- Dividends paid		(508)	(391)	(295)
<b>Net cash provided (used) by financing activities</b>		<b>2,658</b>	<b>1,123</b>	<b>(2,175)</b>
Net effect of exchange rate changes		(4)	59	(46)
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>(6)</b>	<b>(535)</b>	<b>(218)</b>	<b>(428)</b>
Cash and cash equivalents at beginning of year	(7)	3,595	3,813	4,241
<b>Cash and cash equivalents at end of year</b>	<b>(8)</b>	<b>3,060</b>	<b>3,595</b>	<b>3,813</b>

Explanation:

- (3) = (1) + (2)
- (5) = (4) + (3)
- (8) = (6) + (7)
- Numbers in brackets are subtracted. Other numbers are added.

## 8 The Analysis Of ALCATEL's Financial Statements

If you have an accounting report in front of you, it doesn't tell you much unless you know its underlying concept. The following are a set of policies that underlay Alcatel's financial statements.

### 8.1 Underlying Principles

#### Accounting Rules

Silbiger 1999 writes that the *Financial Accounting Standards Board* (FASB) is an institution which defines rules that companies follow when generating their accounting reports.

However, in Alcatel's financial report you can read:

“Accounting principles:

Starting in 1999, ALCATEL decided to apply the “new accounting rules and methods governing consolidated financial statements” approved by decree of June 22, 1999, certifying Regulation No. 99-02 of the *French Accounting Regulations Committee*.” (ALCATEL 2000, 36)

Please realise that ALCATEL states in the financial statement 1) which accounting rules they follow and 2) that the *Financial Accounting Standards Board* (FASB) is not the only committee that must be followed. ALCATEL is a French company and is not listed at ‘Wall Street’. For this reason it is not obliged to follow FASB rules. However, every company is obliged to state in its financial statement which rule it follows. This rule must be reasonable and it is for the company's benefit if the rule is accepted world-wide.

In case you would like to get more information about FASB, please visit the homepage <http://www.fasb.org>.

#### The Period

An accounting report is always about a certain period of a company's operations. For companies it is common to publish accounting reports every three months, every six months, or once in a year.

In the USA it is usual for companies to publish their figures quarterly. In Germany this is necessary only once a year and for certain market segments half-yearly. You see, it is country dependent and sometimes even the market segment determines how often a company has to make their figures public.

I found an interesting part in ALCATEL's financial report for the year 2000. Although the report is over the complete year 2000, it additionally contains quarterly income statements (ALCATEL 2000, 78-80). I regard this as friendly supporting information for

analysts. Quarterly information can prove that the company has a regular income. If a company like INTEL is bound to special events like Christmas for selling computers, then this will be reflected in quarterly reports by varying figures for 'Net Sales'.

### **The Entity**

ALCATEL's financial report 2000 is over the whole company. Because of the huge size of the company and the various fields in which it operates, you can analyse the financial report more easily if it is over the whole company. If a company is very active in some business areas, the financial report is also more useful for analysts if it contains the whole picture, because you can only purchase shares for the whole company and not for its different business areas. Again, for external analysts a financial report for the whole company is more interesting than reports for each company's business sector, if they want to find out if it is worthwhile to invest in the company.

For other analysts, this is not the whole picture.

First, for a company which has many factories, or which is active in some business areas, it is more important to know which part of the company is profitable than just to have an overall picture.

From my own experience I can say that internal audits take place, which compare one business division with another business division (of the same company). Two things are investigated; first, which business is more profitable, why, and what must be done to improve the less profitable one. Second, even if a business division is profitable, this is not enough. If your business generates less earnings than investors can get in interests on the stock-market, then you will have problems in finding investors. For this reason internal accounting reports are generated for smaller entities than the official accounting reports reflect.

Furthermore, in my opinion bank analysts are also interested in getting detailed information and detailed reports when they are asked to give credit. I think they like to know what a company wants the credit for. By getting financial reports over small entities they can analyse if a credit for investments in this entity makes sense or not. Only then can banks evaluate whether they want to give credit or not. I think that banks will not check the credit for large companies in the same way that they do for small companies. I assume that banks will insist on getting more detailed financial reports for small companies than for large companies.

### **Cash And Accrual Accounting**

ALCATEL's financial report for the year 2000 is based on accrual accounting. You can see this by the line 'Depreciation' in the report. (ALCATEL 2000,40)

I prefer accrual accounting compared with cash-base accounting, because it avoids the ups and downs in reports.

You don't have a down when you purchase an expensive tool, because the whole purchase cost is not subtracted at once.

Accrual Accounting also avoids reports which are too positive in the following way: if you use a tool for ten years, but you only count its cost in the first year (cash basis accounting), then you have 9 financial reports where you don't subtract costs for the tool. Every analyst will believe that your process is very profitable. After 10 years you have to renew your tool and you will have tremendous costs which were not foreseeable. Your 11<sup>th</sup> financial report will be very bad and the bad balance would negatively surprise investors. If you use Accrual Accounting you avoid these ups and downs and therefore you avoid surprises.

### **Objectivity**

Accountants only take numbers into account, where:

- Transactions were completed.
- A contract exists, which all parties are bound to fulfil.

For the latter there must be reasonable and verifiable evidence to support the transaction, otherwise it will not be counted.

We had an interesting example in Berlin some months ago that explains nicely the points 'Objectivity' and 'Contracts'.

One Berlin company (let's say COMPANYYA) sold one of its parts to an American company (let's say COMPANYYB). They signed a contract in year 2000 where COMPANYYB proposed to finance the purchase by increasing the number of their shares on the stock-market in year 2001. The financial transaction should take place in year 2001.

COMPANYYA reflected the money from the sale as assets in the financial reports for year 2000, the year in which the contract was signed. The price of the company's division was higher than its material value (i.e. the buildings were sold for their real price whereas a financial report takes historical values into account). The sale resulted in an increase of earnings for year 2000.

Unfortunately the market tumbled down so that COMPANYYB decided not to increase their shares because no investors would buy the shares for the price which COMPANYYB wanted to get. In fact COMPANYYB had no money to pay the price for COMPANYYA.

According to the contract between COMPANYYA and COMPANYYB, the contract had to be handed back. The accounting report, which was already closed for year 2000, had to be changed retroactively.

Remark:

From my own experience I know that companies seek to sign contracts at the end of the fiscal year although the deliveries of the products take place later. The reason is that the

signed contracts count as income in the accounting period in which the contract is signed.

### **Conservatism**

#### **Losses:**

When companies expect that losses will probably occur, and the losses can reasonably be estimated, accountants record them, even if the losses have not actually been realised.

#### **Gains:**

When gains are expected, accountants don't count them until they are actually realised. A signed contract is regarded as realised.

Accounts are always conservative when creating an accounting report.

The value of goods held in inventory is also stated at historical cost. If the asset value falls below the recorded cost, the loss must be recognised immediately.

I would like to give some remarks about buildings.

It is also common for buildings and premises to be recorded at historical costs. This has disadvantages and advantages. The disadvantage is that you cannot benefit from an increase of prices for buildings and premises. If your buildings are more expensive today than on the day you bought them, then your financial statement will not reflect this. Your assets will not increase although your company is 'richer'. The picture is a little bit distorted - it does not reflect the reality. The advantage is that your financial statements are more stable over a long period. If prices for premises increase for 5 years and then decrease for 5 years, then you don't have to adapt your financial calculations over 10 years. This is easier for analysts to evaluate.

Here is a statement of an annual report (ALCATEL 2000, 47):

"Property, plant and equipment are valued at historical cost for the Group (excluding any revaluation). Depreciation is generally calculated over the following useful lives:

- Buildings for industrial use 20 years.
- Infrastructure and fixtures 10-20 years.
- Equipment and tools 5-10 years.
- Except for small equipment and tools 3 years."

*As a matter of fact, part of the assets in the balance sheet (e.g. buildings and premises) does not reflect the actual value of a company.*

### **Accuracy**

From the above mentioned points it becomes clear that the financial reports reflect a detailed picture of a company which is not exact to the penny.

For example, you want to distribute costs of a tool over the lifetime of the tool. That automatically leads to inaccurate annual figures. It is up to the accountant to give a conservative report so that every person has sound information from which she/he can decide how to deal with the company. A \$1Million discrepancy for a small company is tremendous, whereas it is small for a company like Daimler-Chrysler.

Please have (as an example) a look at the figure 'Figure 3: Alcatel's Year 2000, Assets In Balance Sheet' where you can confirm this: you don't find any numbers with penny precision.

## **8.2 Let's Have A Close Look At The Numbers**

### **8.2.1 Alcatel's Income Statement**

#### **Gross Profit:**

The *Gross Profit* statement reflects the *income minus pure product costs*.

$$\begin{aligned} \text{Gross Profit} &= \text{Sales} - \text{Cost Of Goods Sold (COGS)} \\ \text{COGS} &= \text{Beginning Inventory} + \text{New Purchases} - \text{Ending Inventory.} \end{aligned}$$

COGS are costs directly related to the production of the product that is sold. For example it also includes costs for shipping.

This *gross profit* tells us if the company makes a profit without considering the burden of corporate expenses. This is the supposition for all profitable businesses.

From a practical point of view I regard it as difficult to define the *Cost of Goods Sold* (COGS). What are the costs *directly* related to a product? It is not the rent for a building. It is the energy you use for the production of your products - but not the complete energy your company uses. How do you calculate costs for electronic equipment? Assume you introduce an email system in your company. The maintenance for the equipment will cause regular costs. On the one hand you need the email system to distribute information related to your production. On the other hand you need it for administrative reasons.

The issue became additionally interesting when Software production started. Take the simplest possible configuration. You are a company, you have one PC and you produce

Software. You have no expenses for raw material. The only costs directly related to your product are wages. Manual factories have a completely different picture. They have, additionally, the raw material.

Alcatel's *Gross Profit* increased in the years from 1998 until 2000. We see a remarkable increase from 1999 to 2000.

Let's analyse where it comes from: if we calculate the ratio of Net Sales / COGS then we have:

1998:  $21,259/15,426 = 1.4$

1999:  $23,023 / 16,412 = 1.4$

2000:  $31,408 / 22,193 = 1.4$

We see that the relation between *sales* and *cost of sold goods* was stable. So the increase of *Gross Profit* was not due to changed *costs of sold goods* but due to the increase of *Net Sales*. Consequently, we can assume that the *Gross Profit* will increase/decrease by a factor of 1.4 related to changes of the *Net Sales* in the future, too.

### **Operating Profit:**

The *operating profit* is the *Earnings Before Interest and Taxes* (EBIT). This level of examination shows you if the business is profitable considering all costs related to your business except taxes and interest.

This figure shows you if you are working in the correct country and if you are burdened by too much interest (as a consequence of your level of credit). Assume you have an operating profit, but the interest, which you have to pay, is very high. In theory your business is worthwhile but you have to get rid of your interest payments. The same is valid for paying taxes. Having an operating profit is just one thing. If you subtract taxes and are left with earnings which are too low, then you would investigate whether it would be worthwhile to close your business and open it in another country where you have to pay less in taxes.

Alcatel's year 2000 report unfortunately doesn't use the words '*Operating Profit*', so we have to 'find' it ourselves. The related number is, in our case, 2,296 and not 1,924. The line 'Income before amortisation and purchase R&D' reflects the '*operating profit*', because the next line subtracts taxes and the interest is subtracted even later. Please also pay attention to the line R&D costs. This example clearly shows the difference between Gross Profit and Operating Profit. Research and Development is not only done for the sold products, but also for the future products. So I interpret that the R&D costs for the sold products is added to COGS and other R&D costs are subtracted to calculate the operating profit.

### **Net Income:**

The 'net income' reflects the company's real earnings. All costs are subtracted - also the interest and taxes.



I imagine that this is the most interesting value for shareholders.

The *Net Income* is one input value for the balance sheet and the cash flow statement. It is uniquely linked to the *balance sheet* as a position in *owner's equity* named 'net income'. You can find it in 'Figure 4: Alcatel's Year 2000, Liabilities And Owner's Equity In Balance Sheet (page 8)'. It is also uniquely linked to the *cash flow statement* as line 'Net Income' (please see Figure 6: ALCATEL's Year 2000 Cash Flow Statement (page 10)).

### 8.2.2 Alcatel's Cash Flow Statement

Let's convert the fundamental accounting equation mathematically, to find out how the cash value can be calculated:

**Figure 7: Cash Equation**

$$\text{Cash} = \text{CL} + \text{NCL} + \text{OE} - \text{AR} - \text{INV} - \text{NCA}$$

As result we see that *cash* is directly related to *liabilities*, *owner's equity* and also to *non-current assets* (e.g. buildings), *inventory* and *accounts you have to receive*.

- If you increase your inventory (INV), then you lessen your cash.
- If you have many outstanding accounts (your customers owe you money) (CA), your cash is less than it could be.
- If you buy long-term assets (like buildings) (NCA) then you reduce your cash.
- If you borrow money from a bank (NCL) then you increase your cash.
- If owners increase their equity (OE) then your cash increases.
- If you don't pay your bills (CL) immediately, then you increase your cash.

Please look at *Figure 6: ALCATEL's Year 2000 Cash Flow Statement* (page 10).

Alcatel's *cash flow statement* is composed of three different analyses:

- The Operating activities.
- The Investing activities.
- The Financing activities.

Altogether they show where the cash flowed in the company during a year.

#### Operating Activities

The *cash flow statement* converts the accrual basis 'net income' to a cash flow related statement. What does it mean? We have to look at our balance sheet and our income statement and figure out which values affected our cash flow and adapt the calculations accordingly. We have to adapt our 'net income' in two ways:

- Adjust the 'net income' for non-cash expenses.
- Adjust the 'net income' for changes in working capital.

**Adjust 'Net Income' For Non-Cash Expenses:**

Operating items that did not use cash, but were deducted in the *income statement* as expenses, must be added back. I.e. you have to add back depreciations. Depreciations are 'allocated costs for fixed assets'; even for assets where the purchase took place years ago. For this reason the costs must be added back.

In the year when the purchase took place, the total sum for the equipment will be placed in another position of the cash flow statement (in the '*investment activities*' (see below)).

**Adjust 'Net Income' For Changes In Working Capital**

Until now we adapted the 'net income' in a way that added back expenses that did not really take place in the accounting period.

As a second step we subtract '*current assets*' ('customer receivables' and 'store inventory') and add '*current liabilities*' (wages, taxes and bills payable).

We can immediately see the influence of increases or decreases of CA and CL. If you extend credit to your customer, '*customer receivables*' increase and your cash reduces. A reduction of *inventory* increases your cash.

To calculate the 'net changes' for the year, simply subtract the period's beginning values from the period's ending balance items. The result is the '*Cash Flow From Operating Activities*'.

Please see the remarkable decrease in 'Net cash provided (used) by operating activities' (3)! Compared with the year 1999 we see a decrease of 2,321 Euro. It became a negative value which means that the operating activities 'lost' money. A closer look at the cash flow statement shows us where the money was 'lost'. The decrease was due to an increase of 'accounts receivable' and a remarkable increase of inventories. The decrease in 'accounts payable' reduces the losses. The immense increase in inventory can be considered as negative, because it could mean that Alcatel expected to sell more than it finally did. The huge inventory will cost more in the future than a small inventory would do.

In addition, we see the influence of 'accounts receivable' on the cash flow of a company. If the 'accounts receivable' had been the same value as in 1999 then Alcatel would have had more money as cash.

**Investing Activities**

When a company buys or sells a long-term asset like a building or piece of equipment, the cash relating to the transaction is reflected in the 'Investing Activities' section of the cash flow statement.

Please see the remarkable decrease in acquisition of consolidated companies from 1999 to 2000 (remark 9). In 1999 Alcatel acquired many companies and these activities

reduced in 2000. Imagine that Alcatel wanted to acquire more companies in 2000, too. What would have happened? The cash in 2000 already decreased compared with 1999. If Alcatel had wanted to buy other companies then Alcatel would have had cash troubles due to the increase of inventory and accounts receivable. As a conclusion we can say that Alcatel focused, in 1999, on acquiring companies whereby the focus in 2000 was on selling the consolidated companies that were no longer needed (we can see this as a separate entry in the cash flow statement (remark 10)).

### **Financing Activities**

A company can finance itself either by borrowing money or by raising money from investors. Both are reflected in the section '*financing activities*' of the *cash flow statement*.

- Borrowing would be reflected in changes in the long-term liabilities.
- Investments from investors would be reflected in the *owner's equity*.
- When a company repays debt, it will be reflected as a use of cash in the 'Financing Activities' section.

We have to remark on the incredible increase of 'Proceeds from issuance of shares' in 2000. That means Alcatel acquired money on the capital market by increasing the number of shares. This has a big impact. First it is a unique action which slightly 'distorts' the financial statements. The unique income is only for that year and is not reproducible. The good picture of 'cash' will not be the same next year unless Alcatel does something about the negative positions (*accounts receivable* and *inventories*). Without this big amount of money the company would have found itself in big financial trouble in 2000. Second, it has an impact on the former shareholders because they are 'forced' to buy new shares if the shareholders want to keep their old percentage of capital. This is important for banks. If banks hold a huge package of shares (because they want to influence the decision making process of the company) then their percentage (and influence) would automatically decrease unless they also purchase the same percentage of new shares.

Dividends are also included in the 'financial activities'. As an example, the dividends, which Alcatel paid for the year 1999, are listed in the 'Financing Activities' section of the cash flow statement.

#### **8.2.2.1 What The Flow Statements Tell You**

The operating activities generated cash, so Alcatel is healthy.

The 'Changes in Investment Activities' tell us that the company focused on restructuring over the last few years. Alcatel sold consolidated companies and acquired other consolidated companies.

The 'Changes in Financing Activities' tell us that Alcatel increased their assets not only by borrowing (increasing debt) but also by increasing the *owner's equity*. Alcatel increased the *liabilities* and the *owner's equity*, which shows the shareholders' belief in their company.

### 8.2.3 Alcatel's Balance Sheet

The *balance sheet* tells us how much the company owns (*assets*), how much of the company is the owners' property (*owner's equity*) and how much is owned by others (like banks or customers) (*liability*).

#### Appropriation

Maybe you wonder what appropriation (wording in the headline below the years) means. It simply tells you whether the company's owners have already decided what to do with the company's income or if the decision is still outstanding. If the income is not distributed into *retained earnings* and *dividends*, then it is reflected as 'Net Income'. If the annual shareholder meetings took place, then 'Net Income' would disappear from the balance sheet and the amount of money would be put in other parts of the balance sheet. I will described this below.

#### Current And Non-Current Positions

A close look at the balance ('Figure 3: Alcatel's Year 2000, Assets In Balance Sheet' and 'Figure 4: Alcatel's Year 2000, Liabilities And Owner's Equity In Balance Sheet') shows you that the balance sheet is divided into current and non-current assets. This helps analysts to read and to evaluate the balance.

Please realise that the sequence of the assets contradicts what is stated in Silbiger 1999: "An important aspect of the balance sheet statement is that the assets and liabilities are listed in order of their liabilities, from most liquid to least." (Silbiger 1999, 77)

ALCATEL lists first the non-current assets and then the current assets. Obviously the list is from least liquid to most liquid.

Numbers in brackets are subtracted and the other numbers added.

I regard it as positive that the current assets are greater than the current liabilities. This ensures that the company is able to finance current liabilities Please realise the line *depreciation*. If tools or machines loose value due to usage, then the loss of value per accounting period is subtracted in the balance sheet.

**Figure 8: Current And Non-current Assets**

<b>Current Assets</b>	<b>Non-current Assets</b>
Cash	Tools
Accounts Receivable	Buildings
Store Inventory	Equipment

**Figure 9: Current And Non-current Liabilities**

<b>Current Liabilities</b>	<b>Non-current Liabilities</b>
Accounts to be paid	Bank Debts
Wages to be paid	
Taxes to be paid	

**Property:**

We can recognise that the figures for property, plants and equipment steadily increase. I regard this as positive. Due to the fact that buildings are counted at historical costs (see previous comment) we can conclude that these increases are due to new acquisitions. This shows us that the company is liquid. If you see balances where this position steadily decreases then pay attention: this might be necessary in order to get cash to pay bills or wages. This can be an indicator that a company is *not* profitable. Vice versa, you can conclude that increasing properties indicate that a company is profitable.

**Depreciation**

The increasing figure for depreciation shows us that the company invested an increasing amount in tools and equipment each year. In the years 1998-2000 the amount increased each year by 5-10%. From my point of view this is a healthy amount. I think that you have to maintain and renew your equipment regularly so that the depreciation will regularly increase. However the increase from year to year should not be too great, because this would indicate that you have to restructure and to renew your company completely.

**Cash**

If we look at the position for *cash* then we see that only around 8% of the assets are cash or cash equivalent. It should always be the intention of a company to have as little money as possible in *cash*. First, *cash* earns no interest. Second, *cash* shows that you did not use the money for investments in your company. We see in Alcatel's balance that the cash figure steadily decreased, which I regard as positive for the above reasons.

**Number of Shares**

Please realise the interesting headline-statement in 'Figure 4: Alcatel's Year 2000, Liabilities And Owner's Equity In Balance Sheet'. A close look tells us that a share-split took place in 2000. The nominal value at December 31, 2000 was 2 Euro, but at December 31, 1999 it was 10 Euros. Companies like to do this if their actual share price is so high that shares are seldom distributed on the capital market. By decreasing the nominal value of the shares the market share price automatically divides by the same ratio and more people are able and willing to buy the shares.

### **Retained Earnings and Net Income**

Remarks:

Silbiger (1999) defines: “The *Net Income* is recorded on the balance sheet as *retained earnings*.” (Silbiger 1999, 83)

I think the wording is not quite correct. The *Net Income* is reflected in the balance sheet in OE as ‘*earnings*’ or ‘*Net income*’ (ALCATEL 2000, 41/43). The reason is the following: at the moment you create the financial statement, you only have earnings or losses. It is up to the owners to define what will happen with earnings. *If owners determine that the earnings (or part of them) shall be retained, then the amount is listed in the next financial statement as ‘retained earnings’.* *It is only in this moment in time that the money is retained and not at the moment the first financial report is created.*

Second remark: the field ‘retained earning’ contains accumulated retained earnings. That means the number increases from year to year if earnings are retained. It reduces if owners take money out of the company.

For this reason you have two lines in a balance sheet under the OE section reflecting earnings:

1. ‘Earnings’ or ‘Net Income’: this field just reflects the earnings of the last accounting year.
2. ‘Retained Earnings’: this field reflects the sum of all the amounts of money which the company’s owners reinvested in the company.

### **Net Working Capital**

There exists one interesting item of information inside the balance sheet, which you can easily calculate. It is the Net Working Capital (NWC).

$$NWC = CA - CL$$

Please recognise that only the short-term related figures are taken into account. That means we only consider capital that a company uses in its daily activities.

I regard the NWC as a measure of solvency. From a banker's point of view, a large amount of NWC may be considered as good for giving the company credit. A large NWC means that the company has more short-term capital than it has short-term liabilities (e.g. wages). If a bank considers giving credit, then the bank can assume it will get the money back when the company has a large NWC.

The NWC is also interesting to suppliers. If you are a supplier and you sell raw material to a company, then you will get the money for outstanding bills more easily if the buyer has a high NWC.

Conversely, a large amount of NWC could also show an operations analyst that the company is mismanaging its inventory by holding too many goods on the shelves or too much cash in the registry. If a company has many inventories then it has a high value of

CA but it also has many costs related to managing the storage facilities. An operator could reduce inventory to lessen costs. She/he could also reduce the cash by investing the money or by paying off debts.

This simple example shows that the evaluation of the figures depends to a large extent on the purpose for which it is evaluated and on the person who does the evaluation. It depends on the point of view. I would like to stress that figures and the NWC should only be compared for a company from year to year or for some companies in the same industry segment. It doesn't make much sense to compare two companies that are active in different market segments when you want to analyse which company is the better one. The NWC, the profitability and other figures vary considerably from one sector of industry to another.

Let's compare Alcatel's NWC for the years 2000, 1999 and 1998:

Year 2000:  $NWC = (26,294 - 15,261)$  Euro = 11,033 Euro

Year 1999:  $NWC = (19,443 - 11,342)$  Euro = 8,101 Euro

Year 1998:  $NWC = (18,163 - 9,908)$  Euro = 8,255 Euro

I interpret the figures as follows: throughout these years, Alcatel was always able to pay its non-current liabilities without any problems. We see a remarkable increase of NWC in 2000. So let's have a look to see where it comes from. As we can see, the cash (which belongs to CAs) even reduced from 1999 to 2000. So the increase of NWC must come from another position in the current assets. It is the position 'Accounts Receivable' which increased remarkably from 11,888 to 15,819 (years 1999 and 2000). I don't regard this as positive, because this position reflects outstanding money that customers have to pay to Alcatel.

### **Owner's Equity**

I would like to discuss the ways in which owners influence the balance sheet.

#### **Owners Contribute Funds**

If owners invest in the company (it is unimportant if they give cash or material), then the value of that investment will be mentioned in the balance sheet under "*owner's equity*" (OE). Please don't forget that there will be at least one other position in the balance sheet that will be influenced - but I only consider here the OE.

#### **Owners Reinvest Earnings**

Let's assume that a company had a profitable year. The earnings are cash and are counted as assets. Due to the fact that the left and right sides of the balance sheet must be equal, the earnings must also be visible on the right side.

Earnings belong to the owners. Consequently, the *earnings will be added to the OE* positions as '*earnings*'. The balance sheet is correct, because both sides balance.

### Owners Receive Dividends

If owners decide to take out some earnings as dividends, then the scenario is different.

1. The *asset* of the company reduces. The *asset* is on the left side of the balance sheet.
2. Consequently, the right side of the balance sheet must be affected, too. Of course the related position is *OE*. The *owner's equity* will be reduced due to the amount which was taken out as a dividend.

One remark before I close the balance sheet:

Always keep in mind that the balance sheet just reflects the situation of a company at a certain point of time. You don't know how the company got into this situation. If you want to know this, then you have to study the other two existing statements: '*the income statement*' and '*the cash flow statement*'.

### What Did Alcatel Do With The Net Income?

You can see in Alcatel's report (page 41) the column 'year 2000 after appropriation'. This reflects a proposal, to the annual shareholders' meeting, of what should be done with 'Net Income'. We see that in this column '*Net Income*' becomes '0', that '*retained earnings*' increase and that '*other payables*' increase, too. We can conclude that the proposal to the shareholders is to split the 'Net Income' and keep half of it in the company (increase of '*retained earnings*'). It is proposed to use the other half as dividends (increase of '*other payables*'). We can see in '*Alcatel's Financial Statements First Half 2001*' that this proposal was agreed to. (Alcatel 2001, 3). This split of around 50% to 50% shows several things: first the shareholders have confidence in the company's policy, otherwise they would have taken all 'Net Income' as dividends. Second, it shows that the shareholders regard it as necessary to leave money in the company. With respect to 'accounts payable' I would regard it as critical if the shareholders had taken all net income out of the company because it would have reduced cash. Third, I regard it as positive that shareholders took out part of 'net income' as dividends because it clearly shows that the shareholders were convinced that it is *not* necessary to reinvest *all* net income.

## 9 Analysing Alcatel's Financial Statements By Using Ratios

You can find important information in the financial statements if you put the financial figures in relation to other figures. You can compare:

- Numbers from one year with numbers of another year.
- Numbers from one company with numbers of another company in the same industry segment.

The comparison is done by '*ratios*'.

I will discuss some ratios in four categories:



1. Liquidity measures: How much is on hand that can be converted into cash to pay bills?
2. Capitalisation measures: Is a company heavily burdened with debt? Are its investors financing the company? How is the company funding itself?
3. Activity measure: How actively does the company deploy assets?
4. Profitability measures: How profitable is a company in relation to the assets and the sales that made its profits possible?

### Liquidity Ratios

#### Equation 1 : Current Ratio

$$(1) \text{ CurrentRatio} = \frac{\text{CurrentAssets}}{\text{CurrentLiabilities}}$$

A 'Current Ratio' greater than 'one' shows liquidity. It is simple and logical. If you have enough CAs to pay the CLs (i.e. wages and bills), then your company shows liquidity.

Alcatel's 'Current Ratio' in the years 1998-2000 were:

Year 2000: Current Ratio = (26,294 Euro / 15,261 Euro) = 1.72

Year 1999: Current Ratio = (19,443 Euro / 11,342 Euro) = 1.71

Year 1998: Current Ratio = (18,163 Euro / 9,908 Euro) = 1.83

The ratios are all much greater than '1' and reflect liquidity. It is interesting that the ratio remains similar. It does not vary a lot. I am almost sure that Alcatel's accountants look at these figures and that it is not by chance that the figures vary only slightly. They are actively controlled.

### Capitalisation Ratios

#### Equation 2 : Financial Leverage

$$(2) \text{ FinancialLeverage}(FL) = \frac{(\text{TotalLiabilities} + \text{OE})}{\text{OE}}$$

Some remarks to 'Financial Leverage (FL)'.:

- If you don't have liabilities (e.g. no debt, no outstanding wages and no bills to be paid) than your FL is = 1. A lower value is not possible.
- A value of '2' shows that you have 'total liabilities' of the same amount as OE.
- If your FL is greater than 'two' then your company is said to be 'leveraged', because others own more of your company than you do.
- A high FL is interesting, because on the one hand people outside the company have made a larger investment by giving credit than owners have invested. On the other hand a high FL has the advantage for owners that the 'earnings' must be divided by a smaller equity base.

Alcatel's FL were:

2000: FL = (15,261 + 14,945) / 14,945 = 2.02

1999: FL =  $(11,342 + 11,532) / 11,532 = 1.98$

1998: FL =  $(9,908 + 9,913) / 9,913 = 2.00$

I regard it as interesting that the *liabilities* and *owner's equity* steadily increases. This is not bad, because both together reflect the assets of the company. So in total the wealth of the company increases. It is remarkable that owners and others share the risk 50-50 over the years. The ratio (financial leverage) remained the same over the years although each position increased.

### Equation 3 : Long Term Debt To Capital

$$(3) \text{ LongTermDebtToCapital} = \frac{\text{LongTermDebt}}{\text{Liabilities} + \text{OE}}$$

Long Term Debt To Capital (LTDTC):

Debt payments are fixed obligations that must be paid, while dividends to investors are not. The higher the percentage, the higher is the risk the company takes. Generally, a percentage greater than 50% is considered as a high level of debt. However, this figure varies a lot from business to business. In some business areas 50% is usual; in others it is the exception.

Let's take a look at the two possible extreme values.

1. A percentage of '0%' means that the company has no debts at all.
2. A percentage of 100% means that the company has no OE at all! This is just a theoretical approach, because you are obliged to finance a business with \$25,000 or \$50,000 (these values are valid for Germany). For this reason you can not create a company with \$0 owner's equity.

Let's have a critical look at Alcatel's data, compared over the years and compared with the company 'Siemens', a part of which is in the same business segment.

- Alcatel 2000: LTDTC =  $5,577 / 42,978 = 13\%$  (Alcatel 2000,41)
- Alcatel 1999: LTDTC =  $3,478 / 34,206 = 10\%$  (Alcatel 2000,41)
- Alcatel 1998: LTDTC =  $2,318 / 29,640 = 8\%$  (Alcatel 2000,41)
- Siemens 2000: LTDTC =  $9,134 / 79,255 = 12\%$  (Siemens 2000, 3)

In Alcatel's ratios we see a steady increase of the ratio over the last three years. This shows that the company borrows more money from banks for long-term investments. I assume this is for the acquisition of consolidated companies. The ratio is nevertheless normal, as is the comparison between Siemens and Alcatel (both active in comparable market segments).

**Activity Ratios****Equation 4 : Assets Turnover Per Period**

$$(4) \text{ AssetsTurnoverPerPeriod} = \frac{\text{Sales}}{\text{TotalAssets}}$$

Assets Turnover Per Period (ATPP):

This ratio tells you how actively your company uses all of its assets. The firm that can generate more sales with a given set of assets is said to have managed its assets efficiently.

Obviously, this ratio is industry specific or, in other words, the ratio varies a lot from industry to industry. You need reference numbers in order to be able to put your numbers into a picture.

Alcatel's numbers for the years 1998 - 2000 were:

- Year 2000: ATPP: 31,408 / 42,978 = 73%
- Year 1999: ATPP: 23,023 / 34,206 = 67%
- Year 1998: ATPP: 21,259 / 29,640 = 72%

Siemens' numbers for year 2000 were:

- ATPP: 78,396 / 79,255 = 99%

I conclude that Siemens managed its assets more efficiently than Alcatel.

**Profitability Ratios****Equation 5 : Return On Sales**

$$(5) \text{ ReturnOnSales(ROS)} = \frac{\text{NetIncome}}{\text{Sales}}$$

Return On Sales (ROS):

Return ratios are very easy to calculate and investment analysts use them frequently. They calculate the return on just about any part of the balance sheet and income statement.

The ROS calculates the return ratio with respect to sales. In detail the figures tell the analysts what percentage of sales the company finally keeps as 'net income'.

Let's have a look at Alcatel's year 2000 figures:

- Year 2000: ROS = 1,324 / 31,408 = 4%
- Year 1999: ROS = 644 / 23,023 = 3%
- Year 1998: ROS = 2,340 / 21,259 = 11%

The decrease from 1998 to 2000 is incredible! Let's see what happened, by analysing the 'income statement': From year 1998 to year 2000 the 'net sales' increased by around 50%. The 'Gross Profit' also increased by around 50%. That is in line. We see in 1998, under 'other revenue', a huge amount of money, which is obviously the exception. A look at the

financial statements of 1998 would explain what happened there. We see that the *'income before amortisation of goodwill, taxes and purchased R&D'* has an extraordinarily good value in 1998 – which I regard as the exception. The average ROS of 3-4% (as in the last 2 years) is the current average value of Alcatel. As a result we can conclude that the position 'other revenues' is the reason for the very high ROS in 1998.

I regard a ROS of 3-4% as too low! The critical point is not to have a ROS > 0% but to have a ROS greater than the current interests on the market. If your company has a ROS less than market interests, then you run the risk that investors will invest their money in banks and not in your company.

#### Equation 6 : Return On Equity

$$(6) \text{ ReturnOnEquity}(ROE) = \frac{\text{NetIncome}}{\text{Owner'sEquity}}$$

Return On Equity (ROE):

Changes in debt and equity can dramatically affect the ratios. If you take out earnings as dividends, then you decrease the *owner's equity*. Doing so, the ROE will automatically increase. Investors consider a high ROE as interesting. If you have to increase your debts in order to finance something (because you took out the dividends), the ratio '*Long Term Debt To Capital*' will also increase, which analysts considered as negative. As a result, by taking out dividends you can positively influence ROE and negatively influence '*Long Term Debt To Capital*'.

This simple example shows that ratios tell everything and nothing. It depends on the point of view and on the reference figures.

#### Ratios Are Industry-Specific

For industry-specific references on all these ratios, Robert Morris Associates publishes its *Annual Statement Studies*. This valuable reference book, available in most libraries, includes financial and operating ratios for over 300 manufactures, wholesalers, retailers, services, contractors, and finance companies. (Silbiger 1999, 99)

I know that bank institutes in Germany have equivalent reference lists in order to be able to analyse their customers' balances.

## 10 How You Can Influence Your Financial Statements

One of the key elements of this paper is to learn how you can influence the financial statements of your company in order to achieve certain things.

If you own your own business, then you focus on having few profits, because you have to pay taxes for profit. For example, you can do so by paying higher salaries than usual. If

you pay the salary to yourself or to relatives, then you directly take profit from it, but your company's profit decreases. You can also depreciate assets as soon as possible. You are not obliged to produce regular accounting reports. The only institution that wants to know your detailed financial situation is the bank that lent you money.

If you make financial statements for a publicly traded company, then you focus on huge profit and increasing the earnings per share. I.e. you can achieve this by signing a contract where the income is counted for your actual accounting period and the costs for the next period (because the product delivery takes place in the next accounting year). You can also increase the price per share if you delay expenses in an accounting period when you do not have so much income until a period when you expect to have more income.

## 11 Final statement

I hope that you find accounting as interesting as I do.

This paper will not teach you what accounting is but how accounting can be applied. Now that I have taken the course, I like reading financial statements, because now the figures mean something to me.

As a summary, you should now know that three different financial statements exist:

1. Balance Sheet
2. Income Statement
3. Cash Flow Statement

All these statements are related to each other: the income statement calculates the 'net income'. The 'net income' will be stated in the balance sheet. The cash flow informs about what made the differences of assets, liabilities and owner's equity (visible in the balance sheet).

Two different methods of determining the accounting data exist: 'cash basis accounting' and 'accrual basis accounting'.

By creating different kinds of ratios you can evaluate the profitability of your company and compare it with the profitability of another company operating in the same market segment as you. The ratios are also essential for investors. Investors normally like to invest in a company only if they can expect more dividends per share than they would receive in interest from a bank.

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