



# **The Impact of Accounting Rules and Practices on Resource Efficiency in the EU**

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## Executive Summary

This report analyses whether existing accounting rules can affect decisions companies make about investing in resource efficient assets or selling products that are more resource efficient. Across the EU, depending on whether or not a company is listed on an EU stock exchange, there are different accounting rules that need to be applied. As a simplification, if companies are listed on EU stock markets, they have to prepare consolidated<sup>1</sup> accounts using International Financial Reporting Standards (IFRSs)<sup>2</sup>, but for other types of reporting national accounting systems are generally used. In this summary, we use the term 'accounting system' to refer to IFRS or one of these national accounting systems.

The general conclusions of this report are that, **most of the time, accounting rules do not materially influence companies' decisions on whether or not to invest in resource efficient assets.** Rather, other factors affect these decisions, such as access to finance, tax policies, the ethics of business managers, incentive schemes for staff, the degree of short-termism in companies, and the fact that many environmental resources are either not priced or are underpriced compared to the value which society places on them. This conclusion is based on two main factors, namely:

- most companies analyse investment decisions by focusing on cash flows, and accounting rules have no effect on when cash inflows or outflows occur, apart from the amount of taxes paid, which in those jurisdictions where the tax rules are identical or close to the accounting rules, is calculated on the income reported in a company's financial accounts. So decisions to invest in resource efficient projects are normally based on whether the investment can reduce cash outflows or, because the products may be able to be sold with a price premium, increase cash inflows;
- the reported accounts are normally used by banks and analysts when evaluating investment propositions, but they are only one of the factors which financiers investigate. Further, financiers often understand different nuances in accounting rules and often make adjustments to the reported accounts to accommodate differences or uncertainties.

The study analysed many accounting topics, and this report makes a number of more detailed recommendations that Member States and the IFRS Foundation may wish to consider in requiring companies to provide additional note disclosures on matters which are difficult for banks and analysts to interpret, in particular around some types of lease commitments and maintenance expenditure plans. This additional clarity should give banks and analysts more comfort in their decisions. The other recommendations are:

- Most accounting systems account for the purchase of a new asset or a major asset refurbishment (which may be more resource efficient) similarly. Therefore, there is no accounting incentive for new assets to be purchased if a major overhaul would give a higher return or cost less. However, there are some Member States where this is not the case, and these Member States could consider amending their rules so that the two types of investment are reported similarly.
- New business models are appearing where, instead of selling a product to a firm, a company instead leases the product to the firm or maybe even offers a service. Some of these models will be more resource efficient. If companies lease assets to

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<sup>1</sup> Consolidated accounts are the combined financial statements of a parent company and its subsidiaries.

<sup>2</sup> The International Financial Reporting Standards Foundation is an independent, not-for-profit organisation whose ultimate main aim is to prepare a single set of accounting standards that can be adopted throughout the world, thereby making comparison across companies much simpler.

other companies, some accounting systems make a distinction between whether or not the profits that will be made by a lessor over the duration of a lease can be taken up front (like a sale). There is currently an International Accounting Standards Board (IASB)<sup>3</sup> project reviewing this issue. To avoid the distinction consideration could be given to accounting for all leases in the same way.

The other possibility is offering a service. For example, instead of farmers buying fertilisers and spraying their own fields, the farmer may enter into a contract for fields to be pest free, which will often reduce pesticide use. Therefore, it is also recommended that, in preparing the new IFRS rules, innovative contracts like these are not prejudiced from an accounting perspective. Once the IASB project is completed it is then recommended that Member States consider adopting similar rules for their national accounting systems.

- There is a need for greater clarity on how carbon allowances should be valued, although it is noted that the IFRS has a current project to finalise this.
- IFRS rules and the accounting rules in many Member States require the benefit of EU or government grants to be spread over the life of the asset. Such grants are often given for resource efficient investments. Thought could be given to allowing the full benefit of government grants to be recognised as soon as all the conditions for the grant have been met (e.g. that an innovative energy efficient boiler is installed), as that would boost reported income and therefore profits in that period.
- Companies will often have some obligations (legal or otherwise) to pay money in future years. For example, when a nuclear power station is built there is often a legal obligation for the site to be decommissioned at the end of the nuclear plant's useful life. In many accounting systems, these future decommissioning costs are included in companies' accounts, by creating a liability called a provision. Creating provisions such as this is sensible, as there is a clear obligation. Therefore, in those Member States where provisions do not need to be created for decommissioning costs, consideration could be given to making this compulsory.
- As a technical accounting point, when a decommissioning provision is set up, the reported profits for the year in which the provision is generated are reduced, which opens up possibilities of income smoothing. However, IFRS rules and those in some Member States require an equal and opposite accounting entry so, as well as a provision, the asset value (e.g. the nuclear plant in the example above) is increased. This reduces the chance of income smoothing, but also retains these important costs as assets in companies' accounts. Member States where this asset approach is not required could reflect on the benefits of introducing this change.
- There are various accounting rules to allow provisions to be created for liabilities of uncertain timing or amount. It is important to note that setting up a provision does not mean a company needs to set up or contribute to a special savings fund to cover the future costs – all it needs to do is set up an expense in the income statement in the period the provision is created (in effect reducing profits in that period) and enter a liability on its balance sheet.

Some national accounting systems allow provisions to be created even if there is not a present obligation, for example a provision for maintenance in the following year. However, provisions for future maintenance could be used by companies for income smoothing (i.e. making reported profits in some years higher or lower so the accounts present profits with little variation). Therefore, it makes sense that provisions are not allowed until there is liability, namely there is a present obligation. This is not to say that maintenance is not important - it is normally very important from a cost saving and resource efficiency point of view - but

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<sup>3</sup> The IASB is the independent standard-setting body of the IFRS Foundation.

maintenance costs will customarily be included in companies' projected cash flows when evaluating investment projects. Therefore, those Member States which allow maintenance provisions may want to consider changing the rules, or undertaking further research into whether maintenance provisions do encourage income smoothing or do actually result in more resource efficient solutions.

Nevertheless, to emphasise the importance of maintenance, companies could be required to summarise expected maintenance expenditures over the years ahead in the notes to the accounts, much in the same way that IFRS requires notes to explain future operating lease commitments. In addition, companies could be required to report in the notes to the accounts how much the planned maintenance expenditure was for the year in question, and how much was actually spent. This could be a way to both encourage realistic maintenance estimates and for the resource efficient maintenance to then take place, because companies would not want to regularly report large variations in what they planned to spend and what they actually spent.

In summary, this report partly refutes the claim that accounting rules are a barrier to resource efficiency, but as the topic is still in its infancy, it is one which the IASB and Member States need to be very aware of to make sure that accounting rules do not become an impediment to resource efficient investments.

## 1. Introduction

Across the European Union (EU), all companies have a legal obligation to prepare financial accounts. Depending on the size and structure of the company concerned there are different requirements or options to either use International Financial Reporting Standards (IFRSs) as endorsed by the EU or the specific accounting rules applicable in their Member State. Accounts are also used by companies to calculate financial performance and for other reasons such as planning and supporting loan applications.

This report considers how accounting rules could affect the decisions that companies make on whether to invest in resource efficiency. Such investments might include purchasing energy efficient boilers to save energy; reducing the packaging of products; using real-time logistics to minimise haulage costs and the number of trucks making empty return trips; and offering new business models that fundamentally change the ways companies operate. Examples of new business models include service contracts to light offices to specified brightness levels, rather than a company buying light bulbs and paying for electricity costs itself.

Resource efficiency is understood by the European Commission as *'using the Earth's limited resources in a sustainable manner while minimising impacts on the environment. It allows us to create more with less and to deliver greater value with less input'*<sup>4</sup>.

This Section 1 is split into subsections that explain the link between resource efficiency and profitability and provides further details about the objectives and scope of the study, including what is included and what is excluded.

Section 2 clarifies the reasons for choosing three specific accounting issues that have a particular impact on resource efficiency. It also explains IFRS and the other accounting rules in more detail, clarifying when IFRS or national accounting rules need to be used, and describes which EU countries were selected for the analysis. It then discusses differences between accounting rules and accounting practices, before summarising the approach taken to analyse the three accounting topics.

These accounting topics are addressed in Sections 3, 4 and 5. Section 6 briefly discusses some of the other relevant issues that are indirectly related to accounting rules, and Section 7 offers some conclusions.

### 1.1 Link between resource efficiency and company profitability

The world's population is projected to rise from 7 billion to 9 billion by 2050 and to continue increasing consumption, placing increasing pressure on the world's natural resources (e.g. raw materials such as minerals, metals and fuels, or other resources such as water, clean air, food and biomass)<sup>5</sup>. Against this background, the European Commission has emphasised the importance of resource efficiency, seeing it as one of its seven flagship initiatives to deliver growth and increase employment<sup>6</sup>.

In general there are four main reasons why companies invest in resource efficiency, which will ultimately affect a project's or the company's cash flows and profitability:

- i) The investment will reduce costs in the future. This could be for immediate gain (e.g. installing low energy light bulbs can instantly reduce electricity consumption by 80%), or because of predicted changes in the price of resources, or even

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<sup>4</sup> European Commission. Online Resource Efficiency Platform (OREP). [http://ec.europa.eu/environment/resource\\_efficiency/index\\_en.htm](http://ec.europa.eu/environment/resource_efficiency/index_en.htm)

<sup>5</sup> European Commission. Commission communication. *A resource-efficient Europe – Flagship Initiative Under the Europe 2020 Strategy*. Com (2011)21. January 2011.

<sup>6</sup> Ibid.



because of favourable tax treatment. For example, a company may predict rising commodity prices so could start to invest in technologies that can minimise resource use, such as Cradle to Cradle (C2C) systems. These are systems where products are manufactured so that they are easier to disassemble at the end of their useful lives and recycle. Box 1 provides more information.

- ii) Some consumers prefer or are even ready to place a price premium on products that have been produced using fewer resources or less dangerous chemicals. For example, there is a premium on high quality recycled paper and certain food products made from sustainably-sourced palm oil. With the rise of the internet, consumers are also becoming more informed about product quality and the costs of using products, and are often prepared to pay more for quality products that last a longer time or save energy, water, etc.
- iii) For Corporate Social Responsibility (CSR) reasons. However, ultimately the driver of many CSR projects is to improve the reputation of the company which may enable it to be more profitable in the future as consumers associate the company with being 'green'. Nevertheless, as explained further in Section 6.3 (page 56), sometimes CSR investments may be made even if there is little financial benefit; for example because of the ethics of the managers making decisions.

**Box 1: Implications on future production costs with resource constraints**

When investing in a production process, resources of different types will be used:

- Resources that are priced.
- Resources that are underpriced compared to the value society would place on them. For example, many governments believe that carbon is priced too cheaply, and use higher values when undertaking evaluations of carbon reduction policies.
- Resources that are not priced (e.g. access to clean air or unpolluted oceans).

Economists define the difference between the price societies would pay for resources and the price companies actually pay as externalities, with the difference (whether costs or benefits) borne by society. Over time, it is likely there will be increasing pressures exerted by governments for these unpriced or underpriced resources to be priced at higher levels. This means that

Cost of currently making a product

Resource A	Resource B	Resource C	Resource D	Resource E	TOTAL COST
Not priced	Marginally underpriced	Priced	Priced	Significantly underpriced	
€	€€	€€€€	€€€€€€€€	€€€	€€€€€€€€€€ €€€€€€€

Cost of making a product in 2030

Resource A	Resource B	Resource C	Resource D	Resource E	TOTAL COST
Marginally underpriced	Priced	Priced	Priced	Marginally underpriced	
€€€€	€€€	€€€€€€	€€€€€€€€€€	€€€€€€	€€€€€€€€€€ €€€€€€€€€€ €€€€€€€€€€

in the future, the cost of making products is likely to increase, as illustrated in the hypothetical 2030 example above, implying that companies that can minimise resource use are more likely to remain competitive.

Especially where projects will last many years (e.g. a decision to invest in a new boiler or industrial process), with expectations of higher resource costs, companies are also more likely to start analysing in greater detail all the costs of producing, servicing and disposing of products they use and sell. This is the principle of life cycle costing where companies aim to keep the whole-life costs, rather than the upfront or initial costs, as low as possible.

- iv) To comply with laws or anticipate future regulations. For example, the EU Waste Electrical and Electronic Equipment (WEEE) Directive<sup>7</sup> imposes some responsibilities on manufacturers or distributors to recycle electrical waste.

## 1.2 Objective of this study

It has been argued that a constraint on resource efficient investments is the accounting rules that companies have to use. The Terms of Reference for this study require an analysis of four questions, namely:

- a) Is there a disincentive for companies or investors to improve the resource efficiency of an existing investment (e.g. extending the life of existing products or assets) rather than making a new one?
- b) Is there a disincentive for companies to lease products rather than sell them when leasing would be more resource efficient?
- c) Are there other barriers to resource efficiency stemming from accounting rules?
- d) For questions (a), (b) and (c) what would be possible actions to change accounting rules to remove these disincentives (if they exist)?

Further, it is perceived that resource efficient businesses may be prejudiced from raising finance as many metrics and indicators used by banks and other capital providers to assess the credit worthiness of a company (or of an investment) are based upon figures determined principally according to accounting rules.

*'We call on international accounting bodies to address barriers in the accounting system to guide investments to new business models for a more circular economy, such as insufficient incentives to reuse, repair, and refurbish rather than replace machines, and to identify and deal with stranded assets.'*

**European Resource Efficiency Platform. Action for a Resource Efficient Europe. June 2013.**

The objective of this study is to analyse these issues to understand whether these barriers exist, and where relevant, identify possible actions and recommendations to assist the EU to implement the *Resource Efficiency Roadmap* and other policies.

## 1.3 What this study will look at

This study focuses on accounting rules used to prepare the financial statements that are included in companies' Annual Reports, and to respond to the Terms of Reference addresses the three main accounting topics that affect resource efficiency, namely:

- valuing companies' **assets** (resources controlled by an entity which give benefits in the future), as resource efficiency is about optimising the use of resources. If assets are not correctly valued it is possible resource-inefficient investments will arise, for example if replacing assets is preferred to repairing assets even when repairing is more cost effective and resource efficient;
- **provisions**, which are obligations that will affect cash outflows in many years' time (e.g. decommissioning costs);
- leasing, as companies often have options of whether to buy or lease assets. This will help respond to question (b) above.

As explained in Section 1 (page 7) EU companies have to use IFRS as endorsed by the EU for certain purposes and their specific Member State's accounting rules for other purposes.

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<sup>7</sup> Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE).

A set of accounting rules is sometimes known as Generally Accepted Accounting Principles (GAAPs), so there are national GAAPs and IFRS GAAP.

The International Financial Reporting Standards Foundation is an independent, not-for-profit organisation based operationally in London whose main aim is to prepare a single set of accounting standards that can be adopted throughout the world, thereby making comparison across companies much simpler<sup>8</sup>. The standards are being widely applied across the world<sup>9</sup>.

As the EU has not fully endorsed all International Accounting Standards (IASs); in particular in the complex area of financial hedge accounting there is a difference between EU-IFRS and IFRS. Also, it can take several years for an IFRS (or an amendment to one) to be endorsed by the EU. However, for the purposes of this study, EU-endorsed IFRS and IFRS can be assumed to be identical, as financial instruments are not analysed and there are no relevant unendorsed standards.

In all Member States, with the exception of Cyprus, the respective national GAAP remains the main accounting standard used by companies as most companies are not publicly traded and are either not allowed to use IFRS or have chosen not to.

### 1.3.1 How businesses make investment decisions

Most business decisions about whether to invest in resource efficiency come down to which investments or sales options will generate the most net cash whether from lower costs, higher prices or higher market shares. A simplified example of the Discounted Cash Flow (DCF) methodology that companies commonly use to evaluate projects is shown in Box 2. This DCF methodology is akin to whole-life costing as all future cash inflows and outflows should be considered.

#### Box 2: Discounted Cash Flow analysis to evaluate projects

Using the DCF methodology, all the future inflows and outflows of cash a project is expected to make and incur will be **discounted**. Discounting is a process to calculate the present value of these future cash inflows and outflows by taking account of the fact that companies often need to borrow money to invest in projects or could use their own cash reserves for other competing projects or investments.

A highly simplified example in the table below assumes that a certain company can raise finance at a cost of 10% a year and all cash payments and cash receipts occur on the last day of the financial year. The project's total net cash inflow is €4.0 million. However, as all the inflows are in the future, discounting them by 10% gives a **Net Present Value** (NPV) of €1.1 million. As €1.1 million is greater than zero the project would be worth pursuing as even after repaying all the finance costs there will still be money available.

	Total (€m)	Year 1 (€m)	Year 2 (€m)	Year 3 (€m)	Year 4 (€m)	Year 5 (€m)
Cash received	20.0	0.0	5.0	5.0	5.0	5.0
Capital outlay	-10.0	-10.0				
Operating cash outflows	-4.0		-1.0	-1.0	-1.0	-1.0
Taxes paid	-2.0		-0.5	-0.5	-0.5	-0.5
<b>Net cash flow</b>	<b>4.0</b>	<b>-10.0</b>	<b>3.5</b>	<b>3.5</b>	<b>3.5</b>	<b>3.5</b>
<b>Discounted value at 10% per year</b>	<b>1.1</b>	<b>-10.0</b>	<b>3.2</b>	<b>2.9</b>	<b>2.6</b>	<b>2.4</b>

<sup>8</sup> <http://www.ifrs.org/The-organisation/Pages/IFRS-Foundation-and-the-IASB.aspx>

<sup>9</sup> <http://www.ifrs.org/Use-around-the-world/Pages/Analysis-of-the-IFRS-jurisdictional-profiles.aspx>

It is important to note that this DCF methodology does not consider a company's reported accounting profits (which can vary depending on how costs and revenues are allocated over time), but only the expected cash flows.

### **1.3.2 Why accounting is important for companies?**

There are countervailing forces at work when directors of companies make accounting decisions. Let us start with large, listed companies in active stock markets such as London or Frankfurt. Companies like to have a strong and rising share price, partly because they might wish to raise more share capital, or use their own shares as currency for buying new subsidiaries. The managers like a high share price because their bonuses or share options increase; and their success as managers might be judged on the basis of share price increases.

On the other hand, very large companies might wish to avoid the publicity associated with 'excess' profits. Also, some large companies (e.g. utilities) need to ask for state permission before raising prices, so might wish to control profits. Such companies are also interested in reducing volatility of their earnings. Volatility implies risk, and companies prefer to present a smoothly growing profit. Surprising losses could upset the stock market. Surprising gains are also to be avoided unless the company is sure that they can be repeated in the next period. So, companies like to try to 'manage' their earnings, which is called **income smoothing**.

Companies are also interested in appearing safe. They will therefore wish to minimise their liabilities, e.g. in those accounting systems which allow some types of lease to appear off-balance sheet companies may prefer these types of leases so they do not show up as liabilities. Companies like to present strong balance sheets (e.g. with a high amount of tangible assets that could be sold) when seeking loans from banks or others.

There is of course the tax issue. However, in many jurisdictions, taxable income is calculated on a basis very different from that used by accountants to calculate profit. Further, the consolidated statements contain income from all over the world, which is taxed under different local systems. So, for many listed companies tax is of little influence in how accounting is done.

By contrast, many unlisted companies are not interested in how the public see them. They use retained profits or private sources of finance. So, they are not interested in making profit look larger or smoother. For such companies, the only relevant issue may be tax. Let us take the example of a single company (not a group) that only operates in one country. Let us further suppose that the country's tax rules require the taxable profit to be the same as the accounting profit. There will then be a strong incentive for the company to minimise its accounting profit. It will do this by taking advantage of any tax rules or accounting rules that allow choice or judgement.

For all companies, we can presume that the managers are not using the annual accounts to help them run the company. This is not the purpose of financial reporting in any country or in IFRS. Managers will have more frequent, up-to-date and detailed information to help them to manage. So, we should not expect managers' decisions on non-accounting matters (e.g. whether to spend cash on maintenance) to be affected by what they have recorded in their financial statements. Managers' decisions might be affected by the expected accounting results of the decisions, but not by what past financial statements have already recorded.

### **1.3.3 Target audience of the report**

Accountancy is a very complex and technical area. This report aims to be readable by an interested citizen who is not familiar with the theory and practice of accounting. When some accounting and financial terms that readers may not be familiar with are

introduced in the main body of report for the first time they are highlighted in **bold**, and also included in Appendix 2, which contains a glossary of accounting terms drawn principally from IFRS rules. In addition, Box 3 explains the four financial statements that IFRS rules require and an explanation of some accounting principles.

However, to give the evidence to back up some of the findings and proposals, it is necessary to provide detailed tables of a more technical nature. Many of these details have been included in the Appendices, using the label 'Technical Table'.

#### **1.3.4 What this study does not look at**

There are a number of other non-accounting reasons companies may not invest in resource efficient assets. Some of these include:

- prices of resources not providing adequate signals, for instance because of externalities (see Box 1 (page 8) for further information);
- companies being concerned about losing their competitiveness, unless other companies adopt more sustainable solutions as well;
- a lack of awareness or research into how resources can be saved;
- companies' worries about how investment decisions will affect cash flows over time, particularly short-term cash flows, for without cash (or an adequate overdraft facility) companies can go bankrupt even if they are profitable;
- for significant investments finance needs to be available: companies often have fixed credit limits with their banks, resulting in credit rationing.

This study does not consider these issues as many of them are being addressed by other EU initiatives as part of the European Commission's *Roadmap to a Resource Efficient Europe*<sup>10</sup>. For instance, there are targets to improve products and change consumption patterns, objectives to turn waste into a resource, a push to support research and development, and plans to shift to environmental taxation and remove environmentally harmful subsidies. The study also excludes ideas being promoted by bodies such as the Global Reporting Initiative (GRI) on sustainability reporting and integrated reporting.

There are also other issues which are indirectly linked to accounting rules that include:

- tax rules that incentivise or discourage resource efficiency, as tax rules and accounting rules are in some jurisdictions related with the financial accounts being used for tax calculations;
- annual reporting cycles that may have the unintended consequences of encouraging short-termism;
- incentive structures for employees being linked to certain accounting metrics, e.g. if employees are rewarded for total cash sales as reported in the accounts they are likely to prefer to sell products rather than lease products.

Section 6 provides a brief overview of these three issues. It also touches on the carbon bubble debate that oil companies are overvalued.

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<sup>10</sup> European Commission. Commission communication. *Roadmap to a Resource Efficient Europe*. Com (2011)571. September 2011.

**Box 3: Financial statements required by IFRS**

When companies prepare IFRS accounts, as endorsed by the EU, they are required to prepare four different financial statements. These are:

- The **statement of cash flows**. This includes all the cash that has entered and left the company in a period, whether money received from customers, money paid to suppliers (e.g. to buy assets or purchase stock), interest and principal repayments to banks, tax payments or dividends paid. Throughout this report the statement of cash flows is called the **cash flow statement**. In the cash flow statement the company presents **net cash from operating activities** which includes all the cash received from customers, all the cash paid to suppliers and employees, interest and principal payments, and taxes paid; **net cash from investing activities** (e.g. buying companies, purchasing assets, selling assets, interest and dividends received from other companies) and **net cash from financing activities** (e.g. borrowing money, paying dividends and issuing or selling shares).
- The **statement of profit or loss and other comprehensive income**. Throughout this report this is referred to as the **income statement**, which summarises the profits in a period. The difference between an income statement and a cash flow statement is that the income statement reports the profits that have **accrued** to the company in the period, irrespective of whether cash has been received or paid, whereas the cash flow statement just reports cash movements, which may bear little resemblance to the profits made in the period.

The accruals concept is central to accountancy and says that transactions should be recognised when economic events occur (e.g. assets are purchased, stock is sold or interest becomes payable) rather than when the cash actually enters or leaves the company. For example, if products are sold (and delivered) on credit, even if the money has not been received, the **revenue**<sup>11</sup> is included in the income statement. Similarly, if products have been purchased on credit, even if the company has not yet paid the supplier, the transaction would be recorded as an **expense**<sup>12</sup> in the income statement.

Further, if a company buys an asset that will last, for example, for 10 years, then rather than include the full cost of the investment in the income statement in one year, a proportion of the cost of the asset is included in the income statement in the relevant period, commonly by **depreciating**<sup>13</sup> the asset over 10 years<sup>14</sup>. As an illustration, if a straight line depreciation policy is adopted and the asset cost €1,000, the income statement would show an annual expense of €100, whereas the cash flow statement would show the full outflow at the time of the payment.

- The **statement of financial position**, which reports all assets, liabilities and residual shareholders' equity at a specific date. Throughout this report this statement is called the **balance sheet**. Therefore, using the example of the purchase of the asset for €1,000 all these costs would initially be **capitalised** (i.e. included in the balance sheet), but by the end of the first year the value of the asset would usually be recorded at a lower value, e.g. €900 in the above example.
- The **statement of changes in equity** which summarises how the value of equity has moved during the year. This statement is often not required in national GAAPs.

<sup>11</sup> In accounting rules the word revenue means when invoices are raised. Revenue is included in the income statement, and as it does not represent actual cash inflows is not included in the cash flow statement.

<sup>12</sup> In accounting rules the word expense means to record in the income statement a cost.

<sup>13</sup> IFRS rules define depreciation as 'the systematic allocation of the depreciable amount of an asset over its useful life' (IAS 16 ¶6).

<sup>14</sup> Section 3.1 explains the other way of accounting for the use on an asset - the revaluation method.

## 2. Methodology

This section is split into further explanation of the three accounting topics that are particularly relevant for resource efficiency, detail about when IFRS or national GAAP rules should be adopted and justification for the choice of the Member States analysed. The distinction between accounting rules and accounting practices is explained, as are the information sources used and the stakeholder engagement process undertaken. There is then a summary of the approach used for analysing each accounting topic.

### 2.1 Choice of accounting topics to analyse

Accounting rules cover many different areas, such as stock valuation, construction contracts, taxes, assets (such as property, plant and equipment), leases, revenue measurement, employee benefits, government grants, borrowing costs, pensions, **impairments** (a downward valuation of an asset when its carrying value as reported in its accounts exceeds its recoverable amount), and provisions. The three areas that were chosen as they especially impact on resource use are:

#### 2.1.1 Asset recognition and measurement

IFRS defines an asset as a resource controlled by an entity as a result of past events and from which future economic benefits are expected to flow to the entity<sup>15</sup>.

Resource efficiency can be seen as optimising the use of resources, whether they are:

- **tangible assets** that are assets with physical substance that either require fewer resources to manufacture them (e.g. prefabricated components that minimise raw material wastage) or require fewer resources (e.g. fuel) to operate; or
- **intangible assets** are assets without physical substance, such as knowledge about making resources or the rights to pollute or to use resources. It is important to know when these assets are shown in balance sheets and how they are valued, since this can affect the company's reported profitability and balance sheet.

Section 3 goes into detail about how different assets are valued, including land and buildings and other assets. Different GAAPs have different rules on how to value these assets, both at the time of the purchase or investment, and then over time as the asset wears out. There are also different rules on how government grants to invest in resource efficient assets should be accounted for.

#### 2.1.2 Provisions

IFRS defines a provision as a liability of uncertain timing or amount<sup>16</sup>. For example, provisions are set up for pensions, for estimates of future tax liabilities or for paying to clean up a site at the end of an asset's life, as often happens with mining or oil drilling companies. The latter is a good illustration of a provision that is set up for resource preservation, since without an obligation to return the land to a usable state at the end of the mining concession the land could be left with little economic value.

Provisions should not be confused with the term reserves. A reserve is an undistributed gain (past gains that have not been distributed to shareholders). It is an element of shareholders' equity in the balance sheet, whereas a provision is a liability.

Although not relevant to IFRS, under the national GAAPs in some Member States, major maintenance overhauls of assets can be provided for. As regularly maintaining assets can extend the asset's useful life and can save considerable expenditure later

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<sup>15</sup> IAS 38 ¶18

<sup>16</sup> IAS 37 ¶14

on, some commentators say that forcing companies to consider these future overhauls in their accounts makes it more likely that the maintenance will be undertaken.

### 2.1.3 Leased assets

Leasing is another way that companies can obtain resources, where instead of buying assets the company leases them from a company for a defined period of time at a defined rent. From a resource efficiency perspective it is often argued that leasing results in a better use of resources, for example, if in a leasing arrangement the assets are maintained by the lessor (or are required to be maintained by the lessee)<sup>17</sup> to a higher standard than they would be with an outright purchase<sup>18</sup>. This would mean that the leased assets may last for a longer period, or in some instances consume less energy and other resources in their operation.

A case is also often made that as leasing companies are specialists they will have greater incentives to build more durable assets, as well as more resource efficient ways of managing leased assets at the end of the lease. For example, the product may be refurbished and leased again, or may be carefully disassembled to reuse some parts and recycle what remains.

## 2.2 Different accounting rules for EU companies

As stated in Section 1 (page 7) different accounting rules exist in EU Member States. Of the millions of companies in Europe, it is estimated that only 8,000 are publicly traded or listed on EU stock exchanges<sup>19</sup>.

EU regulations use the terms publicly traded and non publicly-traded instead of the terms listed and not listed. This report adopts the former consistent language.

All EU companies which are publicly traded in the EU have to use IFRS as endorsed by the EU to prepare their **consolidated accounts**<sup>20</sup> in their country of **incorporation** (the country in which the company was legally formed). Consolidated accounts are the combined financial statements of a parent company and its subsidiaries. For example, the largest EU-based company, Royal Dutch Shell<sup>21</sup>, prepares consolidated accounts under the law of the UK where it is incorporated. As it is listed on stock exchanges in London, Amsterdam and New York its consolidated accounts must follow EU-approved IFRS<sup>22</sup>.

Article 5 of the 'Council and European Parliament Regulation (EC) No 1606/2002 on the application of international accounting standards' allows Member States to permit or require the **unconsolidated accounts** (i.e. accounts of a company without showing the individual assets and liabilities of that company's subsidiaries) of publicly traded companies and the accounts of non publicly-traded companies (at a consolidated or unconsolidated level) to be prepared using EU-approved IFRS. Different EU countries have adopted varying approaches. With the exception of Cyprus (where IFRS is compulsory for all companies), all other EU countries have their own

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<sup>17</sup> The Lessor is the company that owns the asset and leases them to another company. The lessee is the company that leases the assets from the lessor.

<sup>18</sup> Wei, Q. and R. Burritt, (2011) 'Lease and service for product life-cycle management: an accounting perspective', *International Journal of Accounting and Information Management*, Vol. 19 Issue 3, 2011, pp.214 – 230.

<sup>19</sup> Nobes, C. 'Accounting Classification in the IFRS Era', *Australian Accounting Review*, No. 46, Vol. 18, Issue 3, 2008, pp.191-198.

<sup>20</sup> Article 4 of the Council and European Parliament Regulation (EC) No 1606/2002 on the application of international accounting standards states that requires 'for each financial year starting on or after 1 January 2005, [publicly] companies governed by the law of a Member State shall prepare their consolidated accounts in conformity with the international accounting standards.'

<sup>21</sup> PwC. *Global Top 100: Companies by market capitalisation*. 2013.

<sup>22</sup> Royal Dutch Shell. *Building and Energy Future: Annual Report, Royal Dutch Shell plc Annual Report and Form 20-F for the year ended December 31, 2012*. 2013.



separate national GAAPs which are often used for non publicly-traded companies and for the unconsolidated accounts of publicly traded companies.

A subset of the non publicly-traded companies are Small and Medium-sized Enterprises (SMEs). The International Accounting Standards Board (IASB)<sup>23</sup> has developed a shorter set of accounting rules for SMEs, called IFRS for SMEs<sup>24</sup>. Some countries, such as Argentina, Jamaica, Peru and South Africa, have adopted or adapted IFRS for SMEs for all unlisted companies. In the EU, IFRS for SMEs with some adjustments has been adapted as the basis of national GAAP in several member states (e.g. Malta, the UK and Ireland) but this is not required by EU legislation.

Therefore, as national GAAPs are often very different from IFRS rules this study considers both the IFRS rules and a selected number of national GAAPs.

### 2.3 Choice of Member States to analyse

As well as the IFRS rules, in order to understand the full breadth of accounting rules for the accounting topics identified in Section 1.3 (page 9) the differing accounting rules in all 28 EU Member States would need to be analysed. A way of bounding the analysis is to restrict the number of countries reviewed, relying on an accounting classification that supports the selection of a representative set of countries. Different types of groupings exist, but one that seems to satisfy the requirements of this study is the Nobes<sup>25</sup> classification, which splits countries into two main ways in which their companies finance investments, leading to two main types of accounting system:

- Class A – ‘strong equity’ countries, characterised by many equity investors and numerous companies that use stock markets to raise money. This leads to accounting rules designed for outside investors, a large auditing sector and a separation of accounting and tax rules (so that accounting choices are not influenced by tax policy and tax rules);
- Class B – ‘weak equity’ countries, characterised by fewer equity investors and companies that rely more on banks, governments or founding families to raise money. This leads to a smaller auditing sector and a tax system which dominates accounting rules.

Where investor protection is weak (which is often associated with Type B counties), there tends to be more earnings management, such as **income smoothing** (adjusting the reported revenues and expenses to smooth fluctuations in the income statement, as referred to in Section 1.3.2)<sup>26</sup>.

Using the Nobes classification as illustrated in Figure 1, six EU countries would be placed in the Class A group and 19 would be placed in the Class B group. Romania and Bulgaria were not classified as this grouping was prepared in 2008 and they had only

**Figure 1: A two group accounting classification**

Class A - strong equity		Class B - weak equity				
▪ Cyprus	▪ Netherlands	▪ Austria	▪ Estonia	▪ Greece	▪ Lithuania	▪ Slovakia
▪ Denmark	▪ United Kingdom	▪ Belgium	▪ Finland	▪ Hungary	▪ Luxembourg	▪ Slovenia
▪ Ireland		▪ Czech Republic	▪ France	▪ Italy	▪ Poland	▪ Spain
▪ Malta			▪ Germany	▪ Latvia	▪ Portugal	▪ Sweden

Source: Nobes, C. ‘Accounting Classification in the IFRS Era’, *Australian Accounting Review*, No. 46, Vol. 18, Issue 3, 2008, pp.191-198.

<sup>23</sup> The IASB is the independent standard-setting body of the IFRS Foundation.

<sup>24</sup> IFRS for SMEs. <http://www.ifrs.org/IFRS-for-SMEs/Pages/IFRS-for-SMEs.aspx>

<sup>25</sup> Nobes, C. ‘Accounting Classification in the IFRS Era’, *Australian Accounting Review*, No. 46, Vol. 18, Issue 3, 2008, pp.191-198.

<sup>26</sup> Leuz, C., Nanda, D. and Wysocki, P.D. ‘Earnings management and investor protection: an international comparison’, *Journal of Financial Economics*, Vol. 69, 2003, pp.505-527.




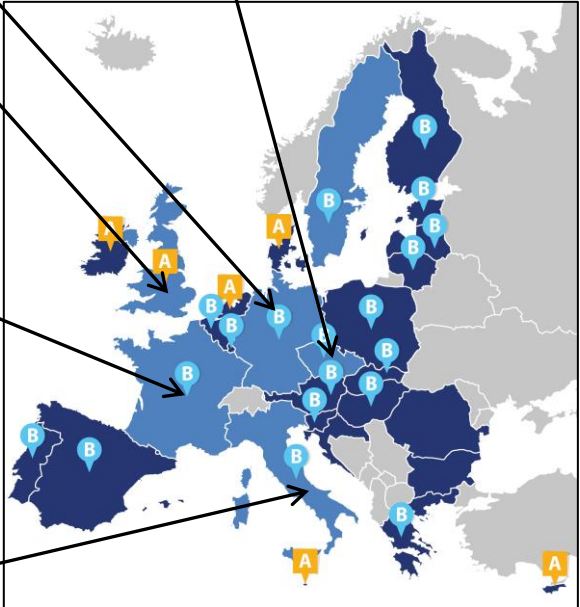


recently joined the EU. Croatia was excluded as it had yet to join the EU. Had they been classified they would probably have been put into Class B.

The IFRS rules would also be classified as Class A. This report has selected five European countries that show a breadth of different accounting approaches and also cumulatively cover more than 55% of the EU population; one Class A country (United Kingdom) and four Class B countries (Czech Republic, France, Germany and Italy).

It is possible for a country to change its financing system. This happened dramatically in China from the 1990s. Accounting change has followed. It is also possible for a country to decide to change its accounting system even though its financing system has not changed much. In several EU countries (e.g. Germany and Italy), there have been changes towards IFRS accounting in recent years.

The detail about the different accounting approaches is summarised in Figure 2 with further information about the accounting systems in these five countries and the different names given to the financial statements that need to be prepared in each country included in Appendix 3.

**Figure 2: Choice of EU countries to analyse, and two group accounting classification**

<p><b>Germany</b></p> <p>GDP per capita / EU28 rank Population of EU (%)</p> <ul style="list-style-type: none"> <li>• Unconsolidated traded</li> <li>• Non-traded consolidated</li> <li>• Non-traded unconsolidated</li> </ul>	 <p>€31,500 / 7<sup>th</sup> 15.9%</p> <p>German GAAP IFRS or German GAAP German GAAP</p>	<p><b>Czech Republic</b></p> <p>GDP per capita / EU28 rank Population of EU (%)</p> <ul style="list-style-type: none"> <li>• Unconsolidated traded</li> <li>• Non-traded consolidated</li> <li>• Non-traded unconsolidated</li> </ul>	 <p>€20,700 / 17<sup>th</sup> 2.1%</p> <p>IFRS IFRS or Czech GAAP Czech GAAP</p>
<p><b>UK</b></p> <p>GDP per capita / EU28 rank Population of EU (%)</p> <ul style="list-style-type: none"> <li>• Unconsolidated traded</li> <li>• Non-traded consolidated</li> <li>• Non-traded unconsolidated</li> </ul>	 <p>€26,900 / 11<sup>th</sup> 12.6%</p> <p>IFRS or UK GAAP IFRS or UK GAAP IFRS or UK GAAP</p>		
<p><b>France</b></p> <p>GDP per capita / EU28 rank Population of EU</p> <ul style="list-style-type: none"> <li>• Unconsolidated traded</li> <li>• Non-traded consolidated</li> <li>• Non-traded unconsolidated</li> </ul>	 <p>€27,700 / 10<sup>th</sup> 13%</p> <p>French GAAP IFRS or French GAAP French GAAP</p>		
<p><b>Italy *</b></p> <p>GDP per capita / EU28 rank Population of EU (%)</p> <ul style="list-style-type: none"> <li>• Unconsolidated traded</li> <li>• Non-traded consolidated</li> <li>• Non-traded unconsolidated</li> </ul>	 <p>€25,600 / 12<sup>th</sup> 11.8%</p> <p>IFRS IFRS or Italian GAAP IFRS or Italian GAAP</p>		

\* For Italian insurance companies and some financial companies there are some different rules for unconsolidated traded and non-traded companies (which could be consolidated or unconsolidated accounts). Also, non-traded SMEs have to use Italian GAAP.

**Sources:** 2012 GDP per capita at Purchasing Power Parity and population from Eurostat, Nobes<sup>27</sup> and [http://ec.europa.eu/internal\\_market/accounting/docs/ias/ias-use-of-options\\_en.pdf](http://ec.europa.eu/internal_market/accounting/docs/ias/ias-use-of-options_en.pdf)

<sup>27</sup> Nobes, C. 'Accounting Classification in the IFRS Era', *Australian Accounting Review*, No. 46, Vol. 18, Issue 3, 2008, pp.191-198.

## 2.4 Accounting rules versus accounting practice

IFRS rules are more than 3,000 pages long and are more detailed than all EU national GAAP rules. Nevertheless, there are still many IFRS accounting areas on which choices are possible. These choices are either:

- overt, clearly defined choices (i.e. IFRS rules allow companies to choose between two or three options on some topics so long as their approach remains consistent);
- covert, where because the IFRS language is vague or open to different interpretations a number of varying approaches can be adopted, all being in conformity with the IFRS standards.

In addition there are areas where estimates need to be made, which can introduce a variable level of subjectivity. The IFRS rules relevant to resource efficiency where there are overt choices, covert choices and estimations are summarised in Technical Table 1 in Appendix 4.

This means that IFRS as practised in, say, Germany will be quite different from IFRS as practised in the Netherlands.

Ideally it would have been beneficial to understand what companies in Member States do in practice (whether they use EU-endorsed IFRS or national GAAP) when faced with these overt choices, covert choices and measurement estimates. However, this would require very detailed surveys of companies of different sizes in different Member States and an understanding of all the overt choices, covert choices and measurement estimates allowed by national GAAPs. Three overt choices in the area of resource efficiency have been identified and are shown in Figure 3. As there has been research on what companies that comply with IFRS tend to choose when faced with the first two of these overt choices (valuing tangible assets and intangible assets) this report provides some of these findings.

**Figure 3: Overt choices in IFRS that are relevant to resource efficiency**

Valuing tangible assets	Cost or 'fair value' (the sale or purchase price in an orderly transaction between market participants) measurement basis for classes of property, plant and equipment and for investment property.
Valuing intangible assets	Cost or fair value measurement for some rare types of intangible asset.
Government grants for investment	Either reduce the value of the asset by the amount of the grant (which reduces the depreciation expense in subsequent periods) or create a deferred income liability which is released to the income statement over time. Both methods effectively spread the benefit of the grant over the life of the asset.

## 2.5 Literature sources

To be encompassing, a structured approach was adopted that involved reviewing 17 key accountancy journals over the last 10 years. Appendix 5 provides further information, explaining which journals were reviewed, what keywords were used in the search, how articles were selected, and when there were few results, how further relevant articles were found.

## 2.6 Stakeholder engagement process

It was decided to try to engage with four types of constituents, notably the rules setters, the companies that have to apply the accounting rules, the users of financial accounts (most notably banks and analysts) and think tanks. Over 30 entities were approached, with over half of these being companies. Appendix 6 summarises the entities with which discussions were held. As the area of resource efficiency is new it

must be emphasised that some of these discussions represented the personal views of staff, rather than the formal consideration of the entity.

Although more than 15 companies were approached only five meaningful discussions were possible, with some other respondents saying they were interested in the work, but at this point had not given sufficient thought to the topic. Other respondents said they didn't see links between resource efficiency and accounting.

► **Recommendation**

**Given the importance of resource efficiency, it is advised that once the results of this work have been disseminated, further engagement with companies of various sizes is undertaken.**

## **2.7 Approach to analysing the accounting issues**

Sections 3, 4 and 5 analyse each of the three accounting topics in detail, namely assets, provisions and leasing. Each Section is split into an overview of the accounting rules, before referring the interested reader to individual appendices which include the detailed 'Technical Tables' that summarise the IFRS accounting rules for that Section and compare the IFRS rules to the GAAPs in the Czech Republic, France, Germany, Italy and the UK.

In the appendix on assets (Appendix 7) two of the 'Technical Tables' are followed by other 'Technical Tables' that analyse what approach companies that adopt IFRS choose in practice when offered with two of overt IFRS choices that were discussed in Section 2.4; namely valuing tangible and intangible assets.

Each Section then addresses a few issues on that topic that particularly impact on resource efficiency, drawing on the academic literature and feedback from the stakeholders. Relevant case studies are presented, based on examples given by companies and academic articles about companies' resource efficient investment decisions.

### 3. Assets

One of the most visible manifestations of resource use is in the tangible assets that companies own or use (e.g. the factories, the offices and the machines). However, the intangible resources that companies use are also important. These intangibles could give the owner the right to use resources (like a licence or permit), could involve research and development to search for new ways of reducing resource use, or could include the brand value of a company it acquires that places a big emphasis on sustainability and resource efficiency.

This section is split into five main subsections that consider tangible assets, intangible assets, impairments, government grants and the special case of valuation in extractive industries.

#### 3.1 How are tangible assets valued?

In IFRS and all the other GAAPs reviewed, these assets are initially valued at their initial purchase price and recorded on the balance sheet, with different standards allowing or not allowing other costs to be included, e.g. refurbishment costs<sup>28</sup>.

After the initial investment, there are two main approaches to valuing assets over their useful lives – the first is called the **cost model**, and the second is called the **revaluation model**. In the former, the asset is valued at its original cost less any accumulated depreciation and accumulated impairment losses.

Depreciation involves subtracting the estimated **residual value** (the value the asset can be sold for at the end of its useful life) from the total cost of purchasing the asset and allocating this difference over the asset's useful life in a profile that reflects its resource use. In Box 3 on page 13, the asset is assumed to have no residual value so the annual depreciation charge is €100<sup>29</sup>.

In the revaluation model, after the initial investment the asset is regularly revalued to its 'fair value' which IFRS defines as the '*price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date*'<sup>30</sup>. This value is determined from market-based evidence (such as the quoted prices of second hand assets) or by a professionally qualified valuer.

Except for land (and for investment property buildings valued with the revaluation model), both of these models involve depreciation. Also, whether or not the cost or revaluation model is adopted, there is also a need to check for impairments which, as explained in Section 2.1 (page 14), are checks on whether there is a need to reduce the asset value to even lower than the depreciated amount.

IFRS rules allow either the cost model or the revaluation model, as does UK GAAP. However, Czech, French and German GAAPs do not allow revaluation, and Italian GAAP only allows revaluation in very special circumstances, such as very high inflation<sup>31</sup>. Nevertheless, even though IFRS rules allows the revaluation or cost model for valuing tangible assets in practice (except for investment property) in only one of the five selected Member States (the UK) do companies sometimes use the revaluation model for valuing most assets<sup>32</sup>. One reason for this is that revaluing assets is a time consuming and costly process. It is somewhat more common to value

<sup>28</sup> See in Technical Table 2 of Appendix 7 for a full description of the differences.

<sup>29</sup>  $(€1,000 - €0) / 10$

<sup>30</sup> IAS 16 ¶16

<sup>31</sup> See in Technical Table 2 of Appendix 7 for a full description of the differences.

<sup>32</sup> See Technical Table 3 in Appendix 7 for further details of the common practices, which also includes an analysis of investment property where the common practices do differ with more companies using the revaluation model.

investment property at fair value, but such assets are generally confined to the financial sector.

### **3.1.1 Which parts of an asset's cost are capitalised in the balance sheet?**

As explained in Box 3 (page 13), when a cost is recorded in the balance sheet and not immediately in the income statement this is called capitalisation. For example, IFRS and all the national GAAPs reviewed allow or require the costs of transporting and installing the asset to be capitalised. Accounting rules about whether an investment's cost should be immediately expensed or capitalised can have an impact on an investment decision if there are other decision factors apart from which has the highest NPV. For example, even though one investment may have a higher NPV (i.e. generates more cash over the project life), if a second choice creates a different profile of profits (which as explained in Box 3 are often unrelated to actual cash flows) which are less variable this may be preferred if companies are averse to having to report losses in any years, or are averse to having large variations in profits as some companies believe that lenders and financiers prefer to see companies that have steady income growth, rather than large swings in reported profitability. As stated in Section 2.3 (page 16), the process of using accounting in an attempt to avoid volatility in profits is called income smoothing.

#### **3.1.1.1 Can decommissioning costs be capitalised?**

IFRS and two of the national GAAPs (France and UK) also require that the estimated costs for decommissioning the asset is capitalised in the asset value. This means that the capitalised asset value is higher, and in each following period a larger expense, commonly a depreciation expense, is needed to write off the higher asset value. From a resource efficiency perspective this is sensible, as the estimated costs of decommissioning do need to be included in a company's accounts where it knows it will have to decommission the asset at the end of a defined period.

#### **► Recommendation**

**In those GAAPs where decommissioning costs cannot be capitalised, thought should be given to making it a requirement.**

#### **3.1.1.2 Can repair and refurbishment costs be capitalised?**

Figure 4 provides a hypothetical example about investing in a new asset which can be capitalised or repairing / refurbishing an old asset, which is assumed to result in an equally productive asset, require fewer resources, be cheaper to do (i.e. generate a higher NPV or have a lower net present cost if there are no cash inflows) but needs to be expensed. To simplify the example it is assumed there is no tax. To avoid having to report an accounting loss in the first year in Scenario 2 the company buys a new asset, which is not only more costly, but is not as resource efficient as a repair.

#### **► Recommendation**

The example given is a simplification, as IFRS and many GAAPs would allow companies to capitalise a major repair such as this<sup>33</sup>. Out of the five countries' national GAAP analysed only the Czech Republic disallows the capitalisation of major repairs, **so the Czech Republic and other Member States in the same situation could consider changing their national GAAPs to allow the capitalisation of major repairs.**

<sup>33</sup> See Technical Table 2 in Appendix 7, which shows that out of the five Member States analysed only the Czech Republic does not allow the capitalisation of major repairs.

**Figure 4: Example of different investment choices driven by the desire to avoid having to report losses**

	Scenario 1: Company making a profit of €7 million before the project	Scenario 2: Company making a profit of €3 million before the project
<p><b>Project giving extra net revenues of €4m for 5 years</b></p> <ul style="list-style-type: none"> <li>New asset cost €15m depreciated over 5 years (€3m/year)</li> <li>Repair cost €8m</li> </ul>	<ul style="list-style-type: none"> <li>If the asset is depreciated on a straight line basis Year 1 profits would be increased to €8m (€7m + €4m - €3m)</li> <li>Profit of €3m (€7m + €4m - €8m) in Year 1 as all costs expensed</li> <li>▶ <b>Choice to repair as no loss and lower net cost</b></li> </ul>	<ul style="list-style-type: none"> <li>If the asset is depreciated on a straight line basis Year 1 profits would be increased to €4m (€3m+€4m-€3m)</li> <li>Loss of €1m (€3m+€4m-€8m) in Year 1 as all costs expensed</li> <li>▶ <b>Choice to buy so do not report a first year loss</b></li> </ul>

### 3.1.1.3 Can training costs or lost profits be capitalised?

IFRS and other GAAPs do not allow the capitalisation of any costs incurred (e.g. lost profits) in temporarily shutting down operations in order to install the new asset nor costs such as training staff to operate the asset. For some investments (e.g. installing a new boiler and heating system) both of these costs can often be significant. If these costs are large and annual profits are low, then in order to smooth income and avoid big swings in reported profits companies may decide against investment in a resource efficient project, even though from a DCF analysis the project would pass, give high returns and reduce wastage. This point is similar to the discussion in Figure 4.

#### ▶ Recommendation

The cash flow implications of either capitalising or expensing lost profits and training costs are identical – the only change is in timing of profits. Whereas a case can be made that refurbishments should be capitalised, it is not recommended that accounting rules allow the capitalisation of training costs or lost profits as the asset value has not been increased. For example, if it took one company one day to shut down a factory in order to install a new resource efficient machine, and another company 10 days, it would seem incorrect for the second company to capitalise the 10 days of lost profits. **Changing accounting rules to allow for lost profits to be capitalised would create many unintended consequences such as companies being able to smooth income, so is not recommended.**

From a practical standpoint many companies often want to keep asset values low and prefer to expense as many costs as possible when the asset is installed, assuming that this is also the tax treatment. Also, lower asset values mean there is lower depreciation in future years, this leads to higher profits in the future and higher reported Return on Investment figures<sup>34</sup>.

### 3.1.1.4 Can future resource efficiency savings be capitalised?

Another related issue is whether an asset should be revalued above its cost in order to reflected expected efficiency savings. For example, companies have options to invest money in new energy or water-efficient technologies, or in some cases to refurbish existing machines to become more energy or water-efficient. As an illustration, a new

<sup>34</sup> Return on Investment is commonly used by companies to evaluate the profitability of projects and measures profits divided by the asset value.

energy efficient boiler will save fuel costs. The costs of purchasing the boiler are capitalised, as would the costs of any major repair / refurbishment in most Member States. The question is whether the future fuel savings in excess of the costs could be also added onto the boiler's asset value as this could make it easier to secure internal approval for a project or external finance? So instead of valuing the asset at its cost price (e.g. €1,000), can the discounted value future energy savings (e.g. €200 per year) over the life of the boiler (e.g. 20 years) be added to the asset value?

As explained in Section 3.1, in Czech, French, Italian (with the very rare exceptions) and German GAAP there would be no way these resource efficiency savings could be capitalised. Even in IFRS and UK GAAP, and adopting a fair value approach, if there was a second hand market in energy efficient boilers of a similar type the future energy savings would not be valued. Rather the asset would be revalued to a price similar to the second hand prices. The only cases where it could be theoretically possible to value future resource efficiency savings would arise where there was no comparable value for an asset (which could happen with highly specialised customised machines). In these instances a professional valuer would estimate the value, and the valuer may take account of future savings. Even so, it seems unlikely that an asset's value would rise much more than the cost of the improvements.

► **Recommendation**

In theory future resource efficiency savings could be capitalised under IFRS, UK GAAP and Italian GAAP (under very rare circumstances) if the assets are highly specialised and have no second hand market. However, most assets do have a second hand market price or an estimate can be made from comparable assets so in practice there are rare instances where future resource savings could be capitalised.

Even if the resource efficiency savings could be capitalised, companies are unlikely to choose to capitalise them as most companies in Europe choose a consistent valuation policy for all assets (or all assets except investment property and financial products) and therefore would not single out resource efficiency savings for special treatment<sup>35</sup>. Also as stated in Section 3.1.1.3, unless companies want to smooth income, the impact of increasing the asset value would be to increase the depreciation expenses, thereby offsetting the future energy savings.

**Therefore, it is not recommended that any changes are made to rules,** especially as evidenced in Section 3.1.2 whether or not the future energy savings can be capitalised will often not concern companies as investors and financiers will normally look at more than just published accounts. For example, for major assets lenders will often employ a professional valuer.

**3.1.2 How can tax practices affect the reported values of assets in accounts?**

As summarised in Figure 1 (page 16), accounting systems can be classified into two types – Class A (like IFRS) where accounting and tax rules are separated and Class B where the tax system dominates accounting practices. The implication of a tax system dominating (or even being the same as) the accounting rules at the national GAAP level is that companies' accounts will mirror the tax rules, especially if there are special tax incentives. The side effect is that tax rules will influence the reported asset values rather than following the consumption pattern of assets. This means that the value of resources is not being accurately measured, which means decisions could be made that are not resource efficient. Although the effects of different tax rules and incentives are excluded from the main part of this report, this is a separate point that merits consideration as it is about how taxation rules can influence reported accounts.

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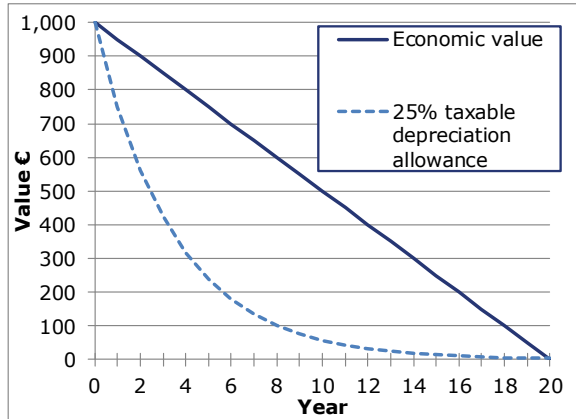
<sup>35</sup> See Technical Table 3 in Appendix 7.



Figure 5 provides an illustration of accelerated taxable depreciation allowances, where tax rules allow assets to be depreciated more quickly than the actual resource usage of the asset would suggest.

**Figure 5: The effects of accelerated taxable depreciation allowances on reported asset values**

Assume that an asset costs €1,000 to buy and is expected to last for 20 years. It is also assumed that tax rules allow an annual depreciation expense of 25% per year (on a declining balance basis), so that at the end of the first year there would be a taxable depreciation expense of €250 that would reduce the taxes paid in that year.



If accounting rules follow tax rules, then the accounts would value the asset at €750 at the end of the first year, and €562.50 at the end of the second year. If instead accounting rules are separate (as required by IFRS), and the accounting policy is to depreciate assets over their useful lives on a straight line basis, each years' accounting depreciation expense would be €50, so the asset would be reported at €950 at the end of the first year and €900 at the end of the second year.

A possible implication of accounts mirroring tax rules is that if banks only rely on the companies' accounts and the reported value of assets (such as machinery) they may be unprepared to lend to a new very profitable and very resource efficient project even though the machinery may actually be in a good condition and very valuable.

► **Recommendation**

As explained in Section 6.1 (page 55) low taxes or accelerated depreciation taxation policies can encourage investment as they allow a company to pay less tax (or at least less tax early on where there are accelerated depreciation taxation policies) and therefore generate more cash earlier. The economics literature shows that such policies are effective. A quite separate issue is the effect of this on accounting.

Although there may be a perception that if the tax system dominates (or is the same as) the accounting rules, companies may find it hard to secure money from banks, in practice some investors and financiers understand accounting rules in the countries in which they operate and delve deeper than just looking at published accounts. Box 4 overleaf provides further detail about how banks and analysts typically evaluate investment propositions derived from conversations with stakeholders and from academic literature. This provides evidence that many factors apart from the published accounts are considered in making the lending or investment choices.

Like many banks and analysts, companies are unlikely to worry about whether the accounting system is tax-based or not, as they will normally evaluate projects using the DCF methodology (explained in Box 2 on page 10).

**Therefore, changing the fundamental basis of GAAP accounting in tax-dominated accounting system is not recommended,** especially as even in countries where accountancy and tax rules are separate, there can still be large variations between the true economic asset value (i.e. fair value) and the reported asset value if the cost model approach to valuation is adopted in practice<sup>36</sup>.

<sup>36</sup> See Technical Table 3 in Appendix 7 for further information

**Box 4: Analysis of how banks and analysts evaluate investment propositions**

When banks lend money they want to ascertain the probability of being repaid the money. When analysts evaluate companies they are deciding whether their company or their clients should invest in another company, or use the company to compare to other companies in the sector. Although analysts will sometimes evaluate companies that are not publicly traded, they will tend to focus on companies listed on European stock exchanges, which will prepare consolidated accounts using EU-IFRS.

**Bank decisions**

Banks normally lend to companies in the same country and so will be aware of the national GAAP in that Member State, and whether or not the company adopts IFRS rules or the national GAAP. Thus, when they analyse a company's accounts they will know if the tax system dominates the accounting system, and where required, will often make adjustments themselves. They are also likely to question if there have been large changes in numbers; especially if there have been asset revaluations or large changes in intangible assets. At times banks do not even look at intangibles.

When they lend to larger companies as well as the accounts they will tend to also include factors such as the experience and track record of management, information about what the loan will be used for and the companies' track records of repaying previous loans. When they lend to smaller companies they may not analyse the accounts in as much detail, but rely more on behavioural scoring which looks at the repayment histories of previous loans from the bank. They are also likely to undertake credit checks about the repayment history with other lenders<sup>37</sup>, or approach specialist companies that maintain databases of companies' and individuals' credit histories.

When banks lend money they often require security (collateral) that can be taken back if the loan defaults. If there is security such as the factory a professional valuer will often value the assets at market value rather than relying on the accounts. If loans are not asset-backed, even more importance will be given to cash flow analysis and the ability of the company to service the loan, which is unrelated to the income statement of a company's accounts.

► **Therefore, although the reported accounts play a role, they are only one of the many factors a bank considers.**

**Analyst decisions**

Analysts may be able to obtain less information about a company than a bank and so will use the reported accounts more heavily. This is especially true as they may be analysing companies in many different countries. Nevertheless, a survey by the European Financial Reporting Advisory Group (EFRAG) finds that this accountancy information is very rarely used as the single evaluation factor<sup>38</sup>. Rather, the information is combined with information gained elsewhere in the company's annual reports, from conversations with the company during regular analyst meetings, from other analysts, from credit ratings agencies and from 'softer' information. If listed on European stock markets, as well as the consolidated accounts prepared under IFRS as endorsed by the EU, analysts will often also look at the unconsolidated accounts that are commonly prepared according to the local GAAP.

As with banks, to assess companies analysts will frequently make adjustments to remove many accounting differences, for example to assess the profitability of opportunities they may use the EBITDA (Earnings Before Interest Tax Depreciation and Amortisation) figure which is an approximation of the operating cash flows before any adjustments are made for interest payments or depreciation and amortisation.

► **Therefore, again although reported accounts may play a bigger role for analysts than banks, they are only one of the many factors they consider.**

<sup>37</sup> Irish Banking Federation. *The Credit Rating Process for Business Customers Explained*. 2008.

<sup>38</sup> European Financial Reporting Advisory Group. *The use of information by capital providers: Academic literature review*. 2013.

**However, in these tax-dominated accounting systems because of the possible divergences in asset values, there is an argument for requiring companies to disclose the extent of tax-driven depreciation,** as is already required in some Member States for consolidated financial statements.

### **3.1.3 What are the effects of depreciation rules driven by profitability concerns, rather than actual resource use?**

As explained earlier, nearly all companies measure tangible fixed assets at cost less depreciation and impairment. Even if companies choose to adopt the revaluation model, they will need to depreciate the assets in the income statement between revaluations. Assets should be depreciated over their useful lives, which from a resource efficiency perspective makes sense, as the depreciation policy is an attempt to match the asset value with its wear and tear. Nevertheless, because companies use assets differently (e.g. some may regularly maintain assets to extend their useful lives, whereas others may not), different companies can have different estimates for how long similar assets may last. Case Study 1 shows how the depreciation policy of some of the main European airline operators varies.

#### **Case Study 1: Airline depreciation policies**

Different airlines have different depreciation policies, with many airlines depreciating airplanes over different periods. An analysis of the 2004 and 2005 accounts of major European airlines found depreciation policies ranging from 7 to 25 years. Updating the numbers to the most recent annual report (2013 or 2014) has found greater conformity in a select number of European carriers.

	2004 or 2005 accounts	2013 or 2014 accounts
Air France	20 and some 25 years	20 and some 25 years
easyJet	7 years	23 years
Lufthansa	12 years	20 years
Ryanair	20 and 23 years	23 years

It is noticeable that in 2005 easyJet's depreciation policy was to depreciate assets over their useful life of 7 years, as the Group had a '*policy of using recently manufactured aircraft and, therefore, expects to hold them only for a period of approximately seven years before selling them.*' The variances will be partly down to the fact that different airlines have different types of airplanes or expect to use airplanes more or less frequently. However, there still remains a degree of subjectivity over the numbers.

Sources: Air France-KLM Group. *Consolidated Financial Statements Financial Year Ended December 31, 2013*. July 2014.  
 easyJet plc. *Annual report and accounts 2013*. December 2013.  
 KPMG. *Components of Aircraft Acquisition Cost, Associated Depreciation, Impairment Testing and the Global Airline Industry*. May 2007.  
 Lufthansa Group. *Annual Report 2013: Focused on our way*. April 2014.  
 Ryanair. *Annual Report 2014*. August 2014.

The implications of depreciating assets over shorter periods is that year on year reported profits can be reduced, which could be used for income smoothing purposes. For example, if profits in a period are high, but an airline expects profits to be lower in two years' time, it could say that the useful lives of its airplanes have fallen from 18 years to 15 years, reducing the reported profits in that year (and the following 14 years). Then two years later, when the aircraft only have 13 years of life left, it could say that they will actually have 16 years left (in line with the initial decision) which will spread the remaining asset value over a longer period of time, slightly boosting profits

in those latter years. From a resource perspective nothing has changed, yet analysts looking at a company may be led to believe that significant new investment is required in 15 years' time, rather than 18 years' time. Nevertheless, whilst the company's auditors might accept one change to the depreciation policy it is quite possible that they may not accept a rebasing of depreciation policies two or three years after.

► **Recommendation**

An asset needs to be depreciated over its useful life, i.e. the expected life of the asset in the company. Thus if a company prefers to buy new aeroplanes and after 10 years sell them, then even if the aeroplane has a physical life of 20 years, the company will depreciate the assets over the 10 years, taking account of the expected resale value of an aeroplane in 10 years' time. **Ultimately, within the confines of any legal rules in Member States, it is up to companies to define their best estimate of the useful lives of assets, as it is companies themselves that will use the assets with different levels of intensity and have different maintenance policies, and so no change in accounting rules is recommended.** However, auditors, analysts and lenders need to be alert to the effects of changing asset lives on profits and asset values, especially if there have been erratic changes in depreciation policies.

Further, if assets are built, very often different components of the asset will last for differing periods. For example, aircraft will include the airframe, engines, furnishings and rotating assets. Where there are significant components to an asset, IFRS rules require them to be depreciated separately over their useful lives<sup>39</sup>. In the national GAAPs analysed, this approach of depreciating major components of assets over different periods of time is also either mandatory or optional<sup>40</sup>.

From a resource efficiency perspective it is sensible that if the engines last for a shorter time than the airframe they should be depreciated over a shorter period, as if one single depreciation figure was used the asset value reported in the accounts would not be representative of the actual resource usage of the different aircraft components. **Therefore, in those GAAPs where there is a choice as to whether to depreciate different components of assets over different periods of time, it should be considered to make this mandatory.**

### **3.2 How are intangible assets recognised and measured?**

Intangible assets are defined by IFRS as non-monetary and without physical substance<sup>41</sup>. Examples include licences and quotas, patents and the development phase of research and development (R&D) such as certain investment into software production. IFRS rules go on to say intangible assets are (a) identifiable, (b) controlled by the entity, and (c) have future economic benefit<sup>42</sup>. This means that other intangible resources such as the research phase of R&D, any internally-generated brand values and customer lists are not classified by IFRS as intangible assets. The rules for identifying intangible assets are similar in the GAAPs of the Member States analysed, although there are small differences, with some allowing some of the research expenditure of R&D to be capitalised, or legal costs of setting up a company to be capitalised<sup>43</sup>.

After the initial expenditure, whereas IFRS rules allow the revaluation model for tangible assets, IFRS rules for intangibles (with the exception of unusual intangibles where there is an active market, such as some permits or licences) do not allow the

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<sup>39</sup> IAS 16 ¶43

<sup>40</sup> Technical Table 2 in Appendix 7 provides further information.

<sup>41</sup> IAS 38 ¶8

<sup>42</sup> IAS 38 ¶10

<sup>43</sup> Technical Table 4 in Appendix 7 provides further comparison.

revaluation model, only the cost model. Even then in these unusual cases, in practice companies in the five Member States that adopt IFRS would be very unlikely to use the revaluation model<sup>44</sup>. Most national GAAPs do not allow the revaluation model, stipulating that the cost model must be used<sup>45</sup>. From a resource efficiency perspective this would appear to make sense, as without actual sales very few intangible assets can be reliably revalued and to allow revaluation would open up the possibility of too much subjectivity.

### **3.2.1 When can companies include goodwill in their accounts?**

No accounting rules attempt to value companies (as opposed to some of their assets) at their fair value, for example the company's valuation on stock markets. For companies' market values will constantly vary depending on market sentiment, and it would be a total coincidence if the market value and accounting value were identical. For the large majority of companies which have few or no assets held at fair value, the mismatch between the fair value of the company and the accounting value of the company will often be great. This difference is commonly called internally generated goodwill. As internally generated goodwill is not allowed to be recognised in IFRS or in the national GAAPs of the Member States analysed, this means that if companies are doing well then over time there will be increasingly larger divergences between the asset values in the company's accounts and the value an external investor may be prepared to pay to buy the assets or the whole company<sup>46</sup>.

As more European companies become 'knowledge-based' this issue is becoming more pronounced. Companies that are resource efficient are no exception (e.g. companies that are trying to develop C2C closed-loop manufacturing systems where waste from one part of the manufacturing process is reused, recycled or sold as an input to another manufacturing process). Despite this, as highlighted in Box 4 (page 25) it seems that an inability for companies to ascribe monetary values to brand value, internally-generated goodwill, client lists and research investment in their accounts does not affect a company's ability to raise money, either from banks or the equity markets.

Nevertheless, although internally generated goodwill cannot be included in the accounts, purchased goodwill is included in consolidated IFRS accounts and the national GAAP accounts of the Member States reviewed because an actual transaction has occurred<sup>47</sup>.

#### **► Recommendation**

Resource efficient companies may have a great degree of customer loyalty and brand value which most GAAPs do not allow to be recognised in the accounts as an intangible asset. **However, no changes to existing rules are proposed as there is little indication that being unable to value customer loyalty and brand value harms companies when they are looking for bank loans or seeking to raise money on equity markets, as financiers will look beyond the accounts to understand the company.** Furthermore, it is not clear that any investor would welcome accounting numbers that involve a high degree of estimation.

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<sup>44</sup> Technical Table 5 in Appendix provides further information about valuation practices in Member States.

<sup>45</sup> Technical Table 4 in Appendix 7 provides further comparison.

<sup>46</sup> Ibid.

<sup>47</sup> When a company buys another company, it gains control over all the assets previously owned by the purchased company, including tangible assets, intangible assets (as defined by IFRS) and any other intangible resources which would not be classified by IFRS as intangible assets. Even though, as stated, many national GAAPs do not allow the revaluation of assets owned by the company, when a company buys another company the purchased companies' assets are valued as an estimate of their cost to the buying company, leaving the difference between the purchase price and the fair value of all the net assets as purchased goodwill, typically classified as goodwill in the consolidated statements.

Nevertheless, apart from the transaction costs of reporting information, there is little to be lost by companies recording some of this data in their annual reports within annexes and footnotes to give more business context to their brand strength.

### 3.2.2 How should carbon allowances be valued?

As explained in Box 1 (page 8) when companies invest in a production process they may use some resources they have to pay for, but other resources may be underpriced or not priced at all, imposing external costs on society. For example, in Europe prior to 2005 there were few charges for industries emitting greenhouse gases into the atmosphere. In that year the EU launched the Emissions Trading Scheme (EU-ETS), a market mechanism aimed at reducing emissions from the largest carbon emitters. Each year companies covered by the scheme have to surrender to the national authorities a sufficient number of allowances to cover all their emissions. Some allowances may be issued by Member States to companies for free (e.g. in some sectors exposed to international competition, such as steelworks), but increasingly companies have to buy the allowances.

This has raised a number of accounting issues, in that companies may receive some allowances for free, may purchase other allowances to cover their emissions, and may also engage in trading activity, buying allowances that they hope to sell to other companies at a higher price.

The accounting of allowances was regulated by an IFRS interpretation issued by IASB in 2004<sup>48</sup>, but this was withdrawn in 2005 after complaints over its impracticability. To replace international guidelines, several Member States (such as Belgium, France, Italy and Spain) have released recommendations on how to account for allowances for those companies that adopt the national GAAP of the relevant country.

Therefore, due to a lack of consistency at international level, companies have chosen to report emissions rights in different ways. For example, Figure 6 highlights the great diversity of accounting practices used by the largest EU-ETS emitters of carbon in 2010.

In 2012 the IASB decided to restart its activity on the topic and added a research project on its agenda<sup>49</sup>. Currently the debate about accounting for allowances held for compliance purposes is focused around three main options:

- Option 1: based on the withdrawn IFRS interpretation where companies will present separately an asset (represented by the rights owned) and a liability for the emissions, with the measurement of the liability based on the current market price of the rights;

**Figure 6: Summary of ACCA 2010 survey of EU-ETS top emitters' financial reports**

Granted allowances – measurement on initial recognition	<ul style="list-style-type: none"> <li>▪ Nil value – 31%</li> <li>▪ No disclosure – 23%</li> <li>▪ Fair value – 15%</li> </ul>
Amortisation/ depreciation of emission allowances	<ul style="list-style-type: none"> <li>▪ No disclosure – 69%</li> </ul>
Revaluation of emission allowances	<ul style="list-style-type: none"> <li>▪ No disclosure – 50%</li> </ul>
Measurement of liabilities	<ul style="list-style-type: none"> <li>▪ Cost with balance at market value – 58%</li> <li>▪ No disclosure – 23%</li> </ul>

Source: Association of Chartered Certified Accountants (ACCA). *Accounting for Carbon: Research Report*. 2010.

<sup>48</sup> International Accounting Standards Board. *International Financial Reporting Standards Interpretations Committee (IFRIC) 3 – Emission Rights (Withdrawn)*.

<sup>49</sup> <http://www.ifrs.org/Current-Projects/IASB-Projects/Emission-Trading-Schemes/Pages/Emissions-Trading-Schemes.aspx#>

- Option 2: as proposed by, among others, the French Autorité des Normes Comptables (ANC)<sup>50</sup> where companies present a net asset when rights owned exceed emissions, or a net liability. When an entity has a net liability, this is measured based on the current market price;
- Option 3: based on a proposal by the European Financial Reporting Advisory Group (EFRAG)<sup>51</sup> that is similar to the IFRS proposal, except liabilities are to be measured at the expected weighted average cost of allowances for the year ahead.

### Case Study 2: Different approaches to valuing carbon allowances

#### ENI's approach to valuing carbon permits



ENI is a major integrated energy company that needs to comply with the EU-ETS. In its 2013 Annual Report it states that its approach to valuing carbon permits is for:

*'Costs associated with emission quotas, determined on the basis of the market prices, are recognized in relation to the amount of the carbon dioxide emissions that exceed free allowances. Costs related to the purchase of the emission rights are recognized as intangible assets net of any negative difference between the amount of emissions and the free allowances. Revenues related to emission quotas are recognized when they are sold. In case of sale, if applicable, the acquired emission rights are considered as the first to be sold.'*

This valuation approach is similar to that proposed by the French standard setter and others.

Source: ENI. *Annual Report 2013*. May 2014, p.127.

#### ► Recommendation

As the EU is reducing the number of carbon allowances available, the price of carbon might rise, which will have implications on companies' investment decisions and should encourage companies to invest in energy efficient technologies. **Therefore, to provide clarity to companies it is desirable that the IFRS concludes the project in the three next years, and that national GAAPs then follow a similar approach.**

### 3.3 Do impairments match the reduction in the value of resources?

Irrespective of whether companies adopt the cost model or revaluation model there is also a need to check whether the asset has been subject to an impairment, which, as explained in Section 2 (page 14), will reduce its value below its depreciable value. For example, assets may be damaged in a flood or by accident, or they may be worth less because of a downturn in economic conditions. From a resource efficiency perspective this makes sense.

IFRS rules state that an impairment calculation is necessary if there is any reason to believe that the asset is economically or physically damaged<sup>52</sup>. If so, the asset should be checked to see whether the recoverable value of an asset is lower than the value it is reported at. If an impairment is needed, an impairment expense is put through the income statement in that year, reducing the reported profits in that year.

The recoverable amount of the asset is the higher of its value in use (which requires a DCF analysis explained in Box 2 (page 10) if the time value of money is material to

<sup>50</sup> Autorité des Normes Comptables (ANC). *Proposals for Accounting of GHG Emission Rights reflecting companies' business models*. May 2012.

<sup>51</sup> European Financial Reporting Advisory Group. *EFRAG comment paper – Emission Trading Schemes Feedback Statement*. May 2013.

<sup>52</sup> See Technical Table 6 in Appendix 7.

calculate the NPV) or its fair value minus the cost of selling the asset. Normally, the projected NPV is higher than the fair value of the asset minus the cost of selling it, so the NPV is the relevant recoverable amount. Since this takes account of future flows, an impairment is therefore not normally necessary for temporary problems.

If after an impairment the reason for it no longer exists then IFRS and most GAAPs require the asset to be revalued to the pre-impairment value, but no higher<sup>53</sup>.

As with depreciation, in countries where tax and accounting are closely linked, and where impairments are tax deductible, there could be a tendency for companies to charge excessive impairments.

► **Recommendation**

Using the example of an asset damaged by flooding, from a resource efficiency perspective the various approaches to checking for, and undertaking, impairments appear to match the reduction in the value of resources. However, **in countries where tax and accounting are closely linked a case can be made for the national GAAP to require footnotes justifying the impairment to guard against impairments being used to manage tax liabilities.**

### **3.4 How are EU and government grants for investment in resource efficient assets accounted for?**

As well as offering tax incentives to invest in low emission vehicles and other resource efficient technologies, the EU and governments also sometimes offer grants for investment in resource efficient assets. IFRS rules are that although the government may have given a company money, the grant can only be recognised in its income statement and balance sheet when *'there is a reasonable assurance ... the entity will comply with the conditions attaching to them'*<sup>54</sup>. Further, IFRS rules stipulate that, even from the date the grant can be recognised, the company is not allowed to include it in the income statement at its full value (increasing the reported profitability in that year) if the grant is intended to pay for an asset that will have a useful life of more than one year. Instead the company needs to choose one of two approaches:

- the income approach, where a grant is recognised as deferred income and released over the life of the asset;
- the capital approach, where the grant is deducted from the asset value, so that subsequent depreciation expenses are smaller<sup>55</sup>.

The national GAAP rules in four of the five Member States reviewed are similar to IFRS, although some stipulate that only the capital or only the income approach can be used<sup>56</sup>. However, larger companies in the UK that adopt UK GAAP have to select one of two approaches:

- an approach similar to the IFRS income approach;
- to record the full value of the grant in the income statement in the year the conditions for grant are met.

This second UK GAAP approach is similar to the IFRS for SMEs rules (see Section 2.2 on page 15)<sup>57</sup> which require grants to be fully recognised in the income statement in the period the conditions for the grant have been met.

Case Study 3 illustrates the effects on a company's accounts if it selects the income approach, the capital approach or records the full value of the grant upfront (labelled

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<sup>53</sup> Ibid.

<sup>54</sup> IAS 20 ¶18

<sup>55</sup> IAS 20 ¶13

<sup>56</sup> See Technical Table 7 in Appendix 7.

<sup>57</sup> IFRS for SMEs ¶24.4

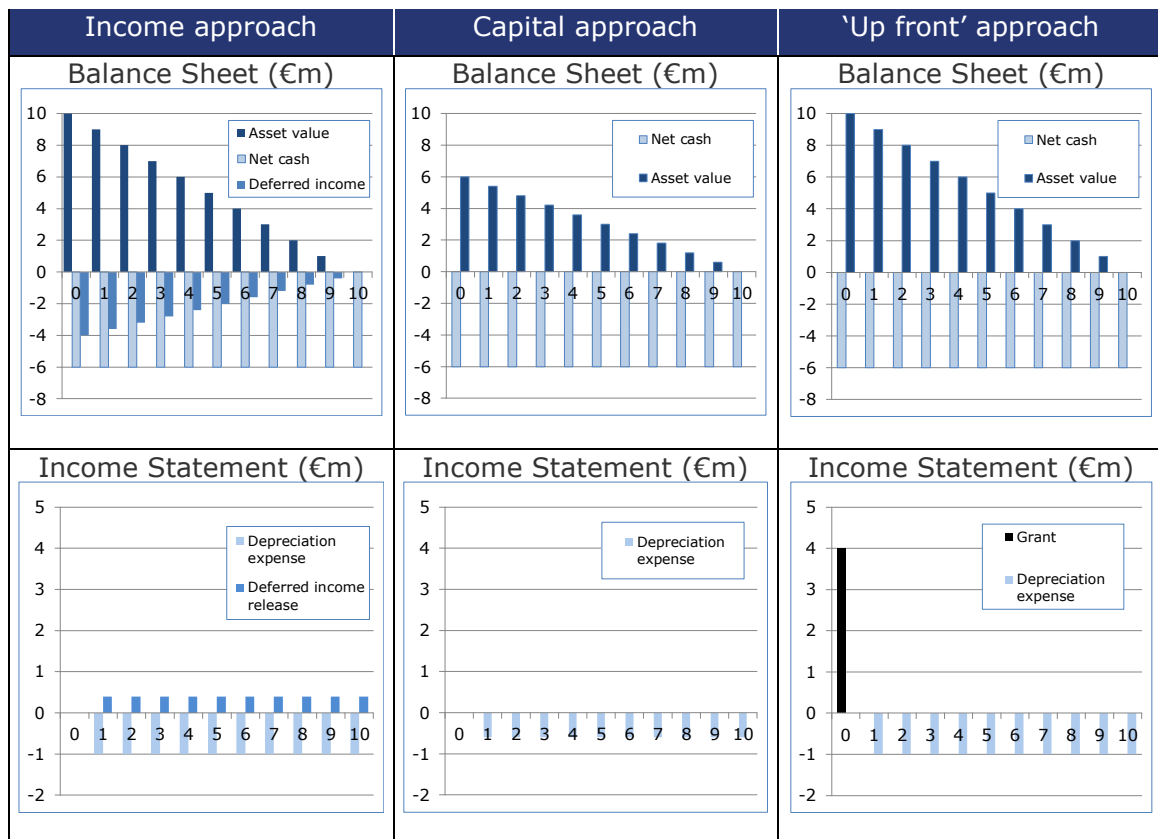


**Case Study 3: Effects of different accounting rules for government grants**

It is assumed that a standard boiler for a factory would cost €5 million to buy and will last for 10 years, but there are new boilers on the market which are much more energy efficient. However, as the new boilers use technology that is at an early stage of development they cost €10 million, and also last for 10 years. In order to incentivise companies to invest in these new boilers the Government determines that a grant of €4 million would be sufficient for some companies to decide to purchase the new boilers. The conditions of the grant stipulate that the grant is paid on receipt of an invoice from manufacturers specialising in the new boilers.

Depending on the accounting rules adopted by the company there are three different ways of presenting the grant in its balance sheet (showing the assets and liabilities) and its income statement, illustrated in the following diagram:

- The income approach where the grant is released over the 10 years as a release of deferred income;
- The capital approach where the grant is effectively released over the 10 years as a reduction in the annual depreciation expense;
- The 'up front' approach where the grant is released to the income statement when the conditions for the grant are met (i.e. in this example when the asset is bought).



As can be seen, with the income approach and the capital approach the net effects on the income statement are the same (even though there are additional headings with the income approach), but the income statement looks very different with the 'up front' approach.

the 'upfront' approach). As can be seen, the net effects on the income statement under the income approach and capital approach are identical, but the upfront approach speeds up the recognition of income by releasing the grant to the income statement upfront. There are also different results in the balance sheets.

As there will be a difference between when the grant cash receipt is recorded in the accounts and when the profits from the grant can be realised the IFRS standard says it is common for companies to report the cash received from grants in a separate item in the cash flow statement<sup>58</sup>.

#### ► **Recommendation**

There are different views on whether grants should be recognised in the income statement over time or immediately once various conditions have been met – one view is that as the grants are offered for a resource efficient asset that will presumably last for a number of years the benefits of the grant should be spread over the life of the asset. The other view is that allowing companies to show all the benefits of the grant upfront in their income statement will further encourage them to invest, and after all governments want grants to have maximum impact. **It is therefore recommended that this issue is considered further, as spreading the grant over the life of the asset can be seen to 'blunt' the effect of the grant.**

As a second recommendation, if it is decided to stick to current rules of spreading the cost of the grant over the life of the asset, then maybe the income approach is more realistic, for the capital approach reduces the asset values. A case can be envisaged where a company buys an energy efficient machine at a cost of €5 million and shortly after the government introduces a grant of €2 million to buy similar machines. If it buys a second machine it may not be clear to analysts why one may be reported at close to €5 million in the company's balance sheet, but the other identical one at €3 million.

### **3.5 Extractive industries: special considerations**

The extractive mining industries are heavy users of resources, whether the resources are used for drilling, extracting the minerals or processing them. In IFRS there is flexibility about the accounting practices that extractive industries should follow, especially at the exploration and evaluation stages. This is because the IASB has not finished its long-running project on writing the rules for these stages.

Appendix 8 explains the intricacies of the IFRS Standard, and the many options it permits. The uncertainty with the IFRS Standard is exacerbated further as it gives companies the option of choosing the accounting policies they used before the IFRS Standard was introduced as long as the method is relevant and reliable<sup>59</sup>. For instance, a PwC report shows a real variety of approaches with some companies capitalising all the exploration and evaluation costs and others expensing them<sup>60</sup>. In addition, outside the United Kingdom, where UK GAAP broadly follows IFRS Standard, Member States GAAPs have little guidance on the extractive industries<sup>61</sup>.

#### ► **Recommendation**

The IFRS standard was only intended to be transitional until full standards were developed and in 2012 the IASB effectively subsumed the project into a wider project about intangible assets<sup>62</sup>.

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<sup>58</sup> IAS 20 ¶128

<sup>59</sup> IFRS 6 IN5a and IFRS 6 ¶12

<sup>60</sup> PwC. *Financial reporting in the mining industry\**. *International Financial Reporting Standards*. June 2007.

<sup>61</sup> IFRS 102 ¶35.10

<sup>62</sup> Deloitte. <http://www.iasplus.com/en/projects/completed/assets/extractives>

**As this area is still open to so much uncertainty, it is recommended that the IASB address this in the next three years.** This will also assist Member States developing their own GAAPs on the exploration and evaluation of mineral resources. Nevertheless, although improving the standard will assist, it is questionable whether the rules will have much impact on resource efficiency.

## 4. Provisions

Businesses do not operate in a vacuum from the environment. IFRS splits obligations into two types:

- obligations which already exist because of actions already taken, for example a need to decommission assets and repair environmental damage caused;
- obligations that may arise in the future as a result of future business decisions. For example, as some of the world's resources become scarcer there are business risks that firms will have to adapt to, and there will be implications for future resource use.

As a generalisation, the accounts prepared under IFRS and the GAAP rules of Member States do not consider the second type as there is no obligation arising from a past event, but do consider the first type of obligation if certain conditions are met. In essence this first type of obligation can either be classified as a provision, a contingent liability or not considered at all.

### 4.1 Distinction between provisions and contingent liabilities

A provision is a liability of uncertain timing or amount. Under IFRS (and as a generalisation in the GAAPs in the Member States analysed) provisions need to be set up when (a) entities have a present obligation as a result of a past event (for example, a nuclear plant has been built and there are laws that nuclear plants need to be safely decommissioned at the end of their lives), (b) it is probable that money will need to be paid, and (c) this amount can be reliably estimated<sup>63</sup>. Probable is defined as being more than 50% certain.

The accounting entries for a provision are that in the year the provision is set up an expense is made to the income statement and a liability entered into the balance sheet. **It is important to note that setting up a provision does not mean a company needs to set up or contribute to a special savings fund to cover the future costs.** Rather companies will monitor the provisions expected in the years' ahead and manage these costs through normal operating cash receipts.

Some national GAAPs allow more provisioning than IFRS does. For example, German GAAP allows provisions to be set up for maintenance expenses in the forthcoming three months and also allows provisions (e.g. for decommissioning costs) when the likelihood of the event occurring is quite low (i.e. less than a 50% likelihood) which is in line with a version of the principle of prudence. Therefore, as shown in Figure 7 provisions could sometimes be used for income smoothing purposes, i.e. as a way to reduce reported profits in very profitable years and increase profits in less favourable years.

Further, if tax rules allow provisions, companies may be encouraged to set them up as they reduce the taxable profit for that year, reducing the tax paid in that year, but also reducing the profit after tax, as tax is only a percentage of pre-tax profit. There is also some subjectivity in determining what value to ascribe to a provision, with IFRS requiring a best estimate, which may not be the same as the most likely outcome<sup>64</sup>.

If business obligations do not pass the above three tests under IFRS then a provision is not recognised and there will not be an accounting entry. However, even if the obligations do not pass all three tests it is still possible that a **contingent liability** exists. This is an outflow which is either not yet an obligation or is only a possible outflow rather than being probable. Again, this leaves accountants with a degree of

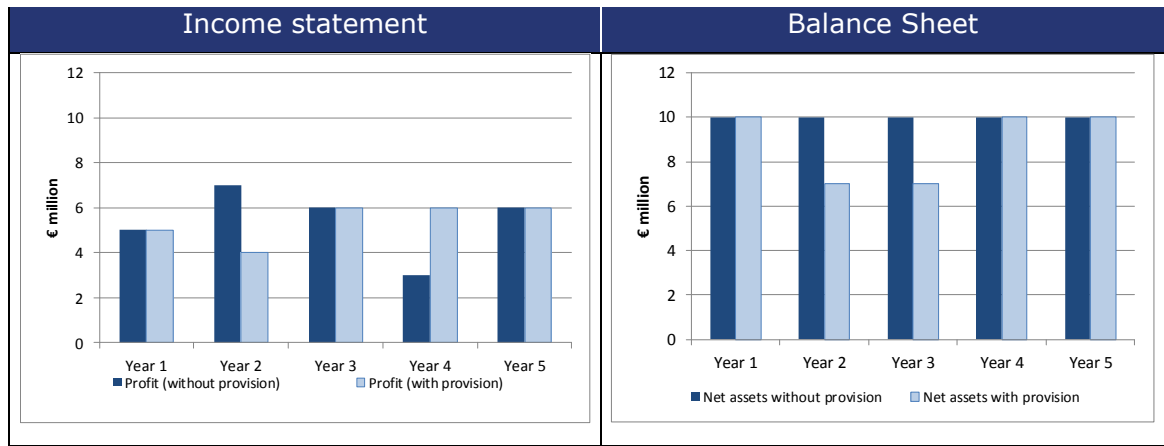
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<sup>63</sup> IAS 37 ¶14

<sup>64</sup> IAS 37 ¶14

**Figure 7: Example of provisions being used for income smoothing**

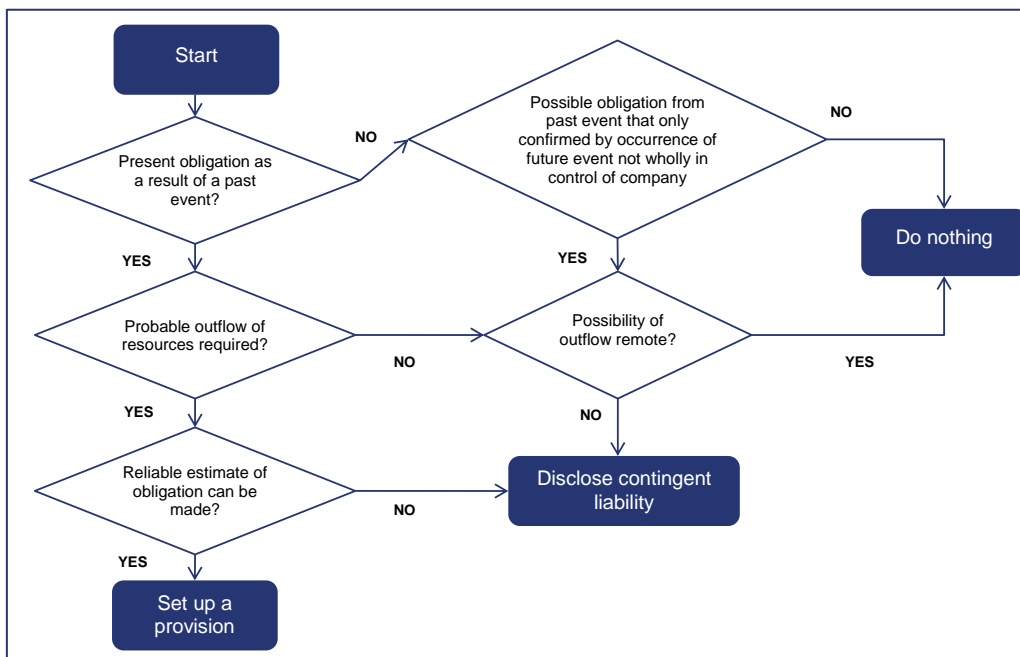
If provisions are allowed for future maintenance then a company can use provisions to smooth income even if there is no intention to undertake future maintenance, as shown in this example where in Year 2 a company realises its profit figures in Year 4 will be only €3 million, compared to higher numbers in other years. To smooth income it creates a provision for future maintenance of €3 million in Year 2 (reducing profits from €7 million to €4 million), but then in Year 4 cancels the provision, in effect giving the impression of smoother profits. A more subtle version of the same thing would be where a provision in Year 2 was made unnecessarily large compared to the later expenditure that was really expected.



subjectivity in determining when a contingent liability is recorded. Contingent liabilities are not reported in the financial statements, but rather in the notes to the accounts.

Figure 8 explains the different circumstances under which IFRS rules would determine the need to set up a provision, disclose a contingent liability or not record the obligation.

**Figure 8: Flow diagram to determine IFRS provisions and contingent liabilities**



Source: Based on IAS 37 ¶10 and ¶14

As can also be seen from Figure 8, under IFRS (and many national GAAPs) business obligations that may result from future actions are not recorded in the accounts nor in the notes to the accounts. Therefore, business risks of future resource scarcity are not recorded in accounts nor in the notes to the accounts, much in the same way that many other risks (e.g. being able to employ suitably qualified staff, finance projects or deal with large increases in energy costs) in the future are not included in accounts.

Thus, by simply analysing the published accounts and accompanying financial notes of a company, an investor or lender will not be able to fully understand all business risks (in particular any obligations that may arise in the future where no action has already been or is about to be taken, or any obligation that does not meet the definition of a provision or a contingent liability), and will need to rely on other information. For example, for companies that prepare annual reports there will often be a section in the report that gives an indication of the company's future intentions and the risks it is facing. Even then, as most companies want to present a positive picture of the future all the risks, whether technical, financial, operational or environmental, will not be explained and there will remain a degree of ambiguity.

► **Recommendation**

To require companies to create provisions for future risks and liabilities where no obligation has yet arisen would both open up great possibilities for income smoothing, and would be very arbitrary. One of the central principles of the IFRS rules on provisions is to reduce these opportunities, thus enabling an easier comparison of the accounts of different companies.

**Unlike IFRS, some national GAAPs allow companies to decide whether or not to account for possible future liabilities even if there is no present obligation. This leads to inconsistency between companies. It would seem more appropriate if all national GAAPs focussed only on present obligations in balance sheets. Companies could discuss other risks in the notes or management reports, for example risks and intentions where there is no present obligation, whether they relate to climate change, resource scarcity, availability of suitably qualified staff, social and governance issues, or any other matter.**

The remainder of this section covers two areas that have a particular impact on resource efficiency, namely decommissioning and maintenance (as regular maintenance generally helps extend an asset's effective life and reduces running costs). It also discusses the extent to which companies use provisions (especially environmental provisions) as a way to smooth income and report profits in line with investors' or lenders' expectations.

#### **4.2 Decommissioning costs – are these liabilities recorded and at what discount rate?**

In certain industries there is a need to decommission assets at the end of their useful lives, often to rectify damage to land. IFRS rules require these decommissioning costs to be estimated at the point where an investment is made if there is a statutory, contractual or constructive obligation<sup>65</sup>.

For countries and regional groupings with well-developed environmental laws (such as those in the EU), accounts prepared under IFRS rules or the GAAPs of many Member States will therefore include a decommissioning provisions as there will either be a

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<sup>65</sup> Constructive obligations are defined as obligations that arise from an established pattern of past practice, e.g. the company has always undertaken decommissioning in the past even if there is was no contractual obligation.

statutory, contractual or constructive obligation. From a resource efficiency perspective, this makes sense as investors and shareholders will end up contributing to the decommissioning costs in many years' time.

However, for EU companies with investments in less-developed markets there may be fewer statutory, contractual or constructive obligations, and in these cases it will be unlikely accounts will include a provision for decommissioning costs. This is however a problem not with the accounting rules, but rather with weak environmental laws and protection in these jurisdictions.

If there is an obligation then to minimise these future costs, companies will often think of ways of reducing these future decommissioning costs when the asset is being built. For example, the asset may be made so it is easy to disassemble, or more costly (but less toxic) materials may be used. As an illustration, new nuclear power stations are being designed to be more easily decommissioned and new containers are being made to safely store radioactive materials for centuries<sup>66</sup>.








Under IFRS rules and the GAAPs of two of the Member States analysed (French GAAP and the GAAP for larger UK companies) two accounting entries are required for decommissioning costs:

- the expected costs need to be added to initial cost of the asset (i.e. capitalised), and then the total asset value depreciated over the useful life of the asset<sup>67</sup>;
- a provision needs to be set up<sup>68</sup>.

Therefore, as both the assets and liabilities sides of the balance sheet have been increased, there will be no immediate impact on the income statement. However, there will be an impact on the long run, because, as the asset is depreciated, a depreciation expense will be reported in the income statement. The IFRS rules and national GAAP rules are summarised in the Figure 9.

However, in certain Member States such as German GAAP, and optionally in Czech GAAP, asset values are not increased, but a provision is created. Therefore the accounting entry is for there to be an expense to the income statement in the year the asset is built or purchased. This again opens up opportunities for income smoothing in the income statement.

**Figure 9: Accounting rules for decommissioning costs**

							
	IFRS	Czech	French	German	Italy	UK large companies	UK Small companies
Increase asset value	√	X	√	X	X*	√	X
Set up provision	√	?	√	√	X*	√	?
Discount rate defined	√	√**	?***	√	?*	√	√

**Key:** √ = yes X = no standard ? = choice

\* Unlike IFRS, Italian GAAP does not allow the capitalisation of decommissioning costs, but if the decommissioning costs are greater than the residual value a decommissioning fund needs to be established. However, if other provisions are required there is an option to discount them.

\*\* In Czech GAAP provisions are not discounted, i.e. the discount rate is 0%.

\*\*\* Except for nuclear power stations where a maximum discount rate is defined.

IFRS rules and some Member States GAAPs require provisions (and where relevant the decommissioning costs that will be capitalised) to be discounted to take account of the time value of money, reducing the initial size of the provision (and where relevant the

<sup>66</sup> Meservey R.H. *Designing Reactors to Facilitate Decommissioning*. Idaho National Laboratory. June 2006.

<sup>67</sup> IAS 16 ¶16 and explained further in Technical Table 2 in Appendix 7

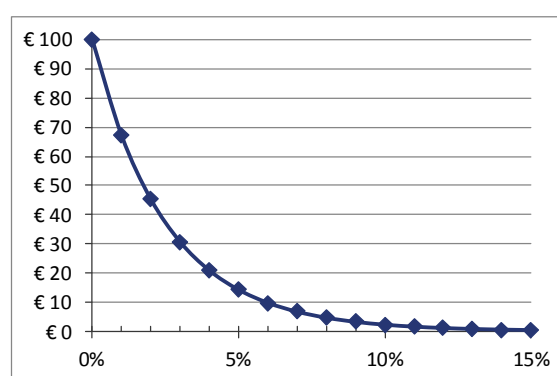
<sup>68</sup> See Technical Table 8 in Appendix 9

capitalised asset value). If provisions have been discounted, then as the date of decommissioning gets closer the provision will need to be increased, and a type of interest expense (known as unwinding of the discount) will be recorded. The asset is not affected by this unwinding.

IFRS rules about which discount rates to use are not entirely clear. The guidance requires 'a pre-tax rate (or rates) that reflect(s) current market assessments of the time value of money and the risks specific to the liability'<sup>69</sup> but this still leaves subjectivity. This uncertainty about what discount rate to use is also equally applicable to measuring impairments at discounted cash flows. As shown in Figure 9, guidance in many other national GAAPs is even less clear.

Even for projects perceived as having virtually zero risk (i.e. having exactly the similar risk profile as a sovereign state) and able to be financed with 100% debt, as at December 2013 that would equate to an average European discount rate 3.6%<sup>70</sup>. As Figure 10 shows, at any discount rate above 5% the value of €100 is less than €15 million and above 7% the value of €100 million becomes minimal (less than €5 million). Therefore, the lower the discount rate, the higher the decommissioning provision that needs to be set up when the asset is built or purchased.

**Figure 10: Value of €100m in 40 years' time at different discount rates**



#### Case Study 4: Decommissioning costs

##### Decommissioning costs in the French nuclear sector



French GAAP makes no mention of the need to discount provisions, except for decommissioning nuclear power stations. The *Order of 21 March 2007 on securing the financing of nuclear sector charges* establishes the methodology to calculate the maximum discount rate allowed and operators are free to choose any rate below that cap. The capped rate is linked to French Government bond yields and long term inflation rates.

Although the French rate has been capped there is no consensus on the appropriate discount rate that should be used. For example, in 2010 EDF discounted its decommissioning costs by 5%, which includes an inflation rate of 2%. This gave a provision of €28.3 billion. By reducing the discount rate to 4% the provision would need to increase by €6 billion.

Another issue is the use of long term French inflation rates as decommissioning costs have been found to increase by more than inflation.

**Sources:** Cour des Comptes. *The costs of the nuclear power sector. Thematic public report.* January 2012.

Ministère de l'économie des finances et de l'industrie. *Décret n° 2007-243 du 23 février 2007 relatif à la sécurisation du financement des charges nucléaires.* 2007.

<sup>69</sup> IAS 37 ¶47

<sup>70</sup> The European Central Bank reports December 2013 long-term interest rates for Euro sovereign states ranging from 1.80% in Germany to 8.66% in Greece, with a non-weighted average of 3.6% (<http://www.ecb.europa.eu/stats/money/long/html/index.en.html>).



► **Recommendation**

**Setting up provisions for decommissioning is to be encouraged, and already happens in IFRS and some of the national GAAPs in the five Member States analysed. However, it is recommended, that to reduce opportunities for income smoothing, when a provision for decommissioning is created there should also be an increase in the asset value, as in IFRS.**

Discounting of decommissioning costs is also to be encouraged in cases where the decommissioning will happen in many years' time. It could be said that having a discount rate close to that of government bond yields over similar durations is sensible as this means that theoretically a sum of money could be invested today into an essentially risk-free bond to give enough money to pay for decommissioning many years in the future. However, it is not clear that that line of argument is relevant because most companies have net borrowings, so they need to increase borrowings to pay for decommissioning costs, whereupon it is the average cost of borrowing which is relevant.

**Therefore, there should be clearer guidance about what discount rate to use for valuing provisions for IFRS rules and for national GAAPs where rules are often lacking.**

#### **4.3 Are environmental provisions used for income smoothing, rather than as an indicator of liabilities?**

There is some evidence that investors and funders tend to prefer steady and predictable earnings streams and there is evidence this can reduce share price volatility<sup>71</sup>. As stated in Section 2.3 (page 16), the practice of income smoothing consists of reducing fluctuations in earnings, generally using flexibilities and interpretations allowed by IFRS and Member States' GAAPs. One argument made is that over-reporting and under-reporting provisions (e.g. future decommissioning costs) is used to help companies report profits with little variation, thereby increasing valuations by equity investors. However, similar to the evidence that banks and analysts will be cognisant of accounting nuances at the Member State level and will look at more areas than the reported accounts (see in Box 4 (page 25)), banks and analysts will often be aware where provisions can be used for income smoothing. Whilst bankers and analysts may not notice small changes in provisions, if there are large provisions they may well raise questions or concerns. For example, a paper by Gill de Albornoz Noguer and Markarian<sup>72</sup> finds that if information about provisions lack credibility it is likely to result in more, rather than less, stock market volatility. Auditors of companies will also be aware of possibilities for income smoothing, and will also often query instances where provisions are suddenly introduced or cancelled.

There is a debate as to whether, in practice, companies routinely overstate or understate decommissioning costs. This is a difficult area to analyse, as making future estimates is inherently subjective. However, the IFRS Standard on provisions gives guidance stating that managers need to use their judgement, experience of similar transactions and in some cases rely on independent experts<sup>73</sup>. This needs to be backed up by text explaining some of the uncertainties in the estimates<sup>74</sup>. This is because a driver of IFRS is to try to reduce the degree of discretion companies have to smooth income. Further, as explained in Section 4.2, if decommissioning costs result in an increased asset value and a provision being generated there will be few options

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<sup>71</sup> Gill de Albornoz Noguer, B. and Markarian. G. *Income Smoothing and Idiosyncratic Volatility*. Fundación de Estudios Financieros. 2012.

<sup>72</sup> Ibid.

<sup>73</sup> IAS 37 ¶38

<sup>74</sup> IAS 37 ¶85

for income smoothing as the effects of the increased asset and increased provision will tend to initially cancel each other out.

A literature review by Negash<sup>75</sup> finds mixed results around whether companies understate decommissioning costs. For example, he finds that explanatory notes provided by global companies generally do not offer enough information to understand how the size of the provisions they make have been measured. He also refers to a paper by Konar and Cohen<sup>76</sup> that suggests that major corporations over-comply with environmental regulation (and by implication fully provide or over-provide for decommissioning costs) to portray being environmentally conscious. As a counter to this they also refer to research undertaken in the United States where companies are seen to not comply with environmental regulations (and by implication do not fully provide for decommissioning costs that may not be required in decades to come).

An article by Maurice<sup>77</sup> specifically analyses environmental provisions in French listed companies' financial statements. His findings, in contrast with previous research, show that accounting choices for environmental issues are not influenced by the need to smooth earnings, but rather by institutional pressure - firms that receive extensive media coverage regarding environmental aspects of their operations tend to set aside larger environmental provisions. This is similar to Konar and Cohen's conclusions.

#### ► **Recommendation**

Although there is some evidence of income smoothing and under-reporting of decommissioning costs, there is also evidence that some companies overvalue decommissioning provisions, and evidence that very little information is given about how the size of provisions is estimated. **Therefore, apart from possibly requiring companies to include further information about how provisions are calculated it is not recommended other changes are made.**

#### **4.4 Is the future maintenance of assets recorded as a liability?**

Future maintenance has already been touched upon in Section 4.1. In general, regularly maintaining an asset is beneficial from a long-term cash flow, profitability and resource efficiency perspective as it extends the lifespan of the asset, allowing more cash to be generated and less resources to be used as assets are not replaced as frequently. For example, as identified by the World Bank, a euro not spent maintaining a road could cost as much as five euros in the future<sup>78</sup>.

In practice, far-sighted companies should consider the costs and benefits of maintenance when they analyse future cash flows using the DCF approach explained in Box 2 (page 10). If they determine that regular maintenance makes financial sense then the accounting impacts of their decision should be a secondary consideration. For example organisations will be balancing the need to keep equipment working and maintained (e.g. production lines) against the costs of not maintaining the equipment.

Unlike IFRS rules for decommissioning (where there is an inescapable obligation on the company), if a company enters into a long term contract to maintain and repair an asset, no IFRS provision would be needed as the contract would be classified as an 'executory contract' – one that is dependent on the other party undertaking the maintenance. Likewise, no provision is made for general planned maintenance where

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<sup>75</sup> Negash, M. 'IFRS and environmental accounting', *Management Research Review*, Vol. 35, No. 7, 2012, pp.577-601.

<sup>76</sup> Konar, S. and Cohen, M. 'Does the market value environmental performance?' *The Review of Economics and Statistics*, Vol. 83(2), 2001, pp.281-289.

<sup>77</sup> Maurice, J. *Fiabilité des provisions comptables environnementales : apports d'une lecture institutionnelle*. Ph.D. Thesis, Montpellier University. 2012.

<sup>78</sup> Heggie, I.G. and P. Vickers. *Commercial Management and Financing of Roads. Technical Paper 409*. World Bank. Washington D.C. 1998.

there is no contract. Similarly, as shown in Case Study 5, no provision would be needed if there is a way to avoid the need for the future expenditure.

However, GAAP accounting rules in some of the Member States analysed do allow provisions to be set up for specific types of maintenance. For example, in the Czech Republic, France, Italy and Germany provisions can be set up for planned major maintenance programmes if the maintenance passes certain tests<sup>79</sup>.

**Case Study 5: An example where a provision cannot be created**

Case study on future retrofitting of ships



Article 9 of Council and European Parliament Directive 2012/33/EU states that in principle from 1 January 2020 the maximum sulphur emissions from ships will be 0.5%. Even though there is a clear legal obligation, a ship operator whose maritime emissions are currently 1.0% could say that it could stop operating in December 2019 and therefore would not need to make a provision for the cost to retrofit the ship to meet the tighter standards. It could also avoid the expenditure by planning to sell the ship in 2019, and buy a new compliant ship, being one that generates lower sulphur emissions and hence is less damaging to the environment.

► **Recommendation**

There are a number of views on whether companies should be allowed or required to set up provisions for maintenance:

- An argument that companies will only determine whether they need to undertake maintenance in the future if they have to consider provisions – i.e. if companies are forced to think about whether to include maintenance provisions in their accounts, they are more likely to plan and then undertake the future maintenance;
- Future maintenance is required to rectify wear-and-tear that has already happened. For example, if maintenance is performed at the end of every two years then 50% of the maintenance expenditure could be ascribed to the first year, and 50% to the second year. This will make the income statement 'look right'. In order to achieve this, the balance sheet at the end of the first year should show a provision for 50% of the maintenance cost to cover the first year's wear-and-tear;
- Forcing companies to set up maintenance provisions could result in companies making arbitrary changes to the levels of provisions to smooth income and, if provisions are allowed for tax purposes, exaggerating these to reduce taxes paid.

Maintenance costs already incurred are, of course, charged against income. However, it is suggested that provisions for future maintenance costs should not be allowed for six main reasons unless the contractor or the owner has already incurred obligations to an entity which will carry out the maintenance:

- i) Having an accounting rule that requires provisions to be set up for future maintenance makes it no more likely that companies will consider future maintenance needs. Rather, companies undertake maintenance because they determine it will reduce costs in the long term, thereby increasing profitability;
- ii) Although setting up a provision reduces profits in the period the provision is created (in effect reducing distributable profits which might reduce dividends, thereby trapping cash in the period) the effect is uncertain and temporary. This is because (i) including the profits generated in the period, there needs to be sufficient legally distributable profits (called retained earnings), (ii) there also needs to be sufficient cash, and (iii) the company has decided that it does not

<sup>79</sup> See Technical Table 8 in Appendix 9.

need to retain the cash for expansion. So, setting up a provision (since it does not affect cash) may have no effect on dividends. If it does have an effect, it will be reversed later because the actual expenditure will not be charged when it is outlaid if it has already been provided for earlier. So, later profit (and distributable profit) will be larger.

- iii) Even if there is an existing contract for future maintenance, unless the repair company has already incurred significant expenditure, there is not an obligation unless work has already been done<sup>80</sup>. This is similar to the example that there is no obligation to pay staff salaries for next year if the staff have not yet done the work. There is an employment contract and high expectation of paying, but no provision should be made. This contrasts to the obligation to decommission assets (e.g. a nuclear power station). This does require a provision to be created because the power station is already toxic, and the law inevitably requires future expenditure to sort out the problem.
- iv) Even if the rule that a percentage of future maintenance costs could be provided for, because the asset has already suffered some wear-and-tear companies make investment choices sporadically and will not know if, in two years' time, an asset will be refurbished, replaced or maintained;
- v) How could accounting rules specify the period over which future maintenance costs should be provided for? For example, some machines may only have an operational life of three years, a vehicle may have an operational life of seven to ten years, a power station 50 years and a reservoir 150 years; and
- vi) As explained in Section 4.1, if provisions for future maintenance are allowed for tax purposes then provisions may be set up just to reduce taxable income.

Hence, the main arguments against requiring provisions for future maintenance are that setting up a provision does not in any way force a company to undertake the maintenance; arbitrary maintenance provisions could open up too many possibilities for income smoothing; and where provisions are allowed for tax purposes, they might be warped by companies in order to change tax bills. Incidentally, tax payments to governments could become more volatile. **Therefore, those Member States where their national GAAP allows provisions to be set up for future maintenance could consider disallowing provisions for future maintenance. For example, those individual Member States may wish to conduct further research into whether companies do in practice use maintenance provisions for income smoothing, or whether they actually do spend what they provided for in previous periods.**

Instead of requiring maintenance provisions, another idea is to require companies to create special ring-fenced funds for maintenance again as a way to encourage maintenance. However, this could encourage underestimation of maintenance expenditure as companies dislike setting aside cash (or borrowing money to set aside in a special bank account) as this is an inefficient use of resources.

**Nevertheless, to emphasise the importance of maintenance as a way to avoid a rapid deterioration of assets (thereby saving money in the long term and reducing resource use), thought could be given to requiring companies to summarise expected maintenance expenditures over the years ahead in the notes to the accounts, much in the same way that some GAAPs require notes to explain the future commitments on leases. Furthermore, companies could be required to report in the notes to the accounts how much the planned maintenance expenditure was for the year in question, and how much was**

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<sup>80</sup> IAS37 ¶13 states that an executory contract is one 'under which neither party has performed any of its obligations or both parties have partially performed their obligations to an equal extent.'




actually spent. This could be a way to both encourage realistic maintenance estimates, and for the resource efficient maintenance to then take place, because companies would not want to regularly report large variations in what they planned to spend and what they actually spent.

#### Case Study 6: Provisions for future maintenance

##### Case study of airline maintenance



Airlines undertake significant maintenance of their aeroplanes to comply with international aviation rules. The accounts of three major European airlines were reviewed, and although each has prepared audited IFRS accounts, as endorsed by the EU, they each show different approaches to considering future maintenance summarised below:

		Maintenance spend 2013 (€m)	Maintenance provisions at end of financial year (€m)
Air France KLM		1,303	Less than 670*
International Airlines Group (IAG)		N/A	None reported
Lufthansa Group		Less than 791**	<ul style="list-style-type: none"> <li>▪ Owned aircraft = 116</li> <li>▪ Operating lease aircraft = 279</li> </ul>

IFRS rules only allow provisions for future maintenance costs if the maintenance company has already performed work<sup>81</sup>. In the case where there is maintenance related to a lease of an aeroplane then it is likely that the lessor will have performed some of its maintenance obligations. It could also be the case that the Lufthansa Group believes that with the aeroplanes it owns some of the maintenance contractors will have already performed some of their maintenance obligations, possibly by pre-ordering aircraft components.

\* Air France-KLM Group report provisions of €670 million, but this includes provisions for future maintenance, provisions for onerous leases, provisions for the portion of carbon allowances the Group needs that are not covered by the free allocation of quotas, and provisions for the dismantling of buildings.

\*\* The Lufthansa Group's €791 million of operating expenses includes rental and maintenance expenses.

**Sources:** Air France-KLM Group. *Consolidated Financial Statements Financial Year Ended December, 2013*. June 2014, pp. 5, 37 and 58.  
International Airlines Group (IAG). *2013 Annual Report and Accounts: Strengthening International Airlines Group*. July 2014, pp. 137.  
Lufthansa Group. *Annual Report 2013: Focused on our way*. April 2014, pp. 46 and 178.

<sup>81</sup> IAS 37 ¶1 and ¶3.

## 5. Leased assets

Leasing is often considered to be advantageous from a resource efficiency standpoint. For many years, circular economy theorists have called for a leasing service model as opposed to asset owning. This would, for instance, encourage manufacturers to make goods in an environmentally responsible way as they would be responsible for maintaining the goods while in use and taking them back and recycling the materials. Customers would get the service they needed whilst not having to dispose of the product when they are finished with it. This would reduce wastage of resources. According to the Ellen MacArthur Foundation<sup>82</sup> such savings on materials, if taken up in a fully circular world economy could, by 2025, boost the EU economy by up to US\$630 billion (approximately €500 billion) per year.

An article by Qian and Burritt<sup>83</sup> summaries three benefits of leasing compared to simply selling/ buying the product:

- *Retaining ownership.* When products owned by companies come to the end of their useful lives they will often be 'forgotten' or disposed of without thought to resale, or refurbishing. However, with more government obligations to reduce this wastage there is a movement to 'close the loop' with producers being required to ensure that products are taken back at the end of their useful life for reuse or recycling. Leasing can open up new resource efficient opportunities, especially because the lessor may be leasing the product to hundreds or thousands of companies or individuals, and will have more expertise in finding efficient ways to recycle or refurbish products. For example, many companies lease their mobile phones from leasing specialists, which after being returned to the leasing company are then often refurbished and sold on to emerging economies. Nevertheless, leasing companies will need to include the additional costs of retrieving the asset at the end of the lease term, or offering the existing lessee the asset for sale.
- *Lower resource consumption during operations.* For most products, the resource consumption during the products' use will be much higher than the resources used in the construction and recycling of the product. If a manufacturer leases products it may be easier to incorporate maintenance contracts as part of the lease contract. Being the manufacturer of the product it is also likely to be able to offer maintenance services to a very high standard which may help the lessee to lower its costs of operation, for example by reducing power consumption or minimising downtime.

*'Changing the consumption patterns of private and public purchasers will help drive resource efficiency and can also frequently generate direct net cost savings. In turn it can help increase demand for more resource efficient services and products. Accurate information, based on the life-cycle impacts and costs of resource use, is needed to help guide consumption decisions.*

*Consumers can save costs by avoiding waste themselves, and buying products that last, or that can be easily repaired or recycled. New entrepreneurial models, where products are leased rather than bought, can satisfy consumer needs with less life-cycle resource use.'*

**Commission communication. Roadmap to a Resource Efficient Europe. Com (2011) 571. September 2011.**

<sup>82</sup> Ellen MacArthur Foundation and McKinsey. *Towards the Circular Economy 1: Economic and Business Rationale for an Accelerated Transition*. January 2012.

<sup>83</sup> Qian, W. and R. Burritt. 'Lease and service for product life-cycle management: an accounting perspective', *International Journal of Accounting and Information Management*, Vol. 19 Issue 3, 2011, pp.214 – 230.

- *Product life-cycle management plans.* It can be argued that leasing creates more incentives for manufacturers to extend the life of assets. This often happens with high technology products where, although the products are still usable, they become functionally obsolete. As manufacturers will often be developing new products for sale in the years ahead, with careful planning and design current products can be made in anticipation of the future changes, reducing resource use and opening up new profitable opportunities.

The actual decision on which is best from a resource efficiency perspective will clearly depend on these and a number of other factors including the specific terms and obligations of the lease. An indicative typology for some of the components involved in the decision is shown in Box 5, which suggests that the case for leasing being more resource efficient than selling/ purchasing products may not be clear cut. Further, ultimately the decision whether to lease or buy comes down to the company that will use the asset. There are instances where companies may have more incentives to own assets rather than lease them. This means that even if leasing is actually more resource efficient from a societal view, unless ways can be found to incentivise companies to lease the assets then the optimal solution may not be found. Therefore, for leasing companies to try to break into a market they need to find solutions that compensate for some of the benefits of owning products. For example, if leasing companies are able to make products that are easy to disassemble and refurbish they may be able to offer leased assets at a much lower cumulative cost than buying the asset.

Leasing also adds two other dimensions to consuming companies' investment choices as leasing means companies do not need pay for the product upfront which can be appealing for cash strapped companies. Secondly, depending on how the lease is accounted for, leasing can markedly change the values that are recorded on the lessee company's balance sheet and income statement. This section focuses on the accounting implications in three sub-sections, the first providing an explanation of the main differences between two types of leases, the second section analysing particular resource efficiency issues from the perspective of the lessor and the third section considering resource efficiency issues from the viewpoint of lessee.

## 5.1 How to account for leases?

In many Member States' GAAPs and in IFRS, there is a distinction between operating leases and finance leases<sup>84</sup>. IFRS defines a finance lease as transferring '*substantially all the risks and rewards incidental to ownership of any asset*'<sup>85</sup>. IFRS defines an operating lease as simply '*a lease other than a finance lease*'<sup>86</sup>. For both lessors and lessees there are significant differences in the ways finance and operating leases are accounted for: in particular operating leases are not recorded on a lessee's balance sheet, but finance leases are (as both an asset and a liability). Sections 5.2 and 5.3 provide more information of the two perspectives.

Even though IFRS offers some guidance on whether or not risks have been transferred, this is still open to interpretation. This means that an accountant in one company may have a different view from an accountant in another very similar company. Having an asset on a company's balance sheet will affect borrowing covenants and may affect company valuations. Therefore, the current lack of clarity over the dividing line for the two types of lease could result in a business that records a lease as a finance lease rather than an operating lease being penalised if it applies for loans. However, as explained in Box 4 (page 25) some banks and analysts are

<sup>84</sup> See Technical Table 9 in Appendix 10 for further information.

<sup>85</sup> IAS 17 ¶14

<sup>86</sup> Ibid.

**Box 5: Possible resource implications of a leasing or ownership route**

The following table summarises the possible resource usage implications of a lease versus ownership decision on an owner, and if the product is leased the incentives for the lessee and lessor. The decision whether to lease or buy is an area where often the most resource efficient solution can also be the most cost effective or profitable solution. Some resource efficient solutions may result in fewer resources being used whilst the product is operated, whilst others may extend the useful life of a product, thereby avoiding the need for resources to be used to build new products.

	Ownership	Lessee	Lessor
Low operating resource usage, e.g. energy efficient machine	√	√	X
Operators being careful, thereby extending product life	√√	X	√
Regular maintenance extending product life	√	√	√√
Continue to use the existing asset for a long time	√√	X	√
Modular design so easy to disassemble / refurbish	X	X	√√
Efficient ways to dispose of old assets	√	√	√√
Maximise capacity/ load factors, e.g. short term leases	X	√	√√

**Key:** X no incentive √ Incentive √√ Large incentive

The rationales for these points are:

- a) **Low operating resource usage, e.g. energy efficient machine:** If the lessee pays for the operating costs of an asset (e.g. the fuel costs) then the decision whether to lease or buy will have similar resource use implications, as in both cases the company will want to use assets that are cheap to operate.
- b) **Operators being careful extending product life:** If a company leases a machine it may not look after the asset as carefully as if it owned it. For this reason leases may have penalties for returning sub-standard assets.
- c) **Regular maintenance extending product life:** Even though owners have an incentive to regularly maintain assets, there is even more of an incentive for lessors to try to ensure the asset is regularly maintained. The reason is that whilst owners may defer maintenance for a year or two, lessors will want the asset well maintained to maximise its resale/ reuse price. This is why lessors are often very keen to include maintenance obligations or contracts as part of the lease.
- d) **Continue to use the existing asset for a long time:** There will be instances where if companies own assets they may carry on using the assets for longer than leasing companies would, which may result in fewer times new products are made. For example, companies may keep vehicles longer than a lessor would as their value in use may be higher than the price a lessor could get if it tried to sell or lease an old vehicle again.
- e) **Modular design so easy to disassemble:** Lessors will be incentivised to design their products to be easy to disassemble or refurbish at the end of the lease term, reducing resource usage.
- f) **Efficient ways to dispose of old assets:** Lessors will often have more channels to dispose of old assets, or refurbish assets, but this need not always be true.
- g) **Maximise capacity/ load factors, e.g. short term lease:** Even with careful design, products can become functionally obsolete even though they are still usable. Even so, if the product is only used infrequently by companies, there are opportunities for leasing companies to instead lease the products for short periods. For example, some home improvement stores rent expensive machines that are often used infrequently, such as drills or industrial carpet cleaners, for a few days.



aware of the accounting differences between finance and operating leases and make adjustments to the financial accounts to accommodate their investment decisions.

The IASB has been considering what changes to make for many years and in 2013 released an Exposure Draft on leasing, with details included in Case Study 7. If adopted, all leases (except short-term ones) would be recorded on the balance sheet of lessees which would go some way towards rectifying the problems caused by the finance / operating lease distinction.

### **Case Study 7: Case study on changing IFRS accounting rules**

#### IFRS 2013 Exposure Draft on leases



In May 2013, the IASB and the accounting rules setting body for the United States of America (Financial Accounting Standards Board) released an Exposure Draft inviting comments on a revised system for classifying leases. The Exposure Draft states that existing rules fail *'to meet the needs of users of financial statements because they do not always provide a faithful representation of leasing transactions. In particular they do not require lessees to recognise assets and liabilities arising from operating leases.'*<sup>\*</sup>

Their proposal is that for any lease of one year or less (these being labelled as short-term leases) the entity would elect either to use the new rules or continue classifying them as operating leases. Any lease over one year would be classified as a Type A lease if the lessee will *'consume more than an insignificant portion of the economic benefits embedded in the underlying asset.'*<sup>\*</sup> Otherwise it would be a Type B lease. Therefore most leases would end up being classified as Type A leases, which would be accounted for in a way close to the way finance leases are at the moment. Type B leases will only tend to arise in the property sector (including land, buildings and parts of buildings) in leases for two or three years.

Nevertheless, the A/B distinction would only affect the income statement of lessees. Both Type A and Type B leases would be capitalised on the lessee's balance sheet. Therefore, if approved, many more leases will be on the balance sheets of lessees, but there will still remain some shorter-term leases which may not appear on lessee's balance sheets.

<sup>\*</sup> Source: International Financial Reporting Standard Foundation. *Exposure Draft ED/2013/6: Leases*. May 2013, p.5 and 8.

Further, many Member States GAAPs have even less clarity on how to classify a lease as finance lease or operating leases and some, such as France and the Czech Republic, do not even have such a distinction, treating all leases as operating leases<sup>87</sup>.

#### ► **Recommendation**

**Whilst the general conclusion of this report is that accounting rules do not appear to have much impact on investment decisions, there is some evidence that companies may be motivated to lease assets (rather than buy them) if the asset can be recorded off balance sheet as is possible in certain circumstances under IFRS and many other national GAAPs. Comments from some of the stakeholders were that the sooner IFRS prepares new rules the better as the current uncertainty is hampering investment planning. Therefore, it is recommended that a decision is made shortly, and then Member States consider bringing their rules in line with the new IFRS rules.**

One idea is that all leases are treated in one way, perhaps as finance leases. The rationale for classifying all leases as finance leases is because if the lease is uncancellable the lessee has a liability and the lessor has a liability and controls a

<sup>87</sup> See Technical Table 9 in Appendix 10.

resource (the leased asset), and the lessor has also an asset (a debtor). Therefore, there is an argument for leases being shown on both parties' balance sheets. Although operating and finance leases are already recorded on the balance sheets of lessors, they are recorded in very different ways<sup>88</sup>. However, as explained operating leases are not included in the balance sheet of lessees<sup>89</sup>.

As highlighted in Box 5, whether leasing or outright purchase is more resource efficient will depend on the particular asset in question and the lease obligations. It is also possible for different results to occur whether the comparison is being made between outright ownership or a short lease, or outright ownership and a longer lease. For example:

- Longer leases (which are more likely to be classified as finance leases) may be more resource efficient than an outright purchase if the assets can be maintained more effectively than purchasing the asset;
- Shorter leases (which are more likely to be classified as operating leases) may be more resource efficient if the assets can be used more intensively with higher capacity / load factors.

If a distinction between finance and operating leases is retained, then lessees could end up selecting leasing structures that are not as profitable for either party (and may be not as resource efficient) in order to keep the leases off their balance sheets.

### **Case Study 8: Cradle to Cradle Leasing models**

#### **Desso's new leasing model for Cradle to Cradle carpet tiles**



Desso is a leading global carpet and sports pitches company that is making the transition towards the circular economy - a regenerative model that enables goods to be recycled in a non-toxic closed loop. 65% of its business comes from Cradle to Cradle (C2C) certified carpet tiles where the raw materials were assessed to ensure they would be environmentally healthy.

In 2013 Desso went a step further to make the shift to the circular economy by introducing a leasing model for its C2C carpets. On the accounting side, there were some challenges to overcome, recalls John van Mook, Desso's Group Sales & Marketing Controller - *"The biggest challenge was to make sure we could keep the materials in the loop and bring them back for recycling at the end of the first life cycle. To do this, we discovered, we had to find a way to maintain ownership of the product."*

To solve this problem Desso and its financial solutions partner DLL entered into a partnership agreement ensuring that Desso retained control of its C2C carpet tiles throughout the whole product cycle from production to use and finally replacement. According to the agreement, Desso is obliged to take the carpet tiles back and process them through its specialised material separation and recycling processes - where 100% of the backing materials and the majority of the recycled yarn is reused in new tiles.

Even though in many cases the carpet tiles will be classified as finance leases, and therefore will be recorded on the balance sheet of the lessee, this does not appear to be affecting the interest in this leasing model as the lessee receives a full service of installation, cleaning, maintenance and eventually removal, knowing the product will be recycled.

It is further understood that the IASB debate is focusing around what is a lease (to which their new rules would apply) and what is not a lease (to which their new rules

<sup>88</sup> See Technical Table 9 in Appendix 10 for further information.

<sup>89</sup> See Technical Table 10 in Appendix 10 for further information.

would not apply). One particular area is that of service contracts, for example whether or not a contract to light an office to a particular level of brightness would be classified as a lease. If such a contract is determined to be service contract then the asset would not be recorded on the balance sheet of the company paying the contract. Case Study 9 (page 50) provides an example. As many new resource efficiency innovations are likely to arise in the area of service contracts, it is recommended that the new IFRS standard ensures resource efficient opportunities such as these are not prejudiced. For example, if the distinction between short and long leases is retained with short leases not being recorded on the lessee's balance sheet then short service contracts should be given similar exemptions.

### **Case Study 9: Lessor's position for service contracts**

An interesting recent development is that instead of companies selling assets or products to other companies they offer a packaged 'service contract'. For example, Philips is experimenting with a pay-per-lux model where, rather than companies buying lighting systems, buying light bulbs, and paying electricity and maintenance costs, Philips will instead offer an annual pay-per-lux solution where the user will pay a rental to light parts of an office or factory to a defined level of brightness<sup>90</sup>. Philips will then install the lighting systems working out the best ways to light the office, for example studying the needs of the staff throughout the day and night, and the amount of natural light in the office. It could also consider using new high efficiency LED lights that can significantly reduce the whole lifecycle costs of lighting.

Because the lighting systems will have smart metering technology in them, when the company receives its electricity bill it will be able to reclaim from Philips the cost of the electricity the lights used. However, as Philips will only charge a flat fee for electricity usage that will be subsumed in the lease price it will be further incentivised to optimise lighting levels.

Another example is agriculture services where instead of farmers having to buy pesticides, expensive machinery, and cover health and safety risks they can enter into a service contract with a specialist company to deliver pest free hectares of arable land. The specialist company can use its expertise to work out the optimal application of pesticides in a field, thereby reducing pesticide resource use and also removing the need for farmers to deal with the pesticides.

Both these developments could save the customers money, but can also save considerable resources over the lifetime of the assets.

Service contracts such as these are interesting examples, as questions remain about how they should be accounted for. For example, the May 2013 IASB Exposure Draft on leases says that service concessions and leases of intangible assets would be excluded from the rules. Depending on the specifics of the service contract, if the service contract is not treated as a lease, then the assets would remain on the owner's balance sheet (much in the same way as an operating leases), with the owner's profits taken over the length of the service contract. For the company paying for the service contract this could mean the asset is not recorded on their balance sheet, similar to the current operating lease rules for lessees. The implication is that innovative service contracts such as those suggested above could become popular with companies purchasing the services as a way to avoid recording assets on their balance sheets.

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<sup>90</sup> [http://www.ellenmacarthurfoundation.org/case\\_studies/philips-and-turntoo](http://www.ellenmacarthurfoundation.org/case_studies/philips-and-turntoo) and Financial Times. *Green Economy: Repurposing Shows Potential for High Added Value*. 21 May 2014.

## 5.2 Perspective of the lessor

Under IFRS rules and the GAAP rules in two of the five Member States' reviewed (Germany and UK)<sup>91</sup> if a lease is a finance lease, then the lessor's balance sheet will include the future lease receipts and any sale (or release) value of the asset at the end of the lease term as a receivable (very much as if the product had been sold). In the lessor's income statement, a gain/loss on sale will be recorded, with additional account of the finance charge over the duration of the lease (essentially the interest charge implicit in the lease). Operating leases are recorded on the balance sheet of the lessor as if it still owned the product<sup>92</sup>. However, the definition of a finance lease is more restricted in Germany than in the UK or IFRS, so finance leases occur less often.

From the lessor's viewpoint there are two particular issues, namely the implications for leasing companies' reported profitability that depends on how the lease is accounted for, and the loyalty and brand value that leasing companies can build up.

### 5.2.1 What are the short-term implications for a company transitioning from selling to leasing?

As shown, it is quite possible for there to be many leasing opportunities that are both more resource efficient and more profitable for lessees and lessors. If a company decides to pursue these opportunities by starting to lease products rather than sell them, there will be some upfront investment costs, such as preparing new sales brochures, training staff and possibly investing in additional storage and repair infrastructure. Annual lease charges are likely to be less than the receipts from an outright sale, unless many additional maintenance services can be included in the offering. Therefore, in the short term, the cash receipts will be less.

Nonetheless, from a profitability perspective under IFRS rules, if a lease is a finance lease then (with the exception of a finance charge) all the profit from the lease is taken when the lease commences, very much as if the product was sold. For an operating lease, the profits are taken over the length of the lease. Therefore, in the example of short leases for machines (for example, industrial cleaning machines or agricultural machinery) being more resource efficient and enabling lessors to generate more cash (giving a higher DCF), lessors may nonetheless be keener to offer longer finance leases to record the profit upfront. This is shown in Figure 18 in Appendix 11 which shows how IFRS accounts would look in three scenarios of an outright sale of a product, a lease which is determined to be a finance lease, and a lease which is determined to be an operating lease.

Nevertheless, for early stage businesses, financiers (and lenders in particular) are more interested in the cash flow of companies than in the reported profits, as banks and other debt products need to be repaid in cash. Therefore, companies wanting to base their business on a lease model will need clear plans for how the transition can be financed; this may involve securing extra finance to accommodate the change, and finding ways to increase the ultimate price the products are leased for. For example, the company may also offer a specialist maintenance contract to boost its cash receipts and the attractiveness of the offering.

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<sup>91</sup> See Technical Table 9 in Appendix 10 for further information. Although Italian GAAP also makes a distinction between operating and finance leases, the distinction is different from IFRS rules as both operating and finance leases are recorded on lessors' balance sheets as assets.

<sup>92</sup> See Technical Table 9 in Appendix 10 for further information.

Leasing companies are often keen to include maintenance contracts as part of the lease, which often makes sense from a resource efficiency and cost minimisation viewpoint. However, under IFRS rules even though the lessee may pay a single rental amount, the lease component and the maintenance component are accounted for separately. Therefore it is conceivable that the liabilities of a finance lease for the year ahead may be recorded in the accounts, but the future maintenance components would not be if neither party has incurred expenditure associated with this future maintenance.

► **Recommendation**

For a company deciding to start leasing assets instead of selling them its main concern will be how the transition can be financed as cash flows are likely to fall. However, as noted, the lessor's reported profits will differ if lease is an operating or finance lease. Although, as explained in Box 4 (page 25), some financiers understand the differences in the two types of leases, **the recommendation is the same as for leasing in general (see Section 5.1) – the IASB is encouraged to finalise its decisions on how to treat leases, including whether to treat all leases in the same way.**

Nevertheless, even if all leases were classified as finance leases (see Section 5.1) cash flows will initially fall as a result of the above switch. Ultimately companies fail due to a lack of cash, not low profits. Therefore, any company that is making the transition to this totally different leasing business model will need to explain its plans to its financiers.

**5.2.2 When a leasing business builds brand reputation can this be accounted for?**

As leasing arrangements can sometimes be made more resource efficient and profitable than a simple sale, there will be more supplier-user interaction, especially if a maintenance contract is included. Regular interaction, if it is managed well, will strengthen brand value and customer loyalty. However, as discussed in Section 3.2 (page 27), under IFRS and GAAPs in most, if not all, Member States, this brand value and customer loyalty is not allowed to be captured on the lessor's balance sheet as it would not meet the recognition requirements for intangible assets. This is because the company cannot fully control the relationships with customers.

► **Recommendation**

**As with Section 3.2.1 (page 28), it is recommended that no change is made to accounting rules for intangible asset recognition.**

**5.3 Perspective of the lessee**

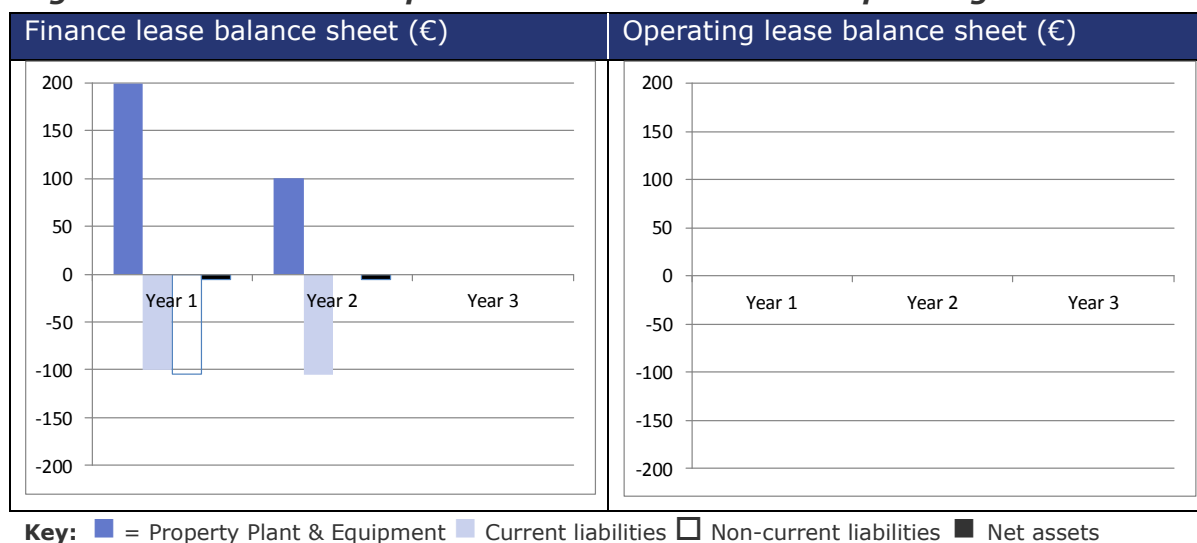
The definitions from the lessee's position are the same as those from the lessor's – i.e. there are the same rules about whether a lease is defined as a finance lease or an operating lease<sup>93</sup>.

When a company moves from buying assets to leasing assets it will not have to pay for the assets up front, with the cash payments spread over the duration of the lease. When it comes to comparing a finance lease to an operating lease the differences in cash flow position and the income statement over the lease are not significant. Where the main difference arises is on the lessee's balance sheet – as stated operating leases do not appear on their balance sheets, but finance leases do. This is shown in Figure 11 which is a simple example of how an asset that would cost €300 to buy, but €105 to lease for three years would be recorded on the lessee's balance sheet if it was

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<sup>93</sup> See Technical Table 10 for further detail about how leases are accounted by lessees in different Member States.

**Figure 11: Balance Sheet position of finance lease and operating lease**



determined to be a finance lease or an operating lease. A more realistic example where there are cash inflows is illustrated in Figure 19 in Appendix 11 which replicates the lessor information in Figure 18 in Appendix 11 from the perspective of the lessee.

Lessee companies may complain that finance leases mean the company's reported debt in the balance sheet is higher than it otherwise would be, and this can make it harder to secure finance. The total value of assets is also higher, but this is usually seen as less important than the size of debt. However, as indicated in Section 5.2.1, Box 4 (page 25) and from discussions with companies and banks, some lenders will take account of these differences. For example, when calculating Return on Investment (Profits / Invested Assets) banks will often include the asset value of both operating and finance leases.

► **Recommendation**

Even if the recommendation of classifying all leases as something similar to finance leases (Section 5.1) is not adopted, in IFRS, and in many national GAAPs, entities are already required to provide disclosures of their operating lease commitments in notes to their accounts<sup>94</sup>. Therefore, whilst having more leases recorded on a company's balance sheet will change many of the banking ratios, having disclosures will help financiers to understand the differences.

**However, in those national GAAPs that split leases into operating and finance leases and currently do not require disclosures, this could be made mandatory.** In that way when companies try to offer resource efficient leasing solutions the extra debt liability will not come as a surprise to financiers, and companies should not be dissuaded from purchasing assets or leasing assets under long term arrangements compared to leasing the assets through an off-balance sheet operating lease. For this reason, it is even more important that disclosures of debt should be made under national GAAPs where all leases are treated as operating leases.

<sup>94</sup> IAS 17 ¶31 to ¶55

### **Case Study 10: Case study on leased assets – lessee’s position**

#### Ricardo-AEA’s choice of whether to buy or lease laptop computers



Ricardo-AEA is a British environmental consultancy that employs over 400 staff. Each staff member uses a laptop computer. A number of years ago Ricardo-AEA considered whether to buy new laptops (at a cost per laptop of about £800) or lease them for a fixed period of three years (at a cost per laptop of about £300 per year). It uses IFRS accounting and selected the leasing approach, classifying the leases as finance leases, meaning they were recorded on its balance sheet.

However, by the time the laptops came up for renewal the company decided that outright purchase was a more cost effective solution, as the lease contract stipulated certain conditions, such as not allowing laptops to be upgraded with more memory. As well as giving the company more latitude to make configuration changes to the laptops, Ricardo-AEA also found that at the end of the lease the majority of the laptops were still perfectly functional. Had it owned the laptops it would have kept most of them running for another year or two, before disposing of them through a WEEE compliant company.

In making the decisions the accounting implications of different options were not a material concern, rather it was considerations about which option gave the company greatest flexibility and the cash flow implications of the decisions.

It is not possible to determine whether Ricardo-AEA’s decision to purchase rather than lease laptops will end up being more resource efficient (i.e. which solution will result in the laptops being used for as long as possible before being recycled) as that would require a detailed analysis of the counterfactual (i.e. whether, when laptops are returned to the leasing company, the lessor will be able to sell or lease them again for another year or two of use before they are recycled). However, Ricardo-AEA is very happy with its decision, finding that any problems with its laptops are normally covered by the manufacturer’s warranty. One possibility is that the resources required to return, test, recondition and resell a second hand laptop would be greater than the resources Ricardo-AEA will use in keeping their laptops until the end of their useful lives.

## 6. Other issues partially related to accounting rules

Section 1.3.4 (page 12) of the report explains that there are some issues that are partially related to accounting rules, notably:

- a) tax policies that incentivise or discourage resource efficiency, as higher or lower tax payments affects companies' cash flow statements and income statements;
- b) the unintended consequences of annual reporting cycles that may encourage short-termism;
- c) staff incentive structures being linked to certain accounting metrics, e.g. if employees are rewarded for the total cash sales they generate in a year they are likely to prefer to sell products rather than lease products.

This section provides a brief overview of these issues, and also mentions the debate around the carbon bubble.

### 6.1 Tax rules

As explained in Section 3.1.2 (page 23), taxation policies can be an effective way to encourage or discourage investment into resource efficiency, but this is not because of the accounting implications, but rather the cash flow implications, for lower tax rates increase the amount of cash projects which projects can generate. Nevertheless, if companies have to pay less tax their accounting cash flows and income statements will be strengthened.

As well as lower tax rates governments may offer accelerated taxable depreciation allowances which, as explained in Figure 5 (page 24), reduce the taxation payable in the early years, even if the total taxes paid over the life of the project are similar to other methods of tax allowances. As taxes are lower in the early years, more net cash can be generated earlier, and as projects tend to be evaluated using the DCF method (see Box 2 on page 10) a larger number of projects may pass a company's investment requirements.

#### ► Recommendation

**If governments want to encourage resource efficiency they need to think very carefully about the tax rules in their country to ensure that there are no unintended consequences.** For example, a report by KPMG ranks 21 major economies by the extent to which their tax system encourages or discourages investment into resource efficiency and other 'green' investments<sup>95</sup>.

### 6.2 Frequent reporting cycles

As well as legal requirements for companies to prepare accounts, the regulators of stock exchanges commonly impose financial reporting rules. In particular, stock market regulations can place requirements for quarterly reporting or preliminary earnings statements. The frequency of reporting required has been criticised by many as making companies focus too much on the short term and spend too much effort trying to make sure that the next quarter's returns meet expectations. This can mean that efforts to make longer term plans are constrained, with companies continually looking for 'quick wins', as opposed to making investments that, although highly profitable, will take a long time before the profits can be realised. For example, an

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<sup>95</sup> KPMG. *The KPMG Green Tax Index 2013. An exploration of green tax incentives and penalties*. August 2013.



article by Gigler *et al.*<sup>96</sup> analyses the cost-benefit trade off of different reporting cycles.

► **Recommendation**

**Although frequent reporting cycles may encourage myopia and short-termism, there is evidence that if companies also produce management commentary on the business outlook in their reports the risk of short-termism can be reduced**<sup>97</sup>. However, as many resource efficient investments do take a number of years to deliver positive cash flows, setters of reporting requirements could be encouraged to review their requirements.

### 6.3 Behavioural effects

Managers in companies are often incentivised to deliver particular results, which could include targets linked to sales growth, reported profits, lower costs, higher efficiency and other metrics. If not correctly designed, performance targets can create incentives for managers to:

- focus on short term 'quick wins' at the expense of longer term investments. This is similar to the evidence that frequent reporting cycles tend to create short-termism;
- massage reported profits to meet targets. This is especially possible where accounting standards allow much flexibility, for example in creating provisions (see Section 4 on page 35) or changing the valuation rules for assets (see Section 3.1.3 on page 26). For instance, in a 2004 survey, Brochet and Gao<sup>98</sup> find evidence that the level of earnings smoothing can be affected by the degree of managerial entrenchment. The results generally indicate that less-entrenched managers seek to smooth earnings more. However, as more companies adopt IFRS rules and with GAAPs in many Member States slowly converging on IFRS rules, opportunities for income smoothing are reduced.

In this sense, if companies see financial benefits from investing in resource efficiency (e.g. in recycling, reusing or repairing assets) then companies have a crucial role to set incentive systems able to reward managers appropriately. An illustration could be given of a sales person in a car showroom who is trying to sell a car that retails at €15,000, or could be leased over three years at €3,000 per year with an option to purchase at the end of the three years for €8,000. Whilst from an environmental and DCF perspective leasing may be better, if the sales person is not correctly incentivised the staff member may try to promote sales.

Apart from getting management incentives aligned to the company's objectives there is also evidence that the ethics of managers can play a role whether or not resource efficient investments are undertaken. For example, a study of why some Australian beverage companies invested in water conservation technologies and others did not found the financial case for water conservation could not be made<sup>99</sup>. What the study found though was that it was the ethics of the management that was the factor, with

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<sup>96</sup> Gigler, F., Kanodia, C., Sapra, H. and Venugopalan, R. 'How Frequent Financial Reporting Can Cause Managerial Short-Termism: An Analysis of the Costs and Benefits of Increasing Reporting Frequency', *Journal of Accounting Research*, Volume 52(2), May 2014, pp. 357-387.

<sup>97</sup> Rahman, A.R., Tay, T.M., Ong, B.T. and Cai S. 'Quarterly Reporting in a Voluntary Disclosure Environment: Its Benefits, Drawbacks and Determinants', *The International Journal of Accounting*, Vol. 42, 2007, pp. 416-442.

<sup>98</sup> Brochet, F. and Gao, Z. *Managerial Entrenchment and Earnings Smoothing*. Stern Business School. May 2004.

<sup>99</sup> Egan, M. 'Driving water management change where economic incentive is limited', *Journal of Business Ethics*, August 2014.

those managers who were more interested in protecting the environment being more likely to promote water conservation.

Furthermore, according to De Canio<sup>100</sup> many investments in energy efficiency fail to be made despite their apparent profitability because internal hurdle rates of return are often set at levels higher than the cost of capital to the firm.

► **Recommendation**

**Companies are encouraged to review the incentives they offer to staff and internal approvals systems to ensure they align with the company's objectives.**

## 6.4 Carbon bubble

In the last few years there has been a discussion about whether oil companies are overvalued on stock markets. The rationale is that if one adds up the reported oil, coal and gas reserves and all these reserves are burnt temperatures are projected to rise beyond the 2°C maximum increase targeted.

However, this issue is not an accounting one, because IFRS rules make no obligation to report estimates of mineral reserves (whether proven reserves, all reserves, or commercially exploitable reserves). Also IFRS rules do not require extractive industries to report the projected value of their reserves as there is a no obligation to use the revaluation method which has been explained in Section 3.2.2 (page 29). Rather, if the cost method is chosen then the reserves are only valued at the cost of the exploration, unless insufficient oil is found, in which case there is an impairment<sup>101</sup>.

*'Given that only one fifth of the total reserves can be used to stay below 2°C warming, if this is applied uniformly then only 149 of the 745 GtCO<sub>2</sub> listed can be used unmitigated. This is where the carbon asset bubble is located. If applied to the world's stock markets, this could result in a repricing of assets on a scale that would dwarf past profit warnings and revaluation of reserves. This situation persists because no financial regulator is responsible for monitoring, collating or interpreting these risks.'*

**Carbon Tracker Initiative. Unburnable Carbon – Are the world's financial markets carrying a carbon bubble? July 2011.**

The same is true with most Member States' GAAPs, although there are some arguments that the USA Accounting Standards require reserves to be reported to 'assess the prospects for future cash inflows to an entity'<sup>102</sup>.

Nevertheless, many stock markets throughout the world do require listed companies to quote their reserves, either when selling new shares or as part of their listing rules. Other extractive industries voluntarily report their reserves in their Annual Reports, either as a note within their financial accounts or within the main body of the Annual Report. Even then, there is a real lack of consistency on what reserves should be reported. Section 3.5 has already referred to some of the differences, for at varying prices reserves become more or less commercially exploitable.

It is argued that requiring extractive industries to report their reserves in a consistent way (possibly as a stock market or GAAP requirement) would enable investors to more easily see the carbon bubble issue. Then if investors believe that governments will try

<sup>100</sup> De Canio, S.J. 'Barriers within firms to energy-efficient investments', *Energy Policy*, Vol. 21, Issue 9, 1993, pp. 906–914.

<sup>101</sup> Appendix 8 explains how IFRS rules require companies to value the exploration stage.

<sup>102</sup> Financial Accounting Standards Board. *Statement of Financial Accounting Concepts No. 8. Conceptual Framework for Financial Reporting*. September 2010.

to stick to the 2°C limit the implication is that share prices of the world's carbon extraction industries would fall, but there would not be a sudden 'bursting of the bubble.'

► **Recommendation**

Even if companies were required to report their reserves (however defined), and as a result there was a major re-pricing of oil companies' shares, the impact on an oil company's balance sheet is likely to be minimal. This is because most oil companies use the cost method to value their reserves, so impairments would only be needed if the projected value of the discovered reserves is less than the exploration costs.

**It can be concluded that requiring companies to report all their reserves in their financial accounts is not the way to address this 'carbon bubble' challenge. If it is perceived to be a major issue then other methods to require reserves to be reported could be introduced, for example in stock market announcements or other non-accounting driven forms.**

## 7. Conclusions and recommendations

### 7.1 General findings

The results of the analysis undertaken indicate that, as a generalisation, accounting rules do not materially influence companies' decisions of whether to invest in resource efficient assets. This is because most companies analyse investment decisions by focusing on cash flows, and accounting rules have no effect on when cash inflows or outflows occur, apart from the amount of taxes paid which is sometimes based on the profits as reported in the accounts. As explained in Section 1.1 (page 7), unless there are legal requirements, most decisions to invest in resource efficiency ultimately come down to whether the decision can reduce cash outflows or increase cash inflows. Even if companies undertake CSR activities and set aside money for projects that do not appear to be commercially driven, it is hypothesised that companies invest in CSR as they hope their brand image can be improved, which will eventually lead to higher cash inflows or at least not a declining market share compared to competitors.

Another finding of the report is that, although companies may perceive the levels of reported profits and their balance sheet position very important, banks and analysts look at many other factors when evaluating companies and projects, in particular the net cash flows. Even for global banks, when a bank makes a decision about whether to offer a loan to a company the initial scrutiny of the accounts is nearly always taken by bankers in the same country as the company seeking the loan who are therefore familiar with accounting intricacies in that country.

Further, for analysts deciding whether or not to invest in companies, their job of understanding different accounting systems is becoming simpler, as many of the companies they analyse are traded on stock exchanges. Increasingly, because of EU and other jurisdictions' regulations on adopting IFRS, analysts can start their analysis with consolidated accounts prepared with IFRS.

The main recommendations of the report, summarised in Figure 12 (on pages 62 to 65), are that from a resource efficiency perspective:

- i) At the IFRS level, little needs to be done to change IFRS accounting rules, with the exception of simplifying the way leases are accounted for;
- ii) At the Member State GAAP level, again with the exception of simplifying the way leases are accounted for in many Member States, there are only a few areas that would benefit from change. These are allowing the capitalisation of repairs and requiring provisions to be set up for decommissioning costs in those Member States where either is disallowed;
- iii) Nevertheless, in both IFRS and Member State GAAPs, there are also a few areas where additional notes to the accounts could provide banks and analysts with useful information. For example, requiring companies to include notes about future maintenance expenditure, notes about whether their actual maintenance expenditures were as planned, and notes about how provisions were calculated would be useful.

These findings comes from a review of the academic literature and speaking to different classes of stakeholders, including rule makers, companies that apply the rules, think tanks and banks that have to decide whether or not to offer loans to companies.

Whilst particular difficulties were found when trying to get information from companies in different Member States, this challenge could be a result of accounting rules not being considered in the context of company decisions related to resource efficiency. Rather, it might be that companies may allude to accounting rules (e.g. whether a cost has to be expensed in the income statement or can be capitalised in the balance

sheet with the costs then spread over a number of years as a depreciation expense), when there are other underlying reasons.

## 7.2 Specific findings

The Terms of Reference for the study required a particular focus on two questions:

- **Is there any accounting reason why investing in a new asset may be preferable to spending less money to repair or refurbish an existing asset?**

The answer is normally no, as most accounting rules normally stipulate that, although minor repairs have to be expensed, major repairs can be capitalised, so the accounting entries for a purchase or major repair would be similar. Out of the five Member States analysed, only one country (the Czech Republic) disallows the capitalisation of major repairs.

Whilst accounting rules in the Member States analysed treat major repairs and purchases of new assets similarly, it is quite possible that tax rules in countries do encourage new assets to be bought, as favourable tax treatment can increase cash flows. However, this is not an accounting issue, but rather needs to be addressed by governments reviewing their taxation policies.

- **Is there any accounting reason that would discourage lessor companies from leasing products rather than selling them when a lease would be more resource efficient?**

When a company sells a product, it will receive a one-off cash inflow, but when it leases a product it will normally receive cash over the duration of the lease. This is not an accounting issue though, purely a cash flow consideration and is one reason why a company that is lacking spare cash or is having difficulty securing adequate finance may prefer to continue selling products rather than leasing products (even if the latter is more resource efficient and could generate a better financial return).

Apart from changes in the profile of cash flows, there may also be differences in when lessors' profits can be reported in their accounts. In many Member States (and under IFRS rules), this depends on whether the lease is classified as a finance lease or an operating lease. If classified as a finance lease, most of the profits from the lease can be taken up-front, similar to selling the product. However, if classified as an operating lease, the profits will be spread over the duration of the lease.

Even then, for the reasons explained above about how financiers make decisions on whether to offer loans or invest in companies and the fact financiers will normally look at more than the income statement and balance sheet, the timing of reported profits should not be a material consideration. Nevertheless, there remains a perception that financiers may treat lease/ purchase investment decisions differently, and because of this it is desirable that the rules for accounting for leases are clarified and possibly simplified.

It is noted that the IASB has a project on this at the moment, and some of the stakeholders this study interviewed are keen that this project is completed as soon as possible so that clarity is provided. It is further understood that the IASB debate is also focusing around what is a lease (to which their new rules would apply) and what is not a lease (to which their new rules would not apply). One particular area is that of service contracts, for example whether or not a contract to light an office to a particular level of brightness would be classified as a lease. As many new resource efficiency innovations are likely to arise in the area of service contracts, it is recommended that the new IFRS standard ensures resource efficient opportunities such as these are not treated unfavourably compared to leases. For

example, if the distinction between operating and financing leases is retained then if a short lease is not recorded on the lessee's balance sheet, neither should a similarly structured service contract be recorded on the balance sheet of the company paying for the service.

As highlighted in Figure 12, apart from a few areas that would benefit from more disclosure notes, the only other accounting changes related to resource efficiency that could be considered are:

- providing greater clarity on how carbon allowances should be valued, although it is noted that the IASB has a current project to finalise this;
- completing accounting rules on how mineral extraction companies should value the exploration stages, although, it is questionable whether changing the rules will have much impact on resource efficiency;
- encouraging those Member States where provisions cannot be set up for decommissioning costs to consider changing their national GAAPs. Although companies should be including decommissioning costs when undertaking a discounted cash flow analysis, requiring companies to make provisions for them will remind them of the importance of these costs;
- suggesting to those Member States which allow or require provisions for decommissioning to also allow or require the decommissioning costs to be capitalised as part of the asset. If only a provision is allowed, it is possible for companies to undertake income smoothing, as the profits in the year the provision is created will be reduced by the provision;
- disallowing maintenance provisions in those Member States where provisions are allowed for future maintenance. Although this seems counterintuitive from a resource efficiency perspective (as regular maintenance does tend to extend the life of assets), provisions for future maintenance do not set cash aside and they do not commit companies to spend money on maintenance. Further, provisions could be used by companies for income smoothing, especially as estimating the amounts needed is a very subjective. For example, affected Member States may wish to conduct research to see whether companies use maintenance provisions to smooth income, or do actually spend money in line with their provisions. The research could also investigate whether, from a resource efficiency perspective, the size of planned maintenance expenditure is appropriate.

### **7.3 Summary**

In summary, this research has provided useful insights which help to partially refute the claim that accounting rules affect companies' decisions about whether to invest in resource efficiency. Rather, other factors have been found to be of greater relevance, such as a lack of finance, tax policies, the ethics of business managers, incentive schemes for staff, short-termism of companies and the fact that many environmental resources are either not priced or are underpriced compared to the value society places on them. Nevertheless, as the effects of accounting rules on resource efficiency is still a new area, it is recommended that further dialogue with companies occurs and that accounting rules setters become aware of the resource efficiency movement to avoid accounting rules (knowingly or unknowingly) becoming an impediment.

**Figure 12: Summary recommendations**

	Question (page reference)	Analysis	IFRS recommendation	National recommendation	GAAP
<b>Assets</b>	<b>► Tangible assets</b>				
	Can decommissioning costs be capitalised? (p.21)	Accounting for decommissioning costs is sensible, as higher decommissioning costs normally imply more environmental damage, so companies should be required to consider these costs when making investment decisions. In IFRS and two of the five Member State GAAPs analysed such decommissioning costs should be capitalised.	No change.	Consider requiring the capitalisation of decommissioning costs in those Member States that currently do not allow this.	
	Can repair and refurbishment costs be capitalised? (p.21)	A major repair should be treated in the same way as a decision to invest in a new asset, i.e. accounting rules should not encourage building new assets instead of repairing them. In IFRS and many of the GAAPs analysed major repairs can usually be capitalised in the same way as an investment in a new asset. Further, even if major repairs cannot be capitalised companies commonly make investment decisions based on a discounted cash flow analysis, with accounting implications rarely a material consideration.	No change.	Consider requiring the capitalisation of major repairs in those Member States (e.g. the Czech Republic GAAP) that currently do not allow this.	
	Can training costs or lost profits be capitalised? (p.22)	Sometimes new investments, including in resource efficiency, will require the company or factory to be closed for a period of time (reducing profits) whilst the asset or system is being installed. There may also be a need to train staff. However, to change accounting rules to allow for lost profits and staff training would create many unintended effects.	No change.	No change.	
	Can future resource efficiency savings be capitalised? (p.22)	If companies adopt IFRS and select the revaluation model for assets then it is possible, but in practice highly unlikely. Nevertheless, companies tend to focus on discounted cash flow analysis when deciding whether to invest in projects, so accounting considerations are rarely relevant.	No change.	No change.	
	How can tax practices affect the reported values of assets in accounts? (p.23)	If the tax system dominates (or even is the same as) the accounting rules, a company's accounts will be adjusted to take advantage of tax incentives. In this instance, if tax rules allow the rapid depreciation of resource efficient machines then (as well as increasing reported profits) the assets will be quickly reported at low values, even though in reality the machines may have many years of life left in them. Even in this instance investors, being aware of accounting and tax systems in different countries, will normally delve deeper than just looking at published accounts to obtain a more accurate understanding of the actual asset values.	No change as IFRS rules are not driven by tax considerations.	To assist financiers in tax-dominated accounting systems, consider introducing rules to disclose the extent of tax-driven depreciation if not already required.	

	Question (page reference)	Analysis	IFRS recommendation	National recommendation	GAAP
<b>Assets</b>	What are the effects of depreciation rules driven by profitability concerns, rather than actual resource use? (p.26)	<p>Changing the expected useful life of assets (whether resource efficient or not) affects annual depreciation expenses, and therefore annual profits. Nevertheless, within the confines of any legal rules in Member States it is up to companies to define the best estimate of asset lives, although auditors, banks and analysts need to be aware of opportunities for changing depreciation policies to be used for income smoothing, especially if there are erratic changes in depreciation policies.</p> <p>Secondly, IFRS requires and the GAAPs of most Member States require, or allow, companies to depreciate components of assets differently if they have different useful lives. This makes sense from a resource efficiency perspective.</p>	No change.	No change, except Member States whose GAAPs only allow (rather than require) components of assets to be depreciated differently could consider making this compulsory.	
	<b>► Intangible assets</b>				
	When can companies include goodwill in their accounts? (p.28)	Internally generated goodwill (e.g. resource efficient companies having a strong client base) is disallowed in IFRS and other GAAPs, which seems practical as internally generated goodwill estimates would be very subjective and bankers and financiers would be likely to dismiss them anyway.	No change.	No change.	
	How should carbon allowances be valued? (p.29)	The price of carbon is likely to rise in the future, but there is a lack of clarity around how companies should value the carbon allowances they hold. The IASB has a current project to address this.	The IASB to complete this project in the next three years.	When IASB completes the project, maybe national GAAPs should follow IFRS.	
	<b>► Other asset issues</b>				
	Do impairments match the reduction in the value of resources? (p.30)	It is possible that, in countries where tax and accounting are closely linked, and impairments are tax deductible, there could be a tendency for companies to charge excessive impairments on any asset.	No change as IFRS and tax rules are normally separate.	In countries where tax and accounting are closely linked, a case can be made for requiring notes justifying impairments.	
How are EU and government grants for investment in resource efficient assets accounted for? (p.31)	The EU and Member States often give grants for investments in assets, sometimes encouraging resource efficient ones. There are three different rules (one that records the full grant in the income statement upfront, and the other two reporting the benefit of the grant over the life of the asset). IFRS and most countries require the benefit to be spread. However, there is a debate as to whether the upfront or approach of spreading the benefit of the grant creates the greatest impact.	The IASB adopted the immediate-income approach in its IFRS for SMEs. It could consider this for other companies.	Consideration should be given to allowing the immediate-income approach in those national GAAPs that do not currently allow it.		



	Question (page reference)	Analysis	IFRS recommendation	National recommendation	GAAP
<b>Assets</b>	Extractive industries: special considerations (p.33)	The extractive industries are heavy users of resources. There is a lack of clarity about how mineral exploration should be valued, although most companies value mineral reserves at the lower of the cost of exploration or the estimated value of the reserves.	IASB should resolve this lack of clarity in the next three years to make comparison of companies easier.	Once the IASB has addressed this, Member States may wish to adopt the rules for their GAAPs.	
<b>Provisions</b>	Can different rules on how provisions are accounted for affect resource efficiency? (p.35)	<p>Making a provision means recording a liability and charging an expense. Under IFRS, provisions can only be set up if there is a present obligation. Therefore, if there is not a present obligation provisions cannot be set up for future risks, e.g. climate change, resource scarcity, availability of suitably qualified staff, geopolitical instability in 20 years' time or any other risk if there is no present obligation.</p> <p>However, some other GAAPs allow provisions to be set up even if there is not a present obligation (e.g. there is no legal or no contractual requirement to pay money in the future), which could be used for income smoothing.</p>	No change.	Consider changing those national GAAPs where provisions can be set up when there is not a present obligation. For example, for a subset of provisions such as maintenance provisions those individual Member States may wish to conduct further research into whether companies do in practice use maintenance provisions for income smoothing, or whether they actually do spend what they provided for in previous periods.	
	Decommissioning costs – are these liabilities recorded and at what discount rate? (p.37)	<p>IFRS and many national GAAPs require provisions to be set up for decommissioning which is sensible as it forces companies to consider the future payments they should be considering anyway as part of their investment appraisal. IFRS and some national GAAPs also require the capitalisation of decommissioning costs creating an equal and opposite asset so the projected decommissioning costs do not initially impact the income statement (see page 21).</p> <p>Where provisions need to be set up, different accounting systems display variation in whether the costs should be discounted and at what rate.</p>	IFRS rules for requiring an equal and opposite accounting entry for decommissioning costs appear sensible. However, the IFRS definition of the discount rate to use is the ' <i>current market assessments of the time value of money and the risks specific to the liability</i> ' which leaves some ambiguity, and would benefit from greater clarity.	Member States could contemplate requiring provisions and equal and opposite accounting entries for the capitalisation of decommissioning costs. National GAAPs could also benefit from greater clarity on the discount rate to use.	

	Question (page reference)	Analysis	IFRS recommendation	National recommendation	GAAP
<b>Provisions</b>	Are environmental provisions used for income smoothing, rather than as an indicator of liabilities? (p.40)	There is some evidence that investors and funders tend to prefer steady and predictable income streams. Using the example of decommissioning provisions, there are indications both for companies under- and overestimating decommissioning costs, whether for income smoothing reasons or other reasons.	No change, except maybe considering further requirements for notes to explain how provisions are calculated.	No change, except maybe considering further requirements for notes to explain how provisions are calculated.	
	Is the future maintenance of assets recorded as a liability? (p.41)	<p>Regular maintenance is generally beneficial from a resource efficiency perspective. In IFRS future maintenance of assets cannot be recorded as a liability, but some Member States do allow provisions to be set up for major repairs.</p> <p>In practice, far-sighted companies should consider the costs and benefits of maintenance when they analyse future cash flows using the discounted cash flow approach. If they determine that regular maintenance makes financial sense then the accounting impacts of their decision should be a secondary consideration.</p> <p>Requiring future maintenance to be provided for is not recommended as it opens up too many possibilities for income smoothing as provisions can be reversed, and may also make it harder for governments to accurately estimate their corporation tax receipts.</p>	<p>To emphasise the importance of maintenance, thought could be given to requiring companies to summarise expected maintenance expenditures over the years ahead in the notes to the accounts, much in the same way that IFRS requires notes to explain future operating lease commitments.</p> <p>Further, companies could be required to report in the notes to the accounts how much the planned maintenance expenditure was for the year in question, and how much was actually spent.</p>	<p>Consider requiring companies to report in the notes to their accounts future expected maintenance expenditures over the years ahead. For example, as stated above, those individual Member States may wish to conduct further research into whether companies do in practice use maintenance provisions for income smoothing, or whether they actually do spend what they provided for in previous periods.</p> <p>Further, companies could be required to report in the notes to the accounts how much the planned maintenance expenditure was for the year in question, and how much was actually spent.</p>	
<b>Leases</b>	How to account for leases? (p.46)	Under those accounting systems that distinguish between finance and operating leases, it is possible that more profitable (and possibly resource efficient) leases are not selected if they result in the asset being recorded on the balance sheet of the lessee. This could be overcome if all leases are classified in a similar way. The IASB is now reconsidering possible changes, including what contracts would be classified as leases and what would not.	The IASB should be encouraged to finalise their proposals shortly to give the markets more certainty.	Once the IASB concludes the leasing project, Member States may want to bring their national GAAPs in line.	

	Question (page reference)	Analysis	IFRS recommendation	Local GAAP recommendation
	<b>► Lessor perspective</b>			
<b>Leases</b>	What are the short-term implications for a producer company which is transitioning from selling to leasing in a more resource efficient way? (p.52)	When a company switches from selling goods to leasing products, in the short run the cash flow is likely to fall. However, depending on whether the lease is classified as a finance lease or an operating lease, there is a difference as to when profits can be taken. However, as banks and analysts tend to look at more than accounting implications, the reported timing of profits is unlikely to be a decision factor, but rather the projected cash flow changes.	As above, the IASB should be encouraged to finalise their leasing proposals shortly.	As above, once the IASB concludes the leasing project Member States may want to bring their national GAAPs in line.
	When a leasing business builds brand reputation can this be accounted for? (p.52)	As with point about intangible assets and internally generated goodwill (p.28), internally generated brand value is disallowed in IFRS and other GAAPs which appears practical.	As with the point about intangible goodwill no change.	As with the point about intangible goodwill no change.
	<b>► Lessee perspective</b>			
	Can changes be made so that analysts can better understand any unreported liabilities that lessees have? (p.52)	Even if the possibility of accounting for all leases as something similar to finance leases is not adopted, many GAAPs (e.g. IFRS rules) require companies to disclose their operating lease commitments.	No change.	In those GAAPs where disclosure of operating lease commitments is not required, thought could be given to changing the rules.

## **Appendices**

- Appendix 1 - Acronyms
- Appendix 2 - Glossary of accounting definitions
- Appendix 3 - Summary of accounting principles in five selected EU countries
- Appendix 4 - IFRS choices and measurement estimations
- Appendix 5 - Literature review methodology
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- Appendix 10 - Accounting rules for leases
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- Appendix 12 - References

## Appendix 1 – Acronyms

¶	Paragraph number of International Accounting Standard
ACCA	Association of Chartered Certified Accountants (UK)
ANC	Autorité des Norms Comptables (France)
APM	Alternative Performance Measure
C2C	Cradle to Cradle
CSR	Corporate Social Responsibility
DCF	Discounted Cash Flow
DG	Directorate-General
DRSC	Deutsches Rechnungslegungs Standards Committee (Germany)
EBITDA	Earnings Before Interest Tax Depreciation and Amortisation
EC	European Commission
EFRAG	European Financial Reporting Advisory Group
EIB	European Investment Bank
EU	European Union
EU-ETS	European Union Emissions Trading Scheme
FEE	Fédération des Experts-comptables Européens
FRC	Financial Reporting Council (UK)
FRSSE	Financial Reporting Standard for Smaller Entities (UK)
GAAP	Generally Accepted Accounting Principles
GRI	Global Reporting Initiative
HGB	Handelsgesetzbuch (Germany)
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standard
OECD	Organisation for Economic Co-operation and Development
OIC	Organismo Italiano di Contabilità (Italy)
ROI	Return on Investment
PCG	Plan Comptable Général (France)
R&D	Research and Development
SMEs	Small and Medium-sized Enterprises
UK	United Kingdom

## Appendix 2 – Glossary of accounting terms

This glossary of accounting terms has been compiled principally using the IFRS definitions. Where IFRS definitions are provided the concept is highlighted with light blue. Where IFRS definitions are not provided the concept is not highlighted.

<b>Accruals</b>	<p>One of the central tenets of accounting is the accruals concept which considers when to recognise economic events. Accruals are recognised when they occur (e.g. assets are built, stock is sold or interest becomes payable) rather than when the cash enters or leaves the company. It is the reason why the cash flow statement does not contain the same information as the income statement.</p> <p>IAS 1 ¶28 states <i>'when the accrual basis of accounting is used, an entity recognised items as assets, liabilities, equity, income and expenses (the elements of financial statements) when they satisfy the definitions and recognition criteria for those elements in the Framework.'</i></p>
<b>Amortisation</b>	<p><i>'Amortisation is the systematic allocation of the depreciable amount of an intangible asset over its useful life'</i> (IAS 38 ¶8). It is essentially 'depreciation' of intangible assets.</p>
<b>Asset</b>	<p>IAS 38 ¶8 states <i>'An asset is a resource:</i></p> <ul style="list-style-type: none"> <li>a) <i>Controlled by an entity as a result of past events; and</i></li> <li>b) <i>From which future economic benefits are expected to flow to the entity.'</i></li> </ul>
<b>Balance sheet</b>	<p>IFRS calls the balance sheet the statement of financial position (IAS 1 IN11 and IAS 1 ¶10). It is one of the four financial statements required by IFRS (IAS 1 ¶10). It is a snapshot at a date of the assets, liabilities and shareholders' equity in a company. See '<b>Statement of financial position</b>' below for further information.</p>
<b>Capitalised</b>	<p>Rather than the full cost of the investment being expensed, the cost is included as an asset in the balance sheet. Most assets are then depreciated over the useful economic life of the asset, with an annual depreciation expense included in the income statement.</p>
<b>Cash flow statement</b>	<p>IFRS calls the cash flow statement a statement of cash flows for the period (IAS 1 ¶10). It is one of the four financial statements required by IFRS (IAS 1 ¶10). As IAS 1 ¶111 states, <i>'cash flow information provides users of financial statements with a basis to assess the ability of the entity to generate cash and cash equivalents and the needs of the entity to utilise those cash flows.'</i></p> <p>A cash flow statement displays over a defined period (e.g. one year or six months) the total cash inflows and outflows from operating, investing and financing activities.</p> <p>Even though companies prepare cash flow statements and income statements over the same timeframe they are fundamentally different because of the principle of accruals (see above).</p>
<b>Consolidated accounts</b>	<p>Consolidated accounts are the financial statements of a parent company and its subsidiaries as though they were a single entity.</p>

<b>Contingent liability</b>	IAS 37 ¶10 states that 'A <i>contingent liability</i> is: a) A <i>possible obligation that arises from past events and whose existence will be confirmed by the occurrence or non-occurrence of one or more uncertain future events not wholly within the control of the entity, or</i> b) A <i>present obligation that arises from past events but is not recognised because:</i> i) <i>It is not probable that an outflow of resources embodying economic benefits will be required to settle the obligation; or</i> ii) <i>The amount of the obligation cannot be measured with sufficient reliability.'</i>
<b>Cost model</b>	IAS 16 ¶30 states, 'After recognition as an asset, an item of property, plant and equipment shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses.'
<b>Depreciation</b>	IAS 16 ¶6 states that 'depreciation is the systematic allocation of the depreciable amount of an asset over its useful life.'
<b>Discounting</b>	Discounting is a process to calculate the present value of future cash inflows or outflows, taking account of interest rates. As an example, the present value of €100 in two years' time at a discount rate of 10% is €82.64, i.e. if €82.64 was invested today at a 10% interest rate at the end of two years it would be worth €100.
<b>Expensed</b>	Costs charged to the income statement.
<b>Fair value</b>	IAS 16 ¶6 states fair value is the 'price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.'
<b>Impairment</b>	IAS 16 ¶6 states 'an impairment loss is the amount by which the carrying amount of an asset exceeds its recoverable amount.'
<b>Income statement</b>	See ' <b>Profit or Loss.</b> '
<b>Income smoothing</b>	Using accounting rules to smooth reported profits over time. This is practised for a number of reasons, especially as there is some evidence that investors pay higher prices for companies where profits are predictable and rising, as opposed to profits varying significantly from year to year.
<b>Incorporation</b>	See <b>State of Incorporation.</b>
<b>Intangible assets</b>	IAS 38 ¶38 states that 'an intangible asset is an identifiable non-monetary asset without physical substance.'

<b>Lease</b>	<p>'A lease is an agreement whereby the lessor conveys to the lessee in return for a payment or series of payments the right to use an asset for an agreed period of time' (IAS 17 ¶4).</p> <p>IAS 17 ¶4 splits leases into two types:</p> <ul style="list-style-type: none"> <li>• 'A finance lease is a lease that transfers substantially all the risks and rewards incidental to ownership of an asset. Title may or may not eventually be transferred.'</li> <li>• 'An operating lease is a lease other than a finance lease.'</li> </ul>
<b>Lessee</b>	<p>IFRS does not explicitly define lessor and lessee, as they are words in common usage, but defines as a lease as 'an agreement whereby the lessor conveys to the lessee in return for a payment or series of payments the right to use an asset for an agreed period of time' (IAS 17 ¶4). The lessee is the party that is receiving the leased items and pays the lessor. In property transactions, the lessee is the tenant.</p>
<b>Lessor</b>	<p>IFRS does not explicitly define lessor and lessee as they are words in common usage, but defines as a lease as 'an agreement whereby the lessor conveys to the lessee in return for a payment or series of payments the right to use an asset for an agreed period of time' (IAS 17 ¶4). The lessor is the party that is owns the leased items and rents them out to the lessee in return for a cash consideration. In property transactions, the lessor is the landlord.</p>
<b>Liability</b>	<p>IAS 37 ¶10 states that 'a liability is a present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits.'</p>
<b>Net cash flow from financing activities</b>	<p>IAS 7 states that the net cash flow from financing activities includes, as examples:</p> <ul style="list-style-type: none"> <li>▪ proceeds from issue of share capital (+)</li> <li>▪ proceeds from long-term borrowings (+)</li> <li>▪ payment of finance lease liabilities (-)</li> <li>▪ dividends paid (-).</li> </ul>
<b>Net cash flow from investing activities</b>	<p>IAS 7 states that the net cash flow from investing activities includes, as examples:</p> <ul style="list-style-type: none"> <li>▪ acquisition of subsidiaries (-)</li> <li>▪ purchases as non-current assets (-)</li> <li>▪ proceeds from the sale of non-current assets (+)</li> <li>▪ interest received (+)</li> <li>▪ dividends received (+).</li> </ul>



<b>Net cash flow from operating activities</b>	<p>IAS 7 states that a cash flow statement can be built up in two ways, the direct and the indirect method. The direct method is more common and splits cash flows into three components – cash flows from operating activities, cash flows from investing activities and cash flows from financing activities.</p> <p>The net cash flow from operating activities will include:</p> <ul style="list-style-type: none"> <li>▪ cash receipts from customers (+)</li> <li>▪ cash paid to suppliers and employees (-)</li> <li>▪ taxes paid (-).</li> </ul>
<b>Net Present Value (NPV)</b>	<p>The present value of future cash flows taking account of the time value of money.</p>
<b>Other comprehensive income</b>	<p>IFRS incorporates other comprehensive income into the statement of profit or loss and other comprehensive income (IAS 1 ¶10). IAS 1 ¶7 splits other comprehensive income into:</p> <ul style="list-style-type: none"> <li>▪ revaluations of assets which change the revaluation surplus</li> <li>▪ re-measurements of defined benefit pension plans</li> <li>▪ foreign currency gains and losses on translation of financial statements</li> <li>▪ fair value adjustments on available-for-sale financial assets such as equity investments</li> <li>▪ gains and losses on cash flow hedges</li> <li>▪ gains and losses attributable to changes in a liability's credit risk.</li> </ul> <p>IAS 1 ¶82A says the statement of other comprehensive income <i>'shall present line items for amounts of other comprehensive income in the period, classified by nature (including share of the other comprehensive income of associates and joint ventures accounted for using the equity method) and grouped into those that, in accordance with other IFRSs:</i></p> <ol style="list-style-type: none"> <li>a) <i>will not be reclassified subsequently to profit or loss; and</i></li> <li>b) <i>will be reclassified subsequently to profit or loss when specific conditions are met.'</i></li> </ol>
<b>Profit or Loss</b>	<p>'Profit or loss' is a fairly new IFRS term for that part of statement of profit or loss and other comprehensive income that is not 'other comprehensive income.' For most companies, this amount is the same as 'earnings'.</p> <p>The statement of profit or loss and other comprehensive income is one of the four financial statements required by the IFRS (IAS 1 ¶10).</p> <p>Most companies show the statement of profit or loss and other comprehensive income as two separate statements.</p> <p>IAS 1 ¶102 and IAS 1 ¶103 provides different ways of presenting Profit or Loss.</p> <p>The old UK term 'Profit and Loss account' corresponds to 'profit or loss', and is commonly also called an income statement.</p>

<b>Property plant and equipment</b>	IAS 16 ¶6 defines property, plant and equipment as, <i>'tangible items that:</i> a) <i>are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and</i> b) <i>are expected to be used during more than one period.'</i>
<b>Provision</b>	IAS 37 ¶10 states that <i>'a provision is a liability of uncertain timing or amount.'</i>
<b>Revaluation model</b>	IAS 16 ¶31 defines the revaluation model as, <i>'After recognition as an asset, an item of property, plant and equipment whose fair value can be measured reliably shall be carried at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses. Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.'</i>
<b>Revenue</b>	Revenue means the entity's gross inflow from its operating activities, which is equivalent to 'sales' for most companies. Revenue is generally recognised when products are delivered. Revenue is shown as the first line of the income statement.
<b>State of incorporation</b>	The country in which a company was legally formed.
<b>Statement of changes in equity</b>	The statement of changes in equity for the period is one of the four financial statements required by the IFRS (IAS 1 ¶10). The changes are split into three headings: <ul style="list-style-type: none"> <li>▪ comprehensive income (which is drawn from the other comprehensive income section of the statement of profit or loss and other comprehensive income)</li> <li>▪ effects of restatements, e.g. changes to accounting rules or changes to depreciation policy and corrections of errors</li> <li>▪ share issues, share repurchases and dividend payments (IAS 1 ¶106).</li> </ul>
<b>Statement of financial position</b>	This is one of the four financial statements required by the IFRS (IAS 1 ¶10) that is sometimes called a balance sheet. IAS 1 ¶54 lists what needs to be included in the statement.
<b>Statement of profit or loss and other comprehensive income</b>	This is one of the four financial statements required by the IFRS (IAS 1 ¶10) that is sometimes called an income statement. IAS 1 ¶81A and IAS 1 ¶81B explains what needs to be included in the statement.
<b>Tangible assets</b>	Property, plant and equipment and other assets with physical substance, such as investment property (IAS 40) and biological assets (IAS 41).
<b>Unconsolidated accounts</b>	The accounts of a company which treat any subsidiaries as investments rather than including the separate assets and liabilities of the subsidiaries.

## Appendix 3 – Summary of accounting rules in five selected EU countries

Across the five selected Member States Figure 13 summarises the GAAP names given to each of the sets of accounts that are required to be prepared.

**Figure 13: Financial statements that are compulsorily required by various GAAPs**

Generic description	Income Statement	Balance Sheet	Cash flow statement	Statement of changes in equity
IFRS	Statement of profit or loss and other comprehensive income for the period, which can be shown as two statements	Statement of financial position	Statement of cash flows	Statement of changes in equity
Czech Republic	Income statement	Balance sheet	X	X
France	Income statement	Balance sheet	X	X
Germany	Profit and loss Statement	Balance sheet	Cash flow statement (only required for traded companies)	X
Italy	Income statement	Balance sheet	X	X
UK: FRS102*	Either (a) statement of comprehensive income determining profit or loss and items of comprehensive income, or (b) separate statements of income and comprehensive income	Statement of financial position	Statement of cash flows	Statement of changes in equity**
UK: FRSSE*	Profit and loss account and Statement of total recognised gains and losses	Balance sheet	X	X

\* From 2015, if companies are not obliged to use IFRS or do not choose to use IFRS there are two different accounting rules for non-traded companies and unconsolidated traded companies, 'FRS102: The Financial Reporting Standard applicable in the UK and the Republic of Ireland'<sup>103</sup> which is for any company and the Financial Reporting Standard for Smaller Entities (FRSSE)<sup>104</sup> which is a simpler set of accounting rules applicable to smaller companies (using the definition of small in the UK Companies Act which includes turnover up to £6.5m)<sup>105</sup>.

\*\* In FRS 102 a statement of changes in equity is compulsory, unless certain criteria are met in which case the entity may present a single statement of income and retained earnings.

As can be seen, all national GAAPs require the preparation of income statements and balance sheets, but few require a statement of changes in equity. The following

<sup>103</sup> Financial Reporting Council. FRS102: The Financial Reporting Standard applicable in the UK and the Republic of Ireland. March 2013.

<sup>104</sup> Financial Reporting Council. Financial Reporting Standard for Smaller Entities (effective January 2015). July 2013.

<sup>105</sup> Accessed 24 February 2014

summarises the accounting rules in each of the selected Member States. It does not include the instruction to use IFRS for the consolidated statements of traded companies, because that is an EU-wide requirement.

## Czech Republic



The Czech Accounting Act came into effect in January 2011. The Accounting Act needs to be complied with by companies of all sizes.

Under Czech Republic rules to implement Article 5 of the 2002 Council and European Parliament Regulation (EC) No 1606/2002:

- unconsolidated traded must use IFRS
- non-traded consolidated can use IFRS or Czech GAAP
- non-traded unconsolidated must use Czech GAAP<sup>106</sup>.

Corporate taxes are based on the accounts, meaning, that where the accounting system allows different choices, companies will often choose the accounting approach that results in the lower tax requirements, rather than representing the economic value of assets<sup>107</sup>.

## France



French accounting rules are defined in the Plan Comptable Général (PCG)<sup>108</sup> which is administered by the Autorité des Normes Comptables (ANC), part of the French Government. The ANC also advises on IFRS standards. The PCG is a detailed 408-page manual on internal accounting rules and external presentation of accounting rules.

Under French rules to implement Article 5 of the 2002 Council and European Parliament Regulation (EC) No 1606/2002:

- non-traded companies' consolidated statements can use IFRS or French GAAP
- unconsolidated (traded or non-traded) companies must use French GAAP<sup>109</sup>.

Even though rules for GAAP depreciation and amortisation have been adjusted to follow IFRS, as stated by Nobes and Parker (2012), *'tax law plays an important role in the individual financial statements of French companies and other business enterprises for two reasons: the rules for measuring reported accounting profit in such statements do not differ significantly from those for measuring taxable income; and expenses are generally only deductible for tax purposes if treated as expenses in the annual financial statements'*<sup>110</sup>. Further, the French Commercial Code and the Companies Act link into the PCG.

<sup>106</sup> European Commission. DG Internal Market and Service. Implementation of the IAS Regulation (1606/2002) in the EU and EEA (published for information purposes only). February 2012.

<sup>107</sup> EY. *Overview of Differences between International Financial Reporting Standards and Czech Accounting Legislation*. 2013

<sup>108</sup> République Française, Ministère de L'Économie des Finances et de L'Emploi. Plan Comptable Général. 14 Décembre 2007.

<sup>109</sup> European Commission. DG Internal Market and Service. Implementation of the IAS Regulation (1606/2002) in the EU and EEA (published for information purposes only). February 2012.

<sup>110</sup> Nobes, C. and R. Parker. *Comparative International Accounting: 12<sup>th</sup> Edition*. Pearson. Harlow, England, 2012. pp.333 and 354.

The accounting rules for smaller and bigger companies are essentially the same, although smaller companies can prepare accounts with a simpler accounting statement format and fewer notes<sup>111</sup>.

## Germany



German accounting rules are defined in the Handelsgesetzbuch (HGB), the German Commercial Code which is set by the Federal Ministry of Justice and Consumer Protection. The HGB is a shorter 182-page manual on internal accounting rules and external presentation of accounting rules. However, as in many other European countries, tax rules are also very important, for example leasing rules tend to follow German taxation rules and depreciation expenses are often based on what is allowed for tax purposes.

There is also the Deutsches Rechnungslegungs Standards Committee (DRSC) which is a not-for-profit association which contributes to and represents Germany at IFRS discussions and interprets IASs.

Under German rules to implement Article 5 of the 2002 Council and European Parliament Regulation (EC) No 1606/2002:

- non-traded consolidated can use IFRS or German GAAP, unless they have filed for a listing in which case they have to use IFRS
- unconsolidated (traded or non-traded) companies must use German GAAP, although IFRS statements can be prepared in addition<sup>112</sup>.

The accounting standards for all German companies are the same, However, depending on the size of the company concerned, smaller companies do not have to follow all the supplementary rules of the HGB, for example they can submit a more concise balance sheet and do not have to submit an income statement<sup>113</sup>.

## Italy



Italian accounting rules are defined in the Principi Contabili Nazionali, which are set by the Organismo Italiano di Contabilità (OIC). The OIC is the national standard setter having three main roles:

- defining accounting standards for the preparation of financial statements for companies which are not using IFRS
- participating in the activity of processing of IFRS, providing technical support to international bodies and coordinating its work with the activities of other standard setters in Europe
- assisting the national legislator in enacting laws on accounting.

The Civil Code defines the basic legislative rules which have to be integrated and interpreted using the accounting principles stated by the OIC.

Under Italian rules to implement Article 5 of the 2002 Council and European Parliament Regulation (EC) No 1606/2002:

- Unconsolidated traded must use IFRS, except insurance companies who only have

<sup>111</sup> Idem. p.341.

<sup>112</sup> European Commission. DG Internal Market and Service. Implementation of the IAS Regulation (1606/2002) in the EU and EEA (published for information purposes only). February 2012.

<sup>113</sup> Nobes, C. and R. Parker. Comparative International Accounting: 12<sup>th</sup> Edition. Pearson. Harlow, England, 2012. pp.342.

to comply with IFRS if they do not draw up consolidated accounts.

- Non-traded (consolidated or unconsolidated) can use IFRS or Italian GAAP, except for small companies which must use Italian GAAP and supervised financial companies, companies with financial instruments widely distributed among the public and insurance companies which must use IFRS<sup>114</sup>.

## United Kingdom



Accounting rules in the UK (and the Republic of Ireland) are set by the Financial Reporting Council (FRC) which is an independent regulator responsible for promoting high quality corporate governance and financial reporting.

Under UK rules to implement Article 5 of the 2002 Council and European Parliament Regulation (EC) No 1606/2002:

- non-traded consolidated companies can use IFRS or UK GAAP, except for charity sector which must use UK GAAP
- unconsolidated (traded or non-traded) companies can use IFRS or UK GAAP, except for charity sector which must use UK GAAP<sup>115</sup>.

For companies that do not adopt IFRS, from January 2015, UK GAAP will consist of two main standards, and the analysis of UK GAAP in this report is based on these standards:

- For smaller companies that pass two of the three classification criteria for being a small company, Financial Reporting for Standard for Smaller Entities, commonly called FRSSE, can be adopted. The three criteria are having a turnover less than £6.5 million, total assets less than £3.26 million and less than 50 employees.
- All other companies must adopt 'Financial Reporting Standard (FRS) 102 - The Financial Reporting Standard Applicable in the UK and Republic of Ireland.' There is also a separate standard 'FRS 103 Insurance Contracts' that companies that adopt FRS 102 have to use when accounting for insurance contracts.

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<sup>114</sup> European Commission. DG Internal Market and Service. Implementation of the IAS Regulation (1606/2002) in the EU and EEA (published for information purposes only). February 2012.

<sup>115</sup> Ibid.

## Appendix 4 – IFRS choices and measurement estimations

**Technical Table 1: Main overt and covert IFRS choices and areas where there is subjectivity in measuring values that are relevant for resource efficiency**

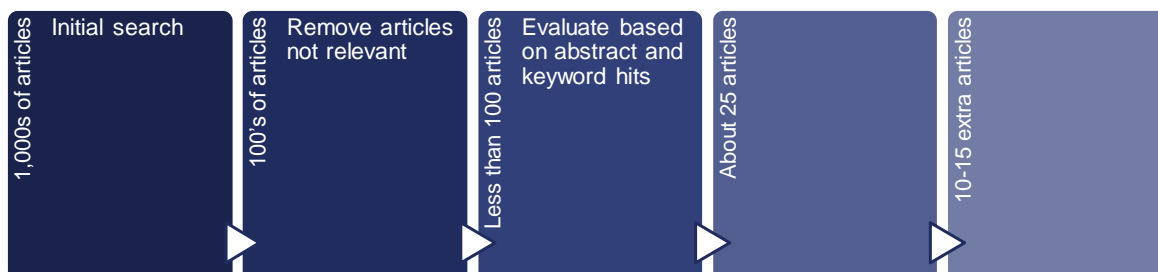
<b>Overt choices</b>	
Valuing tangible assets	Cost or 'fair value' (the sale or purchase price in an orderly transaction between market participants) measurement basis for classes of property, plant and equipment and investment property.
Valuing intangible assets	Cost or fair value measurement for some rare types of intangible asset.
Government grants for investment	Either reduce the value of the asset by the amount of the grant (which reduces the depreciation expense in subsequent periods) or create a deferred income liability which is released to the income statement over time. Both methods effectively spread the benefit of the grant over the life of the asset.
<b>Covert choices</b>	
Is a lease an operating lease or a finance lease?	Lease classification based on ' <i>substantially all the risks and rewards</i> ' with no numerical criteria
Identification of an impairment	Identification of impairment based on a mixture of criteria.
Recognition of a provision	Recognition of a provision based on probability of outflow of resources.
Development costs of Research and Development	Capitalisation of development costs when all of various criteria are met.
Amortisation of intangible assets	Amortisation (the term used for the depreciation of intangible assets) of intangible assets is only possible if the useful life is assessed as finite, so there is subjectivity in determining whether the intangible asset has an infinite life.
<b>Measurement estimations</b>	
Depreciation / amortisation based on estimates of useful lives	To work out the annual depreciation/ amortisation there is a need to estimate the useful lifespan of the asset, the residual value of the asset at the end of its useful lifespan (often zero but sometimes a small value if the asset has a recyclable value) and the pattern of consumption.
Fair value estimates for asset values	If fair value is the chosen method to value assets, estimates need to be made of the fair value where there will be some subjectivity.
Estimating impairments	Estimates need to be made of the recoverable amount of the asset which is the higher of its value in use and its fair value less cost of disposal.
Discounting provisions	Provisions need to be discounted at a pre-tax rate (or rates) that reflect(s) current market assessments of the time value of money and the risks specific to the liability, but little guidance is provided.

Source: Nobes, C. and R. Parker. *Comparative International Accounting: 12<sup>th</sup> Edition*. Pearson. Harlow, England, 2012. Chapter 7, pp.160-173.

## Appendix 5 – Literature review methodology

This Appendix explains the five steps to the literature review methodology, summarised in Figure 14.

**Figure 14: Five step literature review methodology**



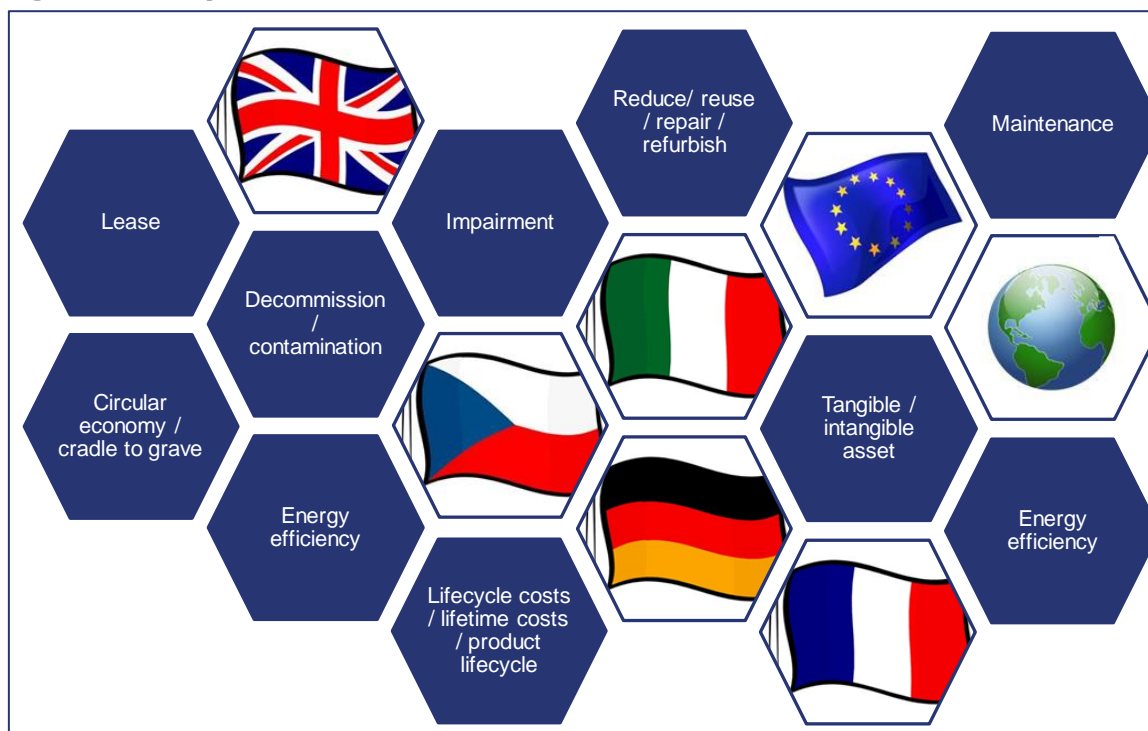
### Step 1: Initial search

17 key peer-reviewed academic journals that covered themes aligned to the scope of the research were identified and are summarised in Figure 15. All the articles from the 17 journals over the last ten years were reviewed using a list of keywords both on their own and in combination. The keywords are highlighted in Figure 16. As the journals were accessible through different search engines, having this defined keyword list helped ensure consistent article selection.

**Figure 15: Academic journals reviewed**

<ul style="list-style-type: none"> <li>▪ Abacus: A Journal of Accounting, Finance and Business Studies</li> <li>▪ Accounting and Business Research</li> <li>▪ Accounting Forum</li> <li>▪ Accounting Horizons</li> <li>▪ Accounting in Europe</li> <li>▪ Advances in Accounting</li> <li>▪ Accounting, Auditing and Accountability Journal</li> <li>▪ Critical Perspectives On Accounting</li> <li>▪ European Accounting Review</li> </ul>	<ul style="list-style-type: none"> <li>▪ Financial Accountability and Management</li> <li>▪ Journal of Cleaner Production</li> <li>▪ Journal of Environmental Management</li> <li>▪ Journal of International Accounting, Auditing and Taxation</li> <li>▪ Research in Accounting Regulation</li> <li>▪ Sustainability, Accounting, Management and Policy Journal</li> <li>▪ The British Accounting Review</li> <li>▪ The International Journal of Accounting</li> </ul>
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**Figure 16: Keywords**

In some instances there was a need to further narrow down terms when hundreds of articles came up in journals. For example, on a few occasions searching for 'resource efficiency' returned a large number of articles about 'human resource efficiency.' In this case additional search terms, such as 'natural resources', 'accounting' or 'accountancy' were added.

### **Step 2: Remove articles not relevant**

The number of articles returned using the keywords varied widely between search engines and journals, and in some cases, even after further refinement of keywords, still over one hundred articles were generated. As a first selection the search results were scanned using the title and abstract. If articles appeared relevant they were recorded in a spreadsheet that provided the full abstract, the number of keyword hits, the name/s of the author/s, the year of publication and the countries covered. The countries that were searched for included the five Member States that the study focused on (Czech Republic, France, Germany, Italy and the United Kingdom). The keyword 'European Union' was another search term, as was 'global/ worldwide accounting' (i.e. the IFRS standards).

### **Step 3: Evaluation of abstract and keyword count**

Each remaining article was allocated a provisional score on a scale 1 to 5 based on the list of keywords found within the body of the article and the abstract. A score of 5 was awarded to those articles that appeared very relevant down to 1 for least relevant. The scoring system was designed to be conservative (i.e. the aim was to exclude the clearly irrelevant articles while maintain those most likely to be relevant).

### **Step 4: Selection of final articles and analysis of key articles using a standard template**

Using a combination of the abstract score and the number of keywords, the top 30 articles were chosen and analysed using a bespoke customised template to draw out early conclusions and findings.

### **Step 5: Re-evaluation of articles**

The initial review of 30 articles highlighted some issues in the study that were not covered. For example, there was a lack of articles about discount rates to use when setting up provisions. Therefore, eight more articles about discounting provisions were found, scored according to the Step 3 criteria, with those particularly relevant articles analysed using the standard template. Other areas that were researched included carbon allowances, the 'carbon bubble' (discussed in Section 6.1 on page 55) and the methodologies banks and financial analysts use to decide whether to offer loans or invest in companies.

Secondly, the selected Step 4 articles referenced other articles in other journals that the initial search had not covered. These were selected based on Steps 2 to 4.

Thirdly, stakeholders suggested some articles in other journals that were evaluated.

In total from Step 4 and Step 5 over 60 articles were reviewed.

## **Appendix 6 – Organisations consulted**

### **Rules setters**

- Deutsches Rechnungslegungs Standards Committee (DRSC) – advises German Government on the setting of accounting rules
- Fédération des Experts-comptables Européens (FEE)
- Financial Reporting Council (FRC) – UK accounting rules setter.

### **Apppliers of accounting systems rules**

- Desso
- ENI
- Ricardo-AEA
- A German manufacturer that adopts German GAAP
- Dornier.

### **Users of financial statements**






- European Investment Bank (EIB)
- Banca di Credito Cooperativo di Pisa e Fornacette.






### **Think tanks**

- Two Big 4 accounting firms
- Ellen Macarthur Foundation
- European Financial Reporting Advisory Group (EFRAG)
- Prince's Accounting for Sustainability Project (A4S).

## Appendix 7 – Accounting rules for assets

**Technical Table 2: What are the rules to value tangible assets?**






	IFRS					
						FRS10 FRSSE
Land & buildings (except investment property)	Measured initially at cost (IAS 16 ¶15) and then either at cost or revalued to fair value at regular intervals (with losses being reported in the Profit or Loss section of the Profit or Loss and Other Comprehensive Income Statement, and gains being reported as a revaluation surplus in the Other Comprehensive Income section and also entered under the equity heading of the Statement of Financial Position) (IAS 16 ¶29, IAS16 ¶39 and IAS 16 ¶40). Whether held at cost or fair value, assets are subject to impairment tests and to depreciation if they have limited useful lives (IAS 16 ¶30-¶31). If assets are depreciated, the depreciable amount is calculated after deducting its residual value (IAS 16 ¶53).  When an asset is sold, the gain or loss on the sale is recorded in Profit or Loss (IAS 16 ¶68).  If a company buys another company that has a mix of identifiable tangible and intangible assets, then the initial cost of the identifiable tangible assets bought needs to be determined using the fair value method (IFRS 3 ¶18).	○ 1	○ 1	○ 1	○ 2	● ●
Land & buildings (investment property)	Initial measurement at cost. Subsequent measurement either as above under IAS 16 or at fair value (and not depreciated), with gains and losses to Profit or Loss (IAS 40 ¶30).	X	X	X	○ 3	● ○ 4
Other assets	There are five types of other tangible non-current assets including: <ul style="list-style-type: none"> <li>▪ plant and equipment. Whether or not plant and equipment can be considered as an asset depends on IAS 16 ¶7 which states that '(a) it is probable that future economic benefits associated with the item will flow to the entity; and (b) the cost of the item can be measured reliably.' Some items of equipment such as spare parts and standby equipment may not pass this test and would be classified as inventory, to which different rules apply (IAS 16 ¶8)</li> <li>▪ assets formerly non-current but now held for sale where IFRS 5 applies (IAS 16 ¶3a)</li> <li>▪ biological assets related to agricultural activity where IAS 41 applies (IAS 16 ¶3b)</li> <li>▪ exploration and evaluation of assets such as prospecting for oil which is covered by IFRS 6 (IAS 16 ¶3c)</li> <li>▪ mineral rights and mineral reserves (IAS 16 ¶3d) to which IAS 8 ¶10, IAS 8 ¶11 and IAS 8 ¶12 should be applied, which require the entity to consider other IFRSs, IAS concepts and pronouncements by other global standard-setting bodies.</li> </ul>	○ 5	○ 6	X	○ 7	● ○ 5

IFRS							
						FRS102	FRSSE
Initial cost of asset	The cost of an item of property, plant and equipment comprises of its purchase price, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in a manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located (IAS 16 ¶16). It cannot include any costs for shutdown of any existing assets to install the new item of property, plant and equipment (IAS 16 ¶19).	○ 8	●	○ 8	○ 9	●	●
Subsequent expenditure	Costs for day to day servicing are recognised in Profit or Loss. However, parts of some items of property, plant and equipment may require replacement at regular intervals. Providing the costs met the recognition criteria is IAS 16 ¶7, an entity recognises in the carrying amount of an item of property, plant and equipment the cost of replacing part of such an item when that cost is incurred. The carrying amount of those parts that are replaced is derecognised in accordance with the de-recognition requirements of this standard (IAS 16 ¶67-72).	○ 10	●	●	●	●	●
Depreciation	<ul style="list-style-type: none"> <li>▪ Under IAS 16, land, with some exceptions, has an unlimited useful life and is not depreciated (IAS 16 ¶58)</li> <li>▪ Buildings and other assets are depreciated over their 'useful life', with the depreciation method (e.g. straight-line, diminishing balance and the units of production method) being selected by the company, in principle depending on how the asset wears out (IAS 16 ¶50 and IAS 16 ¶62).</li> </ul>	●	●	○ 11	●	●	●
Asset composition	An item of property, plant and equipment should be separated into parts if they have different useful lives, providing each individual part has a significant cost in relation to the total cost. Depreciation is charged to Profit or Loss (IAS 16 ¶43-47).	●	●	○ 12	●	●	●

**Key:** ● = largely identical ○ = different X = no standard






1	No revaluation.	7	Slightly different breakdowns, with no special rules to distinguish whether plant and equipment can be considered assets.
2	Revaluation only in very special circumstances, e.g. high inflation.	8	Unlike IFRS, Czech and German GAAP do not allow the capitalisation of the costs of decommissioning the asset.
3	Must not depreciate investment properties.	9	Unlike IFRS, Italian GAAP does not allow for the capitalisation of decommissioning costs, but if the decommissioning costs are greater than the residual value a decommissioning fund needs to be established.
4	Investment property always revalued.	10	Unlike IFRS subsequent replacement costs cannot be capitalised, but must be charged to the income statement.
5	No further break down of assets.	11	If tax rules give higher depreciation allowances these can be used instead.
6	Major maintenance can be recorded as asset at date of initial investment, or as a provision depending on the entities' choice.	12	There is an option to depreciate significant parts of an asset if certain rules are met.

**Technical Table 3: Where IFRS offers choices in valuing tangible assets what practices do companies in Member States tend to adopt?**

	IFRS					
Land, buildings (except investment property) and other assets	After valuing the asset at cost, choice to then over time either: <ul style="list-style-type: none"> <li>value land and buildings on a cost basis, or</li> <li>revalue to fair value at regular intervals with losses being reported in the Profit or Loss and gains reported as a revaluation surplus in the Other Comprehensive Income section of the Profit or Loss and Other Comprehensive Income Statement and also entered under the equity heading of the Statement of Financial Position.</li> </ul>	●	●	●	●	◎
Land & buildings (investment property)	After valuing the asset at cost, there is a choice over time to either: <ul style="list-style-type: none"> <li>value land and buildings at cost (subject to depreciation and impairment), or</li> <li>revalue to fair value at regular intervals (subject to depreciation and impairment at the points between the revaluation) with gains and losses to Profit or Loss.</li> </ul>	◎	◎	◎	●	◎

**Key:** ● = All cost (less any depreciation and impairment)    ◎ = Some fair value    ◎ = Most fair value






**Technical Table 4: What are the rules to recognise and measure intangible assets?**

	IFRS						
					FRS102	FRSSE	
Intangible asset definition	Intangible assets are defined as non-monetary and without physical substance but are (a) identifiable, (b) controlled by the entity and (c) have future economic benefit (IAS 38 ¶8 and IAS 38 ¶10). An identifiable asset is either '(a) separable, i.e. is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable asset or liability, regardless of whether the entity intends to do so; or (b) arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations' (IAS 38 ¶12).  However, this standard does not apply to the exploration and evaluation of assets such as prospecting for oil covered by IFRS 6, nor expenditure on the extraction of minerals (IAS 38 ¶2c and IAS 38 ¶2d).	○1	•	•	•	•	•
Intangible asset recognition and initial measurement	There are three ways intangible assets are generated: <ul style="list-style-type: none"> <li>if an entity buys an intangible asset from another entity, the intangible asset is normally recorded at the purchase price (IAS 38 ¶25)</li> <li>if the entity buys another company, any intangible resources that meet the criteria of identifiable, controllable and having future economic benefit will be recorded as intangible assets at their estimated 'fair values' as a way of estimating cost at the date of acquisition (IAS 38 ¶33). For example, brand value or the value of existing contracts may be reported as an intangible asset. All other intangible resources will be classified as goodwill (IAS 38 ¶11) which is a type of intangible resource that does not fall under IAS 38 as it does not meet the IAS 38 ¶10 test of being separately identifiable</li> <li>internally during the development phase of research and development (R&amp;D) if certain criteria are met, e.g. there is a new invention which has a market (IAS 38 ¶57). As there may be no future economic benefit, the research phase of R&amp;D is not recognised as an intangible asset (IAS 38 ¶55). Furthermore, if an entity generates its own brand value, customer lists or customer loyalty these are not classified as intangible assets (IAS 38 ¶16).</li> </ul>	○2, & 3	○3 & 4	○3 & 5	○3 & 6	○3	○3
Intangible asset subsequent measurement	Nearly all intangible assets must be measured on a cost basis, (IAS 38 ¶24, IAS 38 ¶74 and IAS 38 ¶78). Unusual types of intangibles where there is an active market (e.g. freely transferable taxi licences or production quotas) can be revalued as under IAS 16 above (IAS 38 ¶78). Intangible assets should be amortised (the word used for the 'depreciation' of an intangible asset) over their useful lives, unless they are indefinite in which case there is no amortisation but annual impairment calculations (IAS 38 ¶72, IAS 38 ¶85, IAS 38 ¶86, IAS 38 ¶88 and IAS 38 ¶108). When a finite-life intangible asset is amortised, the depreciable amount is calculated after deducting its residual value (IAS 38 ¶101).	○7 & 8	○7	○9	○10	○8	○7 & 8
Selling intangible assets	Like tangible assets, when an intangible asset is sold the gain or loss on the sale is recorded in the Profit or Loss section of the Profit or Loss and Other Comprehensive Income account (IAS 38 ¶113).	•	•	•	•	•	•

**Key:** ● = largely identical ○ = different X = no standard

1	Czech accounting rules contain a list of items that can be classified as intangible assets, rather than being principles based like IFRS.
2	Similar, but research costs can also be recognised as intangible assets if they meet certain criteria.
3	Development costs may be capitalised, which is unlike IFRS where development costs have to be capitalised.
4	Similar, but two extra possibilities: <ul style="list-style-type: none"> <li>▪ on buying some going-concern assets (rather than buying shares) a different type of goodwill can arise - 'fonds commercial' or purchased non-consolidation goodwill</li> <li>▪ expenditure necessary to set up operations which cannot be linked to specific goods and services can be classified as an intangible asset.</li> </ul>
5	As well as the IFRS rules an intangible asset can be generated if it meets the general definition of an individually utilisable asset, so it could be sold or licenced to a third party, e.g. an internally built computer system.
6	Also, some expenditure necessary for the establishment of an entity's operations which cannot be clearly linked to the production of specific goods and services can be included, e.g. legal and advertising fees.
7	Intangible assets should always be measured on a cost basis, and never revalued.
8	Intangible asset lives should always be finite.
9	All intangibles should be measured on a cost basis. The only instance where it is possible to revalue intangible assets is where an impairment needs to be reversed because circumstances have changed. For acquired goodwill even if there has been an impairment and the reason for the impairment no longer exists there can be no goodwill revaluation.
10	Revaluation of intangibles can only be done under special rules and there are specific rules in the Italian Civil Code that limit the amortisation period to five years for internally generated intangible assets and purchased goodwill.






**Technical Table 5: Where IFRS offers an overt choices in valuing intangible assets which practice do companies in Member States tend to adopt?**

	IFRS					
Intangible asset valuation	After initially measuring the intangible asset at cost, there is a choice over time to either: <ul style="list-style-type: none"> <li>▪ value intangible assets on a cost basis (subject to amortisation and impairment), or</li> <li>▪ revalue to fair value at regular intervals (subject to amortisation and impairment), but this requires an active market which will only exist for some intangible assets, e.g. freely transferable taxi licences or production quotas.</li> </ul> Do companies revalue intangible assets to fair value where this is possible?	X	X	X	X	X

**Key:** X = no








**Technical Table 6: What are the rules to impair assets?**

	IFRS					
					FRS102	FRSSE
Impairment (downward valuation of assets)	<p>IAS 36 ¶9 requires the entity to 'assess at the end of each reporting period whether there is any indication that an asset may be impaired. If any such indication exists, the entity shall estimate the recoverable amount of the asset.' This applies even if the company is using the revaluation model for periodically revaluing its tangible and intangible assets. IAS 36 ¶12 provides a list of issues the entity needs to consider as indications of the need to impair.</p> <p>Further, whether or not there is an indication of the need to impair, an entity has to annually test for the impairment of intangible assets with indefinite lives and for any goodwill acquired after it has bought another company (IAS 36 ¶10). To test for an impairment, the recoverable amount of the asset is the higher of its value in use (which requires discounted cash flow analysis for assets where the time value of money will be material) or its fair value minus the cost of selling the asset (IAS 36 ¶18 and IAS 36 ¶31).</p> <p>If there needs to be an impairment then it will 'be recognised immediately in profit or loss, unless the asset is carried at revalued amount in accordance with another Standard (for example, in accordance with the revaluation model in IAS 16)' (IAS 36 ¶60) when the rules are complex.</p> <p>If the reason for an impairment to tangible or intangible assets no longer exists the impairment must be reversed, but not to a value higher than that what it would have been without the impairment (unless companies use the fair value method of valuation) (IAS 36 ¶117). No reversals are allowed for goodwill (IAS 36 ¶124).</p>	○1	○1	○2	○1	●

**Key:** ● = largely identical ○ = different X = no standard

1	Similar, the GAAP has less guidance on impairment tests.
2	<ul style="list-style-type: none"> <li>▪ When testing for an impairment the book value is compared to the cost of reacquiring or buying the asset. This is unlike IFRS which requires (assuming that this is higher) an estimate of its value in use (which requires discounted cash flows for assets where the time value of money will be material).</li> <li>▪ German GAAP gives discretion as to whether an impairment is needed if it is temporary.</li> </ul>

**Technical Table 7: What are the accounting rules for government grants for assets?**

	IFRS					
		1	2	3	4	FRS102 FRSSE
Government grants	<p>IFRS allows two ways to account for government grants, the capital approach or the income approach:</p> <ul style="list-style-type: none"> <li>Under the capital approach, the grant is deducted from the asset value, which means that in each subsequent period the depreciation expense is less (IAS 20 ¶27).</li> <li>Under the income approach a liability called 'deferred income' is recognised which is gradually released to the Profit or Loss and Other Comprehensive Income Statement over the asset's useful life (IAS 20 ¶26).</li> </ul> <p>The net impacts of both approaches on income statement are identical, with the grant being recognised as income on a systematic basis over the asset life.</p>	○	○	●	●	○

**Key:** ● = largely identical ○ = different X = no standard

1	In the Czech Republic GAAP only the capital approach is allowed.
2	In France and under the UK FRSSE only the income approach is allowed.
3	There are no specific German GAAP rules for government grants, but commentary on German GAAP indicates the IFRS approach should be used.
4	<p>Under UK GAAP two approaches are possible:</p> <ul style="list-style-type: none"> <li>The performance model where all the grant is recognised in the income statement when all the conditions for receiving the grant have been met.</li> <li>The income accrual method which is similar to the IFRS income approach.</li> </ul>

## Appendix 8 – IFRS accounting rules for mineral reserves

IFRS 6, *Exploration for and Evaluation of Mineral Reserves*, states that initially the costs of exploring for minerals (e.g. acquisition of rights to explore, studies, exploratory drilling, trenching, sampling and evaluating the technical and commercial feasibility) should be summed and this total cost entered on the company's balance sheet<sup>116</sup>. After recognition there is an option to apply the cost model (depreciation and impairment) or the revaluation model<sup>117</sup>. The values of the asset under the cost model will be lower of the cost of exploring for the minerals and the estimated profit that could be made from extracting the minerals. Therefore, even if there are estimated to be €200 million worth of profits if the exploration costs were only €10 million the asset would be reported at €10 million.

If the revaluation model is adopted the rule is to value the estimated profits that could be made from extracting the minerals, and if this is lower than the cost of exploration to reduce the value.

Figure 17 illustrates the balance sheet positions in different scenarios applying either the cost model or the revaluation model before oil is (or is not) found and after oil is (or is not) found.

**Figure 17: Asset values (€ million) of oil exploration activities that cost €10 million**

		Economic value (€m)	Low	High*		Cost model (€m)	Revaluation (€m)
1	No oil found		0	0	Initial	10	10
					After find	0 (Impairment 10)	0 (Impairment 10)
2	1,200,000 – 1,500,000 barrels of oil Estimated price of a €72/ barrel Estimated extraction cost €50/ barrel	Revenue	86.4	108.0	Initial	10	10
		- Cost of extraction	(60.0)	(75.0)			
		- Cost of prospecting	(10.0)	(10.0)	After find	10	16.4 (Being conservative)
		<b>Net value</b>	<b>16.4</b>	<b>23.0</b>			
3	800,000 – 1,200,000 barrels of oil Estimated price of a €72/ barrel Estimated extraction cost €50/ barrel	Revenue	57.6	86.4	Initial	10	10
		- Cost of extraction	(40.0)	(60.0)			
		- Cost of prospecting	(10.0)	(10.0)	After find	7.6 (Being conservative)	7.6 (Being conservative)
		<b>Net value</b>	<b>7.6</b>	<b>16.4</b>			

\* The low scenario is for the lower end of reserves and the high scenario is for the upper end of reserves.

In each of three scenarios (no oil found, up to 1.5 million barrels of oil found, and up to 1.2 million barrels of oil found) it is assumed €10 million is spent in oil exploration. In reality, the assessment would not be undertaken for each well and there are a number of ways of grouping wells together– the 'full cost method' and the 'successful efforts method'<sup>118</sup>. The full cost method groups a number of fields together, based on similar characteristics such as physical proximity, similar geology or similar economic

<sup>116</sup> IFRS 6 ¶8

<sup>117</sup> IFRS 6 ¶12

<sup>118</sup> IFRS 6 ¶21

environments<sup>119</sup>. The successful efforts method groups wells into smaller fields. The latter is more conservative as in oil exploration there is a high failure rate when searching for oil, so the exploration in many fields will be impaired as searches prove unsuccessful.

As can be seen, in Scenario 1 the cost and revaluation model would both value the field at nil as no oil was found. As there is no accounting guidance on how companies should estimate how much oil is in a particular field, in Scenario 2 (between 1.2 million and 1.5 million barrels of oil were found) the field would still be valued at €10 million with the cost model, but between €16.4 million and €23.0 million under the revaluation model, depending on how conservative the company is in estimating how much oil is actually in the field.

In Scenario 3 (between 0.8 million and 1.2 million barrels of oil) the field would be valued at between €7.6 million and €16.4 million. If the company is conservative, as it is allowed to be, then under both Scenario 3 models the field would be valued at €7.6 million. If the company is less conservative under the cost model it could be valued still at €10 million, but under the revaluation model at closer to €16.4 million.

As can be seen, the estimated values can vary depending on assumptions about the estimated amount of oil in the ground, with distinctions between proven reserves and estimated reserves. It is also the case that oil is found in different strata, some of which may be cheap to extract, but other reserves may only become profitable to extract when oil prices reach €150 per barrel. Oil prices vary significantly over time so there will be uncertainty about what oil prices may be when the oil is extracted. Scenarios 2 and 3 in Figure 17 would give very different values if oil prices were only €55 per barrel, as this would only give a net income of €5 per barrel.

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<sup>119</sup> Păvăloaia, L. 'Assessment of Natural Resources – point of view of the IASB.' *Annals. Economic Science Series .Tibiscus, University of Timișoara*. Vol. XIX/ 2013. pp.574-581.

## Appendix 9 – Accounting rules for provisions

**Technical Table 8: What are the rules for provisions (maintenance and decommissioning)?**

	IFRS					
					FRS10	FRS6
Definitions of provisions	The general rule for provisions is to include them as liabilities <i>when:</i> <i>a) an entity has a present obligation (legal or constructive) as a result of a past event;</i> <i>b) it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation; and</i> <i>c) a reliable estimate can be made of the amount of the obligation' (IAS 37 ¶14).</i>	○ 1	●	○ 2	●	●
Value of provisions	IAS37 ¶36 states the <i>'amount recognised as a provision shall be the best estimate of expenditure required to settle a present obligation at the end of the reporting period.'</i>	○ 3	○ 4	○ 5	○ 6	●
Is the future maintenance of assets recorded as a liability?	Provisions are not set up for maintenance as illustrated by the following four examples: <ul style="list-style-type: none"> <li>▪ An existing contract for future maintenance would not be classified as a provision as it would be an 'executory contract' without a present obligation – i.e. the contract is dependent on the maintenance company carrying out the maintenance at some future time (IAS 37 ¶1).</li> <li>▪ A lease (whether a finance or an operating lease) with a maintenance contract included. Here, the company would need to separate out the maintenance and lease parts and would not record the maintenance component (IFRIC 4 ¶12-13 and IAS 37 ¶1).</li> <li>▪ A plan for future maintenance, with no contract in place. Again there would be no present obligation (IAS 37 ¶14).</li> <li>▪ The implication that an asset needs to be maintained in order to keep running the business is also not a reason for setting up a provision, because the owner could always not use the asset (e.g. by down-sizing or by buying a new asset) thereby avoiding the need for any maintenance.</li> </ul> Therefore provisions are not set up even though maintenance may be required to continue operating as a commercial entity (IAS 37 ¶18).	○ 7	○ 8	○ 9	○ 10	●
Decommissioning costs: are they recorded and at what discount rate?	These constitute a provision if they meet the requirements of IAS 37 ¶14 and IAS 37 ¶19, basically if there is already an obligation, e.g. one imposed by law. The amount of the liability would also be included in the value of the asset, much in the same way that the costs of site preparation are included in an asset value (IAS 16 ¶17 and IAS16 ¶18). Further, if the decommissioning will take place in a few years' time, there is a need to discount these future outflows at 'a pre-tax rate (or rates) that reflect(s) current market assessments of the time value of money and the risks specific to the liability' (IAS 37 ¶45 and IAS 37 ¶47).	○ 11	○ 12	○ 13	○ 14	●
						○ 15






**Key:** ● = largely identical ○ = different X = no standard

1	Similar, except there are no specific criteria for the recognition of provisions.
2	Similar to IFRS but due to the importance of the prudence principle in German accounting rules more items are recognised as provisions rather than only disclosed as contingencies, for example provisions can be set up for maintenance expenses in the next three months, or for guarantee expenses in the next year even if there are no legal or contractual obligations.
3	The calculation of provisions is done on a percentage basis or as guided by Czech regulations.
4	For a single obligation the worst case scenario is used for estimating the provision value.
5	Due to the importance of the prudence concept provisions can often be at higher values than IFRS rules would allow.
6	There are no specific rules.
7	Similar, except provisions for major overhauls are allowed.
8	Different in that maintenance expenses for multi-annual programmes for large maintenance or refurbishment work must be accounted for as an asset if no provision has been stated. For routine maintenance the rules are similar to IFRS.
9	Provisions can be set up for maintenance costs in the next three months (even if there is no contract) and under certain circumstances for contractual maintenance and costs longer than that, e.g. a legal obligation to perform a major maintenance in five years' time.
10	Subject to certain tests it is possible to set up provisions for large planned expenditures as is common where maintenance is performed after a set number of hours, for example on ships or aircraft engines.
11	Provisions can be made for decommissioning costs, provided they meet the definition of provisions. Discounting is not used when creating provisions.
12	Except for nuclear power stations, there is no official rule on whether there is a need to discount future costs or the rate to discount costs at <sup>120</sup> .
13	Similar to IFRS with a need to discount at an interest rate provided by the German Federal Bank if the provision is for longer than a year in the future.
14	Provisions are not set up. However, if the cost of decommissioning is greater than the residual value then a fund needs to be set up to pay for the additional decommissioning costs. If provisions need to be set up in other circumstances for many years in the future there is no need to discount the costs, although it is optional.
15	FRSSE makes no mention of decommissioning costs being included in the initial asset value. FRSSE is clearer about the discount rate to use – 'a risk-free rate such as a market rate on relevant government bonds.'

<sup>120</sup> Ministère de l'économie des finances et de l'industrie. *Décret n° 2007-243 du 23 février 2007 relatif à la sécurisation du financement des charges nucléaires.* 2007.

## Appendix 10 – Accounting rules for leases

**Technical Table 9: What are the rules for leases – lessor’s position?**






IFRS					
					FRS102 FRSSE
<p>Leased assets versus owned assets – lessor’s position:</p> <ul style="list-style-type: none"> <li>▪ Finance leases</li> <li>▪ Operating leases</li> </ul> <p>Lessor is the entity that owns the asset and leases it to the lessee. A lease is either:</p> <ul style="list-style-type: none"> <li>▪ a finance lease ‘that transfers substantially all the risks and rewards incidental to ownership of an asset. Title may or may not eventually be transferred’ (IAS 17 ¶4) in which case it is recorded on the balance sheet of the lessor at an amount equal to the ‘net investment in the lease’ (asset value plus the finance income received less the lease payment received) (IAS 17 ¶36);</li> <li>▪ an operating lease, simply defined as ‘a lease other than a finance lease’ (IAS 17 ¶4) and is recorded on the balance sheet of the lessor at the asset value less the depreciation on the asset (IAS 17 ¶49 and IAS 17 ¶51).</li> </ul> <p>To determine whether a lease is a finance lease there are various tests included in IAS17 ¶10 and IAS 17 ¶11 although IAS17 ¶12 says ‘The examples and indicators in paragraphs 10 and 11 are not always conclusive. If it is clear from other features that the lease does not transfer substantially all risks and rewards incidental to ownership, the lease is classified as an operating lease.’</p> <p>IAS 17 ¶9 states that it may be possible for the same lease to be recorded as a finance lease by the lessee and an operating lease by the lessor if, for example, ‘the lessor benefits from a residual value guarantee provided by a party unrelated to the lessee.’ An illustration of this could be a three-year lease of a laptop with an obligation to return the laptop to the lessor at a certain condition. If the lessor has a contract to sell the laptops to a third party for reconditioning for sale in other countries then the lessor may record the lease as an operating lease, but the lessee may record it as a finance lease as it has a duty to return the laptops at a defined condition.</p>	○ 1	○ 1	○ 2	○ 3	● ○ 4

**Key:** ● = largely identical ○ = different X = no standard

1	There is no distinction between operating and finance leases and leases are recorded on the balance sheet of the lessor at the asset value less the depreciation of the asset.
2	<p>There are no specific German accounting rules for leasing. Rather the rules are defined in a Leasing Decree<sup>121</sup> and to minimise taxes in practice leases tend to follow taxation rules. The rules depend on:</p> <ul style="list-style-type: none"> <li>▪ whether the lessee has any rights at the end of the contract. For example, does the lessee have an option to purchase the assets or renew the contract?</li> <li>▪ what percentage of the useful life of the asset the lease covers.</li> </ul> <p>Once it has been determined whether a lease is finance or operating, the accounting rules for operating leases and finance leases are similar (but not identical) to IFRS rules, although in practice nearly all leases are structured as operating leases as they have more favourable tax treatment.</p>
3	Finance leases are a trilateral arrangement where a specialist finance company (the lessor) buys the asset from a company and leases it to a lessee. Unlike IFRS, finance leases appear on the balance sheet of the lessor at their asset value less the depreciation, and not the lessee’s balance sheet. Operating leases can be carried out by any company and like IFRS appear on the balance sheet of the lessor at the asset value less the depreciation on the asset.
4	FRSSE is more explicit about what is substantially all the risks and rewards by setting it at 90% or more of the present value of the lease payments.

<sup>121</sup> Bundesministerium der Finanzen. *Leasing-Erlass. Der Bundesfinanzminister der Finanzen IV, B2 – S 2170-31/71*. 2010.

**Technical Table 10: What are the rules for leases – lessee’s position?**

	IFRS											
					FRS102	FRSSE						
Leased assets versus owned assets – lessee’s position: <ul style="list-style-type: none"> <li>▪ Finance leases</li> <li>▪ Operating leases</li> </ul>	<p>Lessee is the entity that leases the assets from the lessor. Leases are split into:</p> <ul style="list-style-type: none"> <li>▪ a finance lease <i>‘that transfers substantially all the risks and rewards incidental to ownership of an asset. Title may or may not eventually be transferred’</i> (IAS 17 ¶4) in which case it is recorded on the balance sheet of the lessee (IAS 17 ¶20). The subsequent accounting entries over the duration of the lease are complex, but can be summarised as part of the annual lease is expensed to Profit or Loss as a depreciation expense and part is expensed as a finance expense (that is essentially the implicit interest rate in the lease) (IAS 17 ¶25 and IAS 17 ¶27). As IAS 17 ¶29 says, from the lessee’s position, <i>‘the sum of the depreciation expense for the asset and the finance expense for the period is rarely the same as the lease payments payable for the period’</i>;</li> <li>▪ an operating lease, simply defined as <i>‘a lease other than a finance lease’</i> (IAS 17 ¶4) in which case it is not recorded on the balance sheet of the lessee (IAS 17 ¶33), but expensed in each period in the Profit or Loss.</li> </ul> <p>To determine whether a lease is a finance lease, there are various tests included in IAS 17 ¶10 and IAS 17 ¶11 although IAS 17 ¶12 says <i>‘The examples and indicators in paragraphs 10 and 11 are not always conclusive. If it is clear from other features that the lease does not transfer substantially all risks and rewards incidental to ownership, the lease is classified as an operating lease.’</i></p> <p>IAS 17 ¶19 states that it may be possible for the same lease to be recorded as a finance lease by the lessee and an operating lease by the lessor if, for example, <i>‘the lessor benefits from a residual value guarantee provided by a party unrelated to the lessee.’</i></p>	○	1	○	1	○	2	○	3	●	○	4

**Key:** ● = largely identical ○ = different X = no standard

1	There is no distinction between operating and finance leases and leases are not recorded on the balance sheet of the lessee, but lease rentals are expensed in the income statement.
2	There are no specific German accounting rules for leasing. Rather the rules are defined in a Leasing Decree <sup>122</sup> and to minimise taxes in practice leases tend to follow taxation rules. The rules depend on: <ul style="list-style-type: none"> <li>▪ whether the lessee has any rights at the end of the contract. For example, does the lessee have an option to purchase the assets or renew the contract?</li> <li>▪ what percentage of the useful life of the asset the lease covers.</li> </ul> <p>Once it has been determined whether a lease is finance or operating, the accounting rules for operating leases and finance leases are similar (but not identical) to IFRS rules, although in practice nearly all leases are structured as operating leases as they have more favourable tax treatment.</p>
3	Finance leases are a trilateral arrangement where a specialist finance company (the lessor) buys the asset from a company and leases it to a lessee. Unlike IFRS, finance leases (like operating leases) do not appear on the balance sheet of the lessee. However, under a new Italian accounting article information must be provided in Memorandum Accounts on what the finance leases would be recorded at if rules similar to IFRS were adopted.
4	FRSSE is more explicit about what is substantially all the risks and rewards by setting it at 90% or more of the present value of the lease payments.

<sup>122</sup> Bundesministerium der Finanzen. *Leasing-Erlass. Der Bundesfinanzminister der Finanzen IV, B2 – S 2170-31/71*. 2010.



## Appendix 11 – Examples of operating leases and finance leases

This Appendix uses some hypothetical numbers to illustrate how an asset would be recorded in a lessor's and lessee's IFRS accounts depending on whether the lease was classified as an operating lease or finance lease. There are two sections that look at the perspective of the lessor and the perspective of the lessee. Each section also includes the case where asset is sold / bought rather than leased.

### Lessor perspective

Figure 18 summarises how the IFRS accounts would be presented in three scenarios of (1) an outright sale of one asset, (2) one three-year finance lease for the same asset is signed in the first year with rent paid in advance, and (3) one new three-year operating lease for the same asset is signed in the first year with rent paid in advance.

**Figure 18: Example of sale versus leasing options on a lessor's IFRS accounts**

	Option 1 - direct sale in year 1			Option 2 - finance lease for 3 years			Option 3 - operating lease for 3 years		
	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
Cost to make item (€)	200.0			200.0			200.0		
Sale price (€)	300.0			105.0			105.0		
Annual rental (€)				30.0			30.0		
Residual value (€)				5%					
Implicit interest rate (%)									
<b>Direct Cashflow (€)</b>									
<b>Operating activities</b>									
Cash receipts from customers	300.0	0.0	0.0	105.0	105.0	105.0	105.0	105.0	105.0
Cash paid to suppliers and employees	-200.0	0.0	0.0	-200.0	0.0	0.0	-200.0	0.0	0.0
Net cash from operating activities	100.0	0.0	0.0	-95.0	105.0	105.0	-95.0	105.0	105.0
<b>Investing activities</b>									
Proceeds from sale of equipment	0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0	30.0
Net increase in cash	100.0	0.0	0.0	-95.0	105.0	135.0	-95.0	105.0	135.0
<b>Profit and loss (€)</b>									
Revenue	300.0	0.0	0.0	300.0	0.0	0.0	105.0	105.0	105.0
Cost of Sales	-200.0	0.0	0.0	-170.0	0.0	0.0	-56.7	-56.7	-56.7
Gross Margin	100.0	0.0	0.0	130.0	0.0	0.0	48.3	48.3	48.3
Finance income	0.0	0.0	0.0	10.0	5.0	0.0	0.0	0.0	0.0
Profit before tax	100.0	0.0	0.0	140.0	5.0	0.0	48.3	48.3	48.3
<b>Balance sheet (€)</b>									
<b>Non-Current Assets</b>									
PPE	0.0	0.0	0.0	0.0	0.0	0.0	143.3	86.7	0.0
Other receivables	0.0	0.0	0.0	135.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	135.0	0.0	0.0	143.3	86.7	0.0
<b>Current Assets</b>									
Other Receivables	0.0	0.0	0.0	100.0	135.0	0.0	0.0	0.0	0.0
Cash	100.0	100.0	100.0	-95.0	10.0	145.0	-95.0	10.0	145.0
	100.0	100.0	100.0	5.0	145.0	145.0	-95.0	10.0	145.0
<b>Current Liabilities</b>									
Other Payables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net Assets</b>	100.0	100.0	100.0	140.0	145.0	145.0	48.3	96.7	145.0
<b>Capital &amp; Reserves</b>									
Accumulated Profit	100.0	100.0	100.0	140.0	145.0	145.0	48.3	96.7	145.0
	100.0	100.0	100.0	140.0	145.0	145.0	48.3	96.7	145.0

In each scenario it is assumed that at the end of three years the asset has a residual value of €30, being 10% of the sale price value. The example has been deliberately chosen as 90% of the risks and rewards incidental to ownership of the asset have been transferred. Some companies would classify this as a finance lease, and others may classify it as an operating lease as there is no definitive guidance as what 'substantially all the risks and rewards incidental to ownership of any asset' should include. In GAAPs that have no finance leases, then it would be shown as an operating lease.

As can be seen, by moving to a leasing model (scenarios (2) and (3)) there is a short-term impact on cash flows as only one third of the total lease rental is received in the first year. However, if the leasing business proves as successful as the business that was selling the product then by the third year the cash flow position should be better than the situation where the company carries on selling products. This assumes that the lessor is able to effectively charge the lessee interest costs in excess of the lessor's cost of capital. That is, the lessor is really running two separate businesses: selling and financing.

From an income perspective, there is a difference between scenarios (2) and (3). When a finance lease is signed IFRS rules stipulate that all the profit should be taken when the lease is signed, very much as if the asset was sold. This is because essentially the risks and rewards of the lease have been transferred to the lessee. As indicated, from an income viewpoint, the only differences between selling the asset and a finance lease of the asset are:

- Finance income is generated, which is essentially the interest charge implicit in the lease. The example in Figure 18 shows an implicit interest rate of 5%.
- It is assumed that, at the end of the finance lease, after the leased asset is returned to the lessor, the asset will have a small residual value of €30 (e.g. the asset may be able to be resold to other markets or there may be some scrap value from recycling the asset).

However, as can be seen in the case of an operating lease, the income is recognised over the three years, following very much the cash flow position.

### Lessee perspective

Figure 19 overleaf summarises how the IFRS accounts would be presented in the identical scenario of (1) a company buying an asset instead of leasing it, (2) the company entering into three-year finance lease for the same asset paying the rent in advance, and (3) the lessee entering into a three-year operating lease for the same asset with rent paid in advance. However, presenting accounts with only the purchase of the asset or the lease of an asset is not very realistic, so for this reason it is also assumed that the company receives €250 of cash from customers per year.

As shown, if instead of leasing the asset the company has enough cash to buy the asset outright there will be an upfront cash outflow, and the asset is depreciated over its life, with depreciation being expensed to the income statement. Again, in both scenarios (2) and (3) there is a short-term impact on cash flows as, instead of having to pay all the costs upfront to purchase the asset, the cash outlays are spread over three years. At the end of the three years, the asset is returned to the lessor and the company will again have the choice to either purchase a new asset or enter into another leasing arrangement.

From an income perspective, the only difference between scenarios (2) and (3) is that in a finance lease the asset value is depreciated and there is a finance charge. The asset value is *'equal to the fair value of the leased property or, if lower, the present value of the minimum lease payments, each determined at the inception of the lease'*<sup>123</sup>. In an operating lease, there is just the annual lease payment. As can be seen, the difference between the lessee's income statement for an operating or finance lease is not significant. Where the main difference arises is on the lessee's balance sheet – operating leases do not appear on their balance sheet, but finance leases do.

<sup>123</sup> IAS 17 ¶20

**Figure 19: Example of purchase versus leasing options on a lessee's accounts**

	Option 1 - direct purchase in year 1			Option 2 - finance lease for 3 years			Option 3 - operating lease for 3 years		
Annual receipts from customers (€)	250.0			250.0			250.0		
Purchase price (€)	300.0								
Annual rental (€)				105.0			105.0		
Residual value (€)	30.0			30.0 (But lessor receives this)			30.0 (But lessor receives this)		
Implicit interest rate (%)				5%					
		<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>		<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	
<b>Direct Cashflow (€)</b>									
<b>Operating activities</b>									
Cash receipts from customers	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0
Cash paid to suppliers and employees	0.0	0.0	0.0	0.0	0.0	0.0	-105.0	-105.0	-105.0
<b>Net cash from operating activities</b>	<b>250.0</b>	<b>250.0</b>	<b>250.0</b>	<b>250.0</b>	<b>250.0</b>	<b>250.0</b>	<b>145.0</b>	<b>145.0</b>	<b>145.0</b>
<b>Investing activities</b>									
Cash outflow from investing	-300.0	0.0	0.0	-105.0	-105.0	-105.0	0.0	0.0	0.0
Proceeds from sale of equipment	0.0	0.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net cash from investing activities</b>	<b>-300.0</b>	<b>0.0</b>	<b>30.0</b>	<b>-105.0</b>	<b>-105.0</b>	<b>-105.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Net increase in cash</b>	<b>-50.0</b>	<b>250.0</b>	<b>280.0</b>	<b>145.0</b>	<b>145.0</b>	<b>145.0</b>	<b>145.0</b>	<b>145.0</b>	<b>145.0</b>
<b>Profit and loss (€)</b>									
Revenue	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0	250.0
Cost of Sales	-90.0	-90.0	-90.0	-100.0	-100.0	-100.0	-105.0	-105.0	-105.0
<b>Gross Margin</b>	<b>160.0</b>	<b>160.0</b>	<b>160.0</b>	<b>150.0</b>	<b>150.0</b>	<b>150.0</b>	<b>145.0</b>	<b>145.0</b>	<b>145.0</b>
Finance costs	0.0	0.0	0.0	-10.0	-5.0	0.0	0.0	0.0	0.0
<b>Profit before tax</b>	<b>160.0</b>	<b>160.0</b>	<b>160.0</b>	<b>140.0</b>	<b>145.0</b>	<b>150.0</b>	<b>145.0</b>	<b>145.0</b>	<b>145.0</b>
<b>Balance sheet (€)</b>									
<b>Non-Current Assets</b>									
PPE	210.0	120.0	0.0	200.0	100.0	0.0	0.0	0.0	0.0
Other receivables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>210.0</b>	<b>120.0</b>	<b>0.0</b>	<b>200.0</b>	<b>100.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Current Assets</b>									
Other Receivables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash	-50.0	200.0	480.0	145.0	290.0	435.0	145.0	290.0	435.0
	<b>-50.0</b>	<b>200.0</b>	<b>480.0</b>	<b>145.0</b>	<b>290.0</b>	<b>435.0</b>	<b>145.0</b>	<b>290.0</b>	<b>435.0</b>
<b>Current Liabilities</b>									
Other Payables	0.0	0.0	0.0	-100.0	-105.0	0.0	0.0	0.0	0.0
	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>-100.0</b>	<b>-105.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Non-Current Liabilities</b>									
Other Payables	0.0	0.0	0.0	-105.0	0.0	0.0	0.0	0.0	0.0
	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>-105.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Net Assets</b>	<b>160.0</b>	<b>320.0</b>	<b>480.0</b>	<b>140.0</b>	<b>285.0</b>	<b>435.0</b>	<b>145.0</b>	<b>290.0</b>	<b>435.0</b>
<b>Capital &amp; Reserves</b>									
Accumulated Profit	160.0	320.0	480.0	140.0	285.0	435.0	145.0	290.0	435.0
	<b>160.0</b>	<b>320.0</b>	<b>480.0</b>	<b>140.0</b>	<b>285.0</b>	<b>435.0</b>	<b>145.0</b>	<b>290.0</b>	<b>435.0</b>

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