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FINANCE
Theory and Practice

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Chapter 4

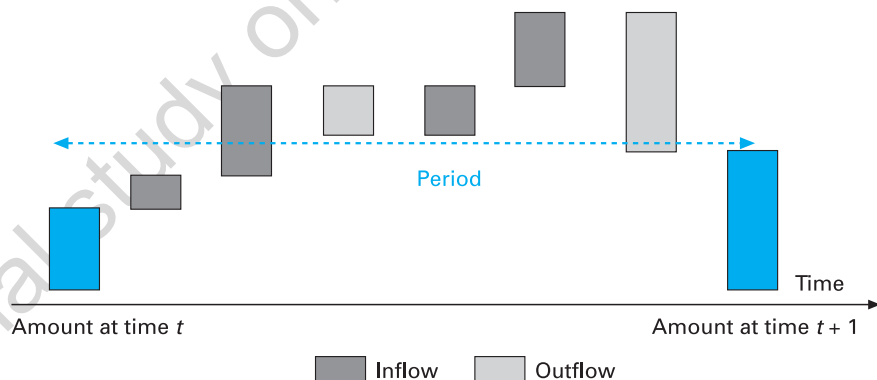
CAPITAL EMPLOYED AND INVESTED CAPITAL

The end-of-period snapshot

So far in our analysis we have looked at inflows and outflows, or revenues and costs during a given period. We will now temporarily set aside this dynamic approach and place ourselves at the end of the period (rather than considering changes over a given period) and analyse the balances outstanding.

For instance, in addition to changes in net debt over a period we also need to analyse net debt at a given point in time. Likewise, we will study here the wealth that has been accumulated up to a given point in time, rather than that generated over a period.

The balance represents a snapshot of the cumulative inflows and outflows previously generated by the business



To summarise, we can make the following connections:

- an inflow or outflow represents a change in “stock”; i.e., in the balance outstanding;
- a “stock” is the arithmetic sum of inflows and outflows since a given date (when the business started up) through to a given point in time. For instance, at any moment shareholders’ equity is equal to the sum of capital increases by shareholders and annual net income for past years not distributed in the form of dividends plus the original share capital.

Section 4.1

THE BALANCE SHEET: DEFINITIONS AND CONCEPTS

The purpose of a balance sheet is to list all the assets of a business and all of its financial resources at a given point in time.

1/MAIN ITEMS ON A BALANCE SHEET

Assets on the balance sheet comprise:

- **fixed assets**; i.e., everything required for the operating cycle that is not destroyed as part of it. These items retain some value (any loss in their value is accounted for through depreciation, amortisation and impairment losses). A distinction is drawn between **tangible fixed assets** (land, buildings, machinery, etc.¹), **intangible fixed assets** (brands, patents, goodwill, etc.) and **investments**. When a business holds shares in another company (in the long term), they are accounted for under investments;
- inventories and trade receivables; i.e., temporary assets created as part of the operating cycle;
- lastly, marketable securities and cash that belong to the company and are thus assets.

¹ Known as property, plant and equipment in the US.

Inventories, receivables,² marketable securities and cash represent the **current assets**, a term reflecting the fact that these assets tend to “turn over” during the operating cycle.

² Known as debtors in the UK.

Resources on the balance sheet comprise:

- capital provided by shareholders, plus retained earnings, known as **shareholders' equity**;
- borrowings of any kind that the business may have arranged – e.g., bank loans, supplier credits, etc. – known as **liabilities**.

By definition, a company's assets and resources must be exactly equal. This is the fundamental principle of double-entry accounting. When an item is purchased, it is either capitalised or expensed. If it is capitalised, it will appear on the asset side of the balance sheet, and, if expensed, it will lead to a reduction in earnings and thus shareholders' equity. The double-entry for this purchase is either a reduction in cash (i.e., a decrease in an asset) or a commitment (i.e., a liability) to the vendor (i.e., an increase in a liability). According to the algebra of accounting, assets and resources (equity and liabilities) always carry the opposite sign, so the equilibrium of the balance sheet is always maintained.

It is European practice to classify assets starting with fixed assets and to end with cash,³ whereas it is North American and Japanese practice to start with cash. The same is true for the equity and liabilities side of the balance sheet: Europeans start with equity, whereas North Americans and the Japanese end with it.

³ Which is required by the European Fourth Directive.

A “horizontal” format is common in Continental Europe with assets on the left and resources on the right. In the United Kingdom, the more common format is a “vertical” one, starting from fixed assets plus current assets and deducting liabilities to end up with equity.

THE BALANCE SHEET

FIXED ASSETS	SHAREHOLDERS' EQUITY
CURRENT ASSETS	LIABILITIES

2/TWO WAYS OF ANALYSING THE BALANCE SHEET

A balance sheet can be analysed either from a capital-employed perspective or from a solvency-and-liquidity perspective.

In the capital-employed analysis, the balance sheet shows all the uses of funds for the company's operating cycle and analyses the origin of its sources of funds.

A capital-employed analysis of the balance sheet serves three main purposes:

- to understand how a company finances its operating assets (see Chapter 12);
- to compute the rate of return either on capital employed or on equity (see Chapter 13); and
- as a first step to valuing the equity of a company as a going concern (see Chapter 40).

In a solvency-and-liquidity analysis, a business is regarded as a set of assets and liabilities, the difference between them representing the book value of the equity provided by shareholders. From this perspective, the balance sheet lists everything that a company owns and everything that it owes.

A solvency-and-liquidity analysis of the balance sheet serves three purposes:

- to measure the solvency of a company (see Chapter 14);
- to measure the liquidity of a company (see Chapter 12); and
- as a first step to valuing its equity in a bankruptcy scenario.

**CAPITAL-EMPLOYED ANALYSIS OF THE
BALANCE SHEET**

All USES OF FUNDS	Origin of SOURCES OF FUNDS
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**SOLVENCY-AND-LIQUIDITY ANALYSIS
OF THE BALANCE SHEET**

List of all ASSETS	SHAREHOLDERS' EQUITY
	List of all LIABILITIES

Section 4.2**THE CAPITAL-EMPLOYED ANALYSIS OF THE BALANCE SHEET**

To gain a firm understanding of the capital-employed analysis of the balance sheet, we believe it is best approached in the same way as the analysis in the previous chapter, except that here we will be considering “stocks” rather than inflows and outflows.

The purpose of a capital-employed analysis of the balance sheet is to analyse the capital employed in the operating cycle and how this capital is financed.

More specifically, in a capital-employed analysis a balance sheet is divided into the following main headings:

1/FIXED ASSETS

These represent all the investments carried out by the business, based on our financial and accounting definition.

It is helpful to distinguish wherever possible between operating and non-operating assets that have nothing to do with the company's business activities; e.g., land, buildings and subsidiaries active in significantly different or noncore businesses. Nonoperating assets can thus be excluded from the company's capital employed. By isolating nonoperating assets, we can assess the resources the company may be able to call upon in hard times (i.e., through the disposal of nonoperating assets).

The difference between operating and nonoperating assets can be subtle in certain circumstances. For instance, how should a company's head office on Bond Street or on the Champs-Élysées be classified? Probably under operating assets for a fashion house or a car manufacturer, but under nonoperating assets for an engineering or construction group which has no business reason to be on Bond Street, unlike Burberry or Jaguar.

2/WORKING CAPITAL

Uses of funds comprise all the operating costs incurred but not yet used or sold (i.e., inventories) and all sales that have not yet been paid for (trade receivables).

Sources of funds comprise all charges incurred but not yet paid for (trade payables, social security and tax payables), as well as operating revenues from products that have not yet been delivered (advance payments on orders).

The net balance of operating uses and sources of funds is called the **working capital**.

If uses of funds exceed sources of funds, the balance is positive and working capital needs to be financed. This is the most frequent case. If negative, it represents a source of funds generated by the operating cycle. This is a nice but rare situation!

It is described as “working capital” because the figure reflects the cash required to cover financing shortfalls arising from day-to-day operations.

Sometimes working capital is defined as current assets less current liabilities. This definition corresponds to our working capital definition + marketable securities and net cash – short-term borrowings. We think that this is an improper definition of working capital as it mixes items from the operating cycle (inventories, receivables, payables) and items from the financing cycle (marketable securities, net cash and short-term bank and financial borrowings). You may also find in some documents expressions such as “working capital needs” or “requirements in working capital”. They are synonyms for working capital.

Working capital can be divided between operating working capital and nonoperating working capital.

3/OPERATING WORKING CAPITAL

Operating working capital comprises the following accounting entries:

Inventories	Raw materials, goods for resale, products and work in progress, finished products
+ Trade receivables	Amounts owed by customers, prepayments to suppliers and other trade receivables
– Trade payables	Amounts owed to trade suppliers, social security and tax payables, prepayments by customers and other trade payables
= Operating working capital	

Only the normal amount of operating sources of funds is included in calculations of operating working capital. Unusually long payment periods granted by suppliers should not be included as a component of normal operating working capital.

Where it is permanent, the abnormal portion should be treated as a source of cash, with the suppliers thus being considered as playing the role of the company’s banker.

Inventories of raw materials and goods for resale should be included only at their normal amount. Under no circumstances should an unusually large figure for inventories of raw materials and goods for resale be included in the calculation of operating working capital.

Where appropriate, the excess portion of inventories or the amount considered as inventory held for speculative purposes can be treated as a high-risk short-term investment.

Working capital is totally independent of the methods used to value fixed assets, depreciation, amortisation and impairment losses on fixed assets. However, it is influenced by:

- inventory valuation methods;
- deferred income and cost (over one or more years);
- the company's provisioning policy for current assets and operating liabilities and costs.

As we will see in Chapter 5, working capital represents a key principle of financial analysis.

The amount of working capital depends on the accounting methods used to determine earnings, as well as the operating cycle.

Theoretically, working capital is independent of the accounting methods used by a company since working capital is nothing but the difference at a given moment between operating inflows and outflows. Nevertheless, working capital is dependent on the accounting methods used to value inventories and trade receivables when it is calculated from these balance sheet items.

4/NONOPERATING WORKING CAPITAL

Although we have considered in sufficient detail the timing differences between inflows and outflows that arise during the operating cycle, we have until now always assumed that capital expenditures were paid for when purchased and that nonrecurring costs are paid for when they are recognised in the income statement. Naturally, there may be timing differences here, too, giving rise to what is known as **nonoperating working capital**.

Nonoperating working capital, which is not a very robust concept from a theoretical perspective, is hard to predict and to analyse, because it depends on individual transactions, unlike operating working capital which is recurring.

In practice, nonoperating working capital is a catch-all category for items that cannot be classified anywhere else. It includes amounts due on fixed assets, dividends to be paid, extraordinary items, etc.

5/CAPITAL EMPLOYED

Capital employed is the sum of a company's fixed assets and its working capital (i.e., operating and nonoperating working capital). It is, therefore, equal to the sum of the net amounts devoted by a business to both the operating and investing cycles. It is also known as **operating assets**.

Capital employed is financed by two main types of funds, shareholders' equity and net debt, sometimes grouped together under the heading of **invested capital**.

6/SHAREHOLDERS' EQUITY

Shareholders' equity comprises capital provided by shareholders when the company is initially formed and at subsequent capital increases, as well as capital left at the company's disposal in the form of earnings transferred to the reserves.

7/NET DEBT

The company's gross debt comprises **debt financing**, irrespective of its maturity; i.e., medium- and long-term (various borrowings due in more than 1 year that have not yet been repaid) and short-term bank or financial borrowings (portion of long-term borrowings due in less than 1 year, discounted notes, bank overdrafts, etc.). A company's **net debt** goes further by taking into account cash and equivalents (e.g., petty cash and bank accounts) and marketable securities.

All things considered, the equation is as follows:

	Medium- and long-term bank and other borrowings (bond issues, commitment under finance lease, etc.)
+	Short-term bank or financial borrowings (discounted notes, bank overdrafts, etc.)
–	Marketable securities (marketable securities)
–	Cash and equivalents (petty cash and bank accounts)
=	Net debt

A company's net debt can either be positive or negative. If it is negative, the company is said to have net cash.

The balance of provisions for liabilities and charges not treated as equity or net debt (see p. 111) is included in the calculation of the working capital.

From a capital-employed standpoint, a company balance sheet can be analysed as follows:

	2005	2006	2007
Fixed assets (A)			
Inventories			
+ Accounts receivables			
– Accounts payables			
= Operating working capital			
+ Nonoperating working capital			
= Working capital (B)			
Capital employed (A + B)			
Shareholders' equity (C)			
Short-, medium- and long-term bank and other borrowings			
– Marketable securities			
– Cash and equivalents			
= Net debt (D)			
Invested capital (C + D) = Capital employed (A + B)			

Section 4.3

A SOLVENCY-AND-LIQUIDITY ANALYSIS OF THE BALANCE SHEET

The solvency-and-liquidity analysis of the balance sheet, which presents a statement of what is owned and what is owed by the company at the end of the year, can be used:

- by shareholders to list everything that the company owns and owes, bearing in mind that these amounts may need to be revalued;
- by creditors looking to assess the risk associated with loans granted to the company. In a capitalist system, shareholders' equity is the ultimate guarantee in the event of liquidation since the claims of creditors are met before those of shareholders.

Hence the importance attached to a solvency-and-liquidity analysis of the balance sheet in traditional financial analysis. As we will see in detail in Chapters 12 and 14, it may be analysed from either a liquidity or solvency perspective.

1/BALANCE SHEET LIQUIDITY

A classification of the balance sheet items needs to be carried out prior to the liquidity analysis. Liabilities are classified in the order in which they fall due for repayment. Since balance sheets are published annually, a distinction between the short term and long term turns on whether a liability is due in less than or more than 1 year. Accordingly, liabilities are classified into those due in the short term (less than 1 year), in the medium and long term (i.e., in more than 1 year) and those that are not due for repayment.

Likewise, what the company owns can also be classified by duration as follows:

- assets that will have disappeared from the balance sheet by the following year, which comprise current assets in the vast majority of cases;
- assets that will still appear on the balance sheet the following year, which comprise fixed assets in the vast majority of cases.

Consequently, from a liquidity perspective we classify liabilities by their due date, investments by their maturity date and assets as follows:

Assets are regarded as liquid where, as part of the normal operating cycle, they will be monetised in the same year.

Thus, they comprise (unless the operating cycle is unusually long) inventories and trade receivables.

Assets that, regardless of their nature (head office, plant, etc.), are not intended for sale during the normal course of business are regarded as fixed and not liquid.

Balance sheet liquidity, therefore, derives from the fact that the turnover of assets (i.e., the speed at which they are monetised within the operating cycle) is faster than

the turnover of liabilities (i.e., when they fall due). The maturity schedule of liabilities is known in advance because it is defined contractually. However, the liquidity of current assets is unpredictable (risk of sales flops or inventory write-downs, etc.). **Consequently, the clearly defined maturity structure of company's liabilities contrasts with the unpredictable liquidity of its assets.**

Therefore, short-term creditors will take into account differences between a company's asset liquidity and its liability structure. They will require the company to maintain current assets at a level exceeding that of short-term liabilities to provide a margin of safety. Hence the sacrosanct rule in finance that each and every company must have assets due to be monetised in less than 1 year at least equal to its liabilities falling due within 1 year.

2/SOLVENCY

Solvency reflects the ability of a company to honour its commitments in the event of liquidation; i.e., if its operations are wound up and are put up for sale.

A company may be regarded as insolvent once its shareholders' equity turns negative. This means that it owes more than it owns.

3/NET ASSET VALUE OR THE BOOK VALUE OF SHAREHOLDERS' EQUITY

This is a solvency-oriented concept that attempts to compute the funds invested by shareholders by valuing the company's various assets under deduction of liabilities. Net asset value is an accounting and, in some instances, tax-related term, rather than a financial one.

The book value of shareholders' equity is equal to everything a company owns less everything it already owes or may owe. Financiers often talk about net asset value, which leads to confusion among nonspecialists, who can understand them as total assets net of depreciation, amortisation and impairment losses.

Book value of equity is thus equal to the sum of:

	Fixed assets
+	Current assets
–	All borrowings of any kind.

When a company is sold, the buyer will be keen to adopt an even stricter approach:

- by factoring in contingent liabilities (which do not appear on the balance sheet);
- by excluding worthless assets; i.e., of zero value. This very often applies to most intangible assets owing to the complexity of the way in which they are accounted for (see Chapter 7).

Section 4.4

A DETAILED EXAMPLE OF A CAPITAL-EMPLOYED
BALANCE SHEET

On the following page, our reader will find the capital-employed balance sheet of the Swedish group Ericsson. This balance sheet will be used in future chapters.

Items specific to consolidated accounts are highlighted in blue and will be described in detail in Chapter 6.

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The balance sheet shows a snapshot of cumulative inflows and outflows from the company classified into assets and resources (liabilities and shareholders' equity).

Assets comprise fixed assets (intangible and tangible fixed assets and long-term investments) and current assets (inventories, accounts receivable, marketable securities and cash and equivalents). Resources comprise shareholders' equity and bank and financial borrowings, plus trade payables.

A capital-employed analysis of the balance sheet shows all the uses of funds by a company as part of the operating cycle and analyses the origin of the sources of a company's funds at a given point in time.

On the asset side, the capital-employed balance sheet has the following main headings:

- fixed assets; i.e., investments made by the company;
- operating working capital (inventories and trade receivables under deduction of trade payables). The size of the operating working capital depends on the operating cycle and the accounting methods used to determine earnings;
- nonoperating working capital, a catch-all category for the rest.

The sum of fixed assets and working capital is called capital employed.

Capital employed is financed by capital invested; i.e., shareholders' equity and net debt.

Net debt is defined as bank and financial borrowings, be they short, medium or long term, less marketable securities (short-term investments) and cash and equivalents.

A solvency-and-liquidity analysis lists everything the company owns and everything that it owes, the balance being the book value of shareholders' equity or net asset value. It can be analysed from either a solvency or liquidity perspective.

Solvency measures the company's ability to honour its commitments in the event of liquidation, whereas liquidity measures its ability to meet its commitments up to a certain date by monetising assets in the ordinary course of business.

SUMMARY

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BALANCE SHEET FOR ERICSSON (€m)

	Date	1999	2000	2001	2002	2003
Goodwill		1,039	1,297	1,319	939	627
+ Other intangible fixed assets		112	104	108	437	597
+ Tangible fixed assets		2,666	2,404	1,688	1,088	580
+ Fixed assets held under finance lease		32	39	129	0	130
+ Equity in associated companies		296	305	342	200	324
+ Long-term investments		191	271	339	245	47
= FIXED ASSETS (FA)		4,336	4,420	3,924	2,909	2,305
Inventories of goods for resale						
+ Inventories of raw materials and other suppliers		1,455	2,173	1,003	475	473
+ Work in progress		1,662	2,347	1,624	1,156	1,039
+ Finished goods inventories		215	491	625	326	30
+ Trade receivables		5,713	7,223	5,191	3,205	2,776
+ Other operating receivables		3,036	4,093	3,040	2,544	1,388
– Trade payables		2,360	3,292	2,130	1,361	971
– Tax and social security liabilities		262	555	203	68	212
– Other operating payables		4,509	5,279	4,978	3,661	3,287
= OPERATING WORKING CAPITAL (1)		4,950	7,201	4,172	2,616	1,236
Nonoperating receivables		1,460	1,232	2,374	1,757	584
– Nonoperating payables		1,412	1,665	2,273	2,167	3,013
= NONOPERATING WORKING CAPITAL (2)		48	–433	101	–409	–2,429
= WORKING CAPITAL (1 + 2)		4,999	6,768	4,273	2,207	1,193
CAPITAL EMPLOYED = FIXED ASSET + WORKING CAPITAL		9,336	11,188	8,197	5,116	1,113
Share capital		534	864	881	1,744	1,761
+ Retained earnings		2,133	3,292	5,698	4,006	1,626
+ Net income for the year		1,281	2,184	–3,815	–2,949	–1,526
+ Revaluation and consolidation reserves						
+ Others		3,365	3,292	2,660	2,556	1,831
+ Investment grants						
+ Other equity (shareholders' advances, mandatory convertible bonds, etc.)						
= SHAREHOLDERS' EQUITY, GROUP SHARE		7,313	9,632	5,423	5,357	3,691
+ Minority interests in consolidated subsidiaries		238	302	399	270	251
= TOTAL GROUP EQUITY		7,551	9,934	5,822	5,627	3,942
Medium- and long-term borrowings and liabilities		3,641	3,451	7,095	5,247	4,124
+ Commitments under finance leases						
+ Bank overdrafts and short-term borrowings		1,311	1,690	2,805	1,471	1,038
– Marketable securities (short-term investments)		1,465	2,050	3,935	5,268	6,181
– Cash and equivalents		1,702	1,837	3,589	1,961	1,811
= NET DEBT		1,785	1,254	2,375	–510	–2,830
INVESTED CAPITAL = (GROUP EQUITY + NET DEBT)						
= CAPITAL EMPLOYED		9,336	11,188	8,197	5,116	1,113

- 1/ When do we use a capital-employed analysis of the balance sheet? And when do we use a solvency-and-liquidity analysis of the balance sheet?
- 2/ Which approach to the balance sheet should you adopt:
 - when warranting a company's balance sheet when it is being sold?
 - when forecasting a company's working capital?
- 3/ Do liabilities that arise during the operating cycle always have a maturity of less than 1 year?
- 4/ Classify the following as "stocks", in/outflows or change in in/outflows: sales, trade receivables, change in trade receivables, increase in dividends, financial expense, increase in sales, EBITDA.
- 5/ A company's sales clearly represent a source of funds. However, they do not appear on the balance sheet. Why?
- 6/ Classify the following balance sheet items under fixed assets, working capital, shareholders' equity or net debt: overdraft, retained earnings, brands, taxes payable, finished goods inventories, bonds.
- 7/ Is a company that is currently unable to pay its debts always insolvent?
- 8/ Assess the liquidity of the following assets: plant, unlisted securities, listed securities, head office building located in the centre of a large city, ships and aircraft, commercial papers, raw materials inventories, work-in-progress inventories.
- 9/ Provide examples of items classified under nonoperating working capital.
- 10/ Give a synonym for net assets.
- 11/ What is another way of describing a difference in "stocks"?
- 12/ What is the difference between liabilities and sources of funds?
- 13/ What is another way of describing a cumulative inflow or outflow?
- 14/ The main manufacturers of telephony equipment (Ericsson, Nokia, etc.) provided telecom operators (Deutsche Telekom, Swisscom, etc.) with substantial supplier credit lines, in order to assist them in financing the construction of their UMTS networks. State your views.

Ellingham plc exercise

Draw up the balance sheet showing capital-employed and invested capital (1 January 2005, end 2005, 2006) assuming that the company has equity of €40m.

QUESTIONS



ANSWERS

Questions

- 1/ *Capital-employed analysis of the balance sheet: for understanding the company's use of funds and how they were financed. Solvency-and-liability analysis of the balance sheet: for listing all assets and liabilities.*
- 2/ *The solvency-and-liquidity analysis, the capital-employed analysis.*
- 3/ *No, in some industries, there is a long period between the invoice date and customer payment (e.g., movie rights).*
- 4/ *Inflow, "stocks", inflow, change in outflow, outflow, change in inflow, inflow.*
- 5/ *The balance resulting from the activity is what appears on the balance sheet – i.e., the profit or loss – not the activity itself measured by sales.*
- 6/ *In order of listing: net debt, shareholders' equity, fixed assets, working capital, working capital, net debt.*
- 7/ *In theory no, as the company may be facing a temporary credit crunch, but most of the time yes because it will have to dispose of assets quickly or stop its activities which will result in a big reduction in equity, and then in its solvency.*
- 8/ *In order of decreasing liquidity: listed securities, commercial paper, raw materials inventories, head office, unlisted securities, ships and aircraft, work-in-progress inventories, plant.*
- 9/ *Credit from machine supplier, insurance payout not yet received for burnt-out factory, payment from purchaser of a subsidiary.*
- 10/ *Shareholders' equity.*
- 11/ *An inflow or outflow.*
- 12/ *Sources of funds include shareholders' equity (which does not have to be repaid and is consequently not a liability) and liabilities (which sooner or later have to be repaid).*
- 13/ *A "stock".*
- 14/ *These are in fact merely financial loans, and not operating loans, granted to enable the telecoms operator to buy the equipment made by the manufacturer. Those loans should be treated as fixed assets on the manufacturer's balance sheet and as financial debts on the telecom operator's balance sheet.*

Ellingham plc case – see Chapter 5

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