

# The Role of Revenue Recognition in Performance Reporting

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This paper examines revenue and profit or loss recognition and how these measures provide financial information about companies' performance. First, I review academic literature that examines the importance of revenue in informing capital markets and in performance evaluation and discusses findings on revenue management. Second, I describe fundamental revenue recognition concepts developed in the academic literature based on the economics of and risks involved in the earnings cycle. Third, I evaluate the recent revenue recognition standard of the IASB, which aims to state a single consistent principle for revenue recognition. I argue that striving for a consistent standard is undesirable because the economic characteristics of earnings cycles differ across firms and so does the usefulness of information. Consistent with that, the new standard actually uses different recognition criteria. In addition, the standard does not fully follow the asset-liability approach, but contains elements of the revenue-expense approach. Finally, despite the Conceptual Framework favours neutrality over conservatism, many requirements in the new standard induce conservative revenue recognition.

**Keywords:** asset-liability approach; conservatism; earnings cycle; earnings management; performance evaluation; revenue-expense approach; revenue recognition.

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## **1. Introduction**

The issue of when revenue and income should be recognised is among the fundamental questions in accounting theory and is a key issue for determining financial performance. Not surprisingly, it has been a contentious issue for more than a century. Many accounting theories have been put forth and accounting standards evolved providing guidance to practice. Revenue recognition has recently gained increasing attention. One reason is the build-up and burst of the Internet bubble in the late 1990s and early 2000s. Because revenue is considered more important than income to value Internet companies, several instances of a manipulation of revenue surfaced at that time. Another reason why revenue recognition gained further attention is that companies developed business models that include complex promises of goods and services, and customer contracts have become highly complex. Think of media, construction, transport, consumer goods, property, biotech, software, services industries that developed highly distinct relationships with customers. The reporting environment has changed as well: for example, more and more timely information is now available, which affects the usefulness of financial information. And research has provided new insights into the role and into the costs and benefits of financial information.

Accounting standards on revenue recognition did not simultaneously follow these new developments; either they did not change or if they did, they were late and often addressed only a particular circumstance that had to be rectified. This situation led to conflicting requirements and lack of guidance for many business transactions. In 2002, the FASB and the IASB initiated a joint project to develop a comprehensive framework for revenue recognition based on a clear principle. In late 2013, this project is about to end and a new revenue recognition standard is expected to be published in early 2014.

This paper provides a critical review of the concepts of revenue recognition and profit or loss recognition and how they generate information to users of financial statements to understand a company's performance. I begin with discussing the objectives of financial reporting, distinguishing between informing capital market participants (decision usefulness)

and performance evaluation (stewardship). Revenue and income from customer contracts purports to be a highly reliable outcome from the company's value-generating activities. As such these items carry important confirmatory information about actual performance and useful information to forecast future revenues and cash flows. This significance is also supported by observing many instances of manipulation of revenue and related costs. I review findings in academic studies about earnings management through the manipulation of revenue.

Next, I examine conceptual underpinnings of revenue recognition. I describe the economics of an earnings cycle that generates customer payments and revenue. The earnings cycle includes many risks, such as technical, product, input price, sales quantity and price, credit risks, and risks of obligations arising after delivery. Revenue recognition determines which transactions must have been completed and which risks must be resolved before revenue is recognised. I describe fundamental concepts for revenue recognition that were developed in the academic literature and that are mirrored in accounting standards. I contrast the revenue-expense approach with the asset-liability approach and I discuss the measurement of contract-related assets and liabilities, including fair value and cost-based measurement.

This analysis provides the frame for evaluating the new revenue recognition standard of the IASB. I discuss which critical events give rise to revenue recognition, how the standard deals with multiple-element contracts and whether it leads to neutral or conservative accounting. Although the IASB strived to develop a standard based on a single revenue recognition principle, the standard implicitly includes more than one principle. Moreover, whereas the IASB eliminated prudence from the Conceptual Framework, the revenue recognition standard includes several instances of conservative accounting.<sup>1</sup> These

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<sup>1</sup> The IASB Framework 1989 used the term "prudence," whereas most academic literature uses "conservatism." I acknowledge that some commentators distinguish between prudence, conservatism, and caution. In this paper I follow the academic literature and use "conservatism," meaning non-neutrality regardless of the reason for a bias.

observations are in line with research and practice that demand specific revenue recognition principles and demand conservative accounting.

This paper focuses on IFRS and does not specifically consider U.S. GAAP, although most of the analyses in the paper carry over to U.S. GAAP because the development of the revenue recognition standard was a joint project by the IASB and the FASB. I focus on core principles underlying revenue recognition and do not comment on the many practical issues the accounting standard addresses. I also do not particularly cover revenue recognition on leases, financial instruments, and insurance contracts, which are also currently under revision by the IASB.<sup>2</sup> Finally, I also do not consider presentation and disclosure issues related to performance reporting,<sup>3</sup> which can be utilised to mitigate some undesirable effects of a particular revenue recognition principle.

I particularly take an information economics perspective on financial reporting, based on economic modelling and archival empirical research. Academic papers on the revenue recognition project of the IASB and FASB are Schipper et al. (2009), Colson et al. (2010), and Marton and Wagenhofer (2010). They also include several references to other academic research than those I cover in this paper.

## **2. Usefulness of revenue in financial reporting**

The Conceptual Framework defines as the primary objective of financial reporting to provide decision-useful information to capital providers and refers to stewardship or accountability only as a secondary objective (IASB 2010b, para. OB4). It does not see a conflict between the two objectives, but suggests that financial information that is useful for stewardship is also useful for decision usefulness. This lack of distinction between the two

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<sup>2</sup> In particular, the Exposure Draft on insurance contracts (IASB 2013b) contains principles that are similar to that for revenue from customer contracts.

<sup>3</sup> Separate presentation, disclosure of disaggregated items, or disclosure of alternative measurement effects provides additional information resulting from the application of a particular revenue recognition principle. For example, discussion papers on performance reporting by PAAinE (2006, 2009) and the IASB (2013a) focus on the presentation of income and expenses either in profit or loss or in other comprehensive income.

objectives has been contentious in the standard setting (e.g., PAAinE 2007a) and the academic literature (e.g., Gjesdal 1981, Christensen, Feltham, and Şabac 2005). In the rest of this section, I discuss the usefulness of revenue under the decision-usefulness and stewardship objectives separately and show that the desirable standards may differ depending on the objective. Then I review the literature on earnings management involving the manipulation of revenue. This literature provides indirect evidence of the importance of revenue in practice.

## **2.1. Informing capital providers**

Revenue is one of the most important measures of companies' financial performance. It provides information about the realised gross earnings from its business activities, which is useful to assess how well a company has performed in the period. Indeed, most companies report revenue as the main summary performance measure in the discussion section in their financial reports. Revenue provides key information on the gross performance of a company and, perhaps even more importantly, it serves as the basis to determine gross profit, other key earnings figures, such as earnings before interest and tax (EBIT), and eventually net income.

Revenue is useful for users of financial statements to understand the sources of profitability and value generation of a company in a particular period. It reports achieved performance because it captures the gross income from transactions that are close to the end of the earnings cycle of a company and thus highly certain. Revenue assists users in comparing target revenue with actual revenue, with a view of how a company has achieved its goals, and in forming expectations of future revenues based on past revenues and the assumptions in the forecast model.<sup>4</sup>

A survey of 400 CFOs shows that revenue ranks as second most important performance measures reported to outsiders after earnings and before cash flow from operations (Graham, Harvey, and Rajgopal 2005, p. 18). Unlike earnings, companies do not individually adjust revenue as defined under GAAP, and disclosure of pro-forma revenues is not a widespread

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<sup>4</sup> Lev, Li, and Sougiannis (2010) provide evidence that working capital accruals improve the prediction of future cash flows and earnings, while other accruals that are more heavily based on management estimates do not.

phenomenon. This observation suggests that revenue is a well-understood item by users of financial statements; seeing any adjustments is likely to make them suspicious about whether the company wants to manage expectations. In line with this observation, Trotman and Zimmer (1986) find in an experiment that subjects do not make adjustments for alternative revenue recognition methods when analysing financial statements.

The amount of revenue is a typical measure of the size of a company (besides market capitalization, total assets, and number of employees) and the change in revenues over periods is a common measure of growth. Revenue is the basis for calculating a large number of financial ratios in profitability analysis, such as profit and expense margins, accounts receivable turnover, and the like. Several items in the financial statements provide complementary information to revenue. The statement of cash flows includes the cash inflows from the sale of products and the rendering of services either directly or indirectly if the indirect method is used for presenting cash flows. In the statement of financial position inventory, receivables, advance payments, and provisions relate to contracts with customers.

Further information is available in the segment reports if companies report revenues by segment. The notes include additional information to revenue and related items, such as cost of goods sold, expenses from impairment, the write-down of receivables, and the set-up of a provision for onerous contracts. Some firms provide voluntary disclosures about new orders received, order backlog, outstanding revenue from existing contracts, and other information directly useful to estimate future revenues.

In valuing firms, financial analysts often start with forecasting future revenue based on the market demand for the products and services of the company and its expected market share.<sup>5</sup> They see advantages in using revenue over earnings because: (i) it is more persistent than expenses and, consequently, earnings because it is more homogeneous; (ii) it reflects changes in performance more directly than expenses because many costs are sticky, and (iii) it

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<sup>5</sup> See, e.g., Penman (2012), ch. 15.

is more difficult to manage revenue than earnings.<sup>6</sup> Therefore, analysts often estimate sustainable or recurring revenue and apply margins to calculate the expenses necessary for producing these products or rendering these services to arrive at an operating earnings measure. Such operating earnings are a key input to calculate a variety of return ratios and excess earnings (by deducting the cost of capital), which are directly related to value generation.<sup>7</sup> The usefulness of revenue to forecast earnings lies in the fact that it is apparently easier to forecast based on market and industry factors.

Revenue and operating earnings are also important in valuing companies using multiples. Revenue is particularly useful to value companies with a history of losses because in that case many traditional valuation methods cannot be meaningfully applied. For example, Bowen, Davis, and Rajgopal (2002) find that market prices of Internet firms impound revenues. More generally, Callen, Robb, and Segal (2008) examine the pricing of loss firms and find that revenues are value relevant, whereas earnings are not.

Empirical research shows that revenue and earnings are correlated, but that the correlation has declined over time. Dichev and Tang (2008) examine a sample of the 1,000 largest U.S. firms over 40 years and find that the correlation between contemporaneous revenues and expenses decreased significantly, whereas the correlation of revenues with lagged and forward expenses increased. They attribute this observation to accounting standards that result in poor matching of expenses to revenues. Poor matching between revenues and expenses increases the volatility of earnings and reduces persistence of earnings. However, Donelson, Jennings, and McInnis (2011) examine reasons for poor matching more closely and find that it is to a large extent associated with economic changes, in particular

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<sup>6</sup> See Chandra and Ro (2008).

<sup>7</sup> For example, economic value added and other residual-income based measures are value-based measures and capture part of the value that has been added through operations in the period. Together with the change in market value added (expected future economic value added amounts), this amounts to value generated or destroyed in the period. See, e.g., O'Hanlon and Peasnell (1998).

special items, and less so to changes in accounting standards.<sup>8</sup> However, empirical association studies do not well capture potential firm-specific information in the items that lead to poor matching of revenues and expenses. Nevertheless, these findings suggest that revenue has become more important to forecast future performance as it carries information that complements earnings information.

Ertimur, Livnat, and Martikainen (2003) study investors' reactions to earnings announcement and find that they value a particular amount of revenue surprise more highly than the same amount of expense surprise. This difference is stronger for growth firms than for value firms and depends, among others, on the persistence of revenue and expenses. These results suggest that the changes in revenue are more informative for interpreting earnings than are changes in expenses. Chandra and Ro (2008) document a similar result and show that revenue is more value-relevant for technology firms. Further, they find that the value relevance of earnings decreased, whereas the incremental information content of relevance of revenue has not diminished over their sample period 1973-2003.

Prakash and Sinha (2013) specifically consider investors' understanding of a change in deferred revenue, which arises from advance payments by customers. They are interested in the implications on equity valuation and analysts' forecasts. Since the expenses corresponding to the deferred revenue are usually not fully deferred, e.g., because they include expenses that are not part of the cost of the products or services, a large increase in deferred revenue tends to increase the mismatch between revenues and expenses. This mismatch depresses margins in the period of the increase in deferred revenue and inflates margins in subsequent periods until the earnings cycle is completed. Prakash and Sinha test this effect for a sample of industrial firms with a focus on the technology sector and show that when deferred revenue increases, analysts underestimate future earnings. They also construct a hedge portfolio based on the deferred revenue liability, which yields significant abnormal returns.

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<sup>8</sup> Srivastava (2011) suggests that a main cause for the decline in matching is a change in firms' cost structures to less direct cost.



## 2.2. Performance evaluation

Not only are revenues and earnings used in financial statement analysis, they serve as key performance measures in the management of companies and in the performance evaluation of management, and in accounting-based covenants in debt contracts.<sup>9</sup> This use in contracts is generally referred to as the stewardship or accountability objective on financial reporting, and it focuses on incentives and economic consequences of reported revenue (rather than price efficiency in the market). Therefore, using performance measures based on dysfunctional revenue recognition principles can ultimately destroy value.

Several companies use revenue directly to set performance targets and to determine management compensation. A revenue-based target or compensation will induce growth in revenue, regardless of its profitability. This incentive can be desirable if a company follows a growth strategy in a particular market.<sup>10</sup> However, more often revenue is only a secondary measure of performance, as it is gross of the expenses necessary to develop and sustain revenue. In this case revenue is important in that it affects earnings and earnings-based performance measures. Revenue recognition principles influence the timing of information, that is, when profits from a company's operating activities are recognised.

Analytical research has particularly examined two prototypes of early and late recognition of revenue and income: the completed-contract method and the percentage-of-completion method.<sup>11</sup> Because all earnings eventually flow through profit and loss, total revenue is the same under both methods, but the percentage-of-completion method provides information earlier than the completed-contract method, which should be beneficial a priori. From an incentives perspective, the financial statements report the actual, realised performance that was achieved by the manager, and not some fraction of realisable or future

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<sup>9</sup> While there is little research on the effects of revenue recognition on debt covenants, many findings of conservatism in debt contract settings carry over to revenue recognition. See, e.g., Ewert and Wagenhofer (2012) for a survey.

<sup>10</sup> See, e.g., Huang, Marquardt, and Zhang (2013).

<sup>11</sup> IAS 11 and IAS 18 provide criteria when which method is required.

expected performance. It leads to back-loading compensation, which is useful because it captures all effects of the manager's activities. However, the performance measure increasingly includes revenue and income risks unrelated to the manager's activities, thus, making compensation more risky, which again must be compensated by a risk premium. Besides increasing compensation risk, the practical impossibility to back-load a manager's compensation until long-term contracts are completed and different time preferences, e.g., impatience or a shorter time horizon of the manager, make back-loading less attractive, so in practice a large part of compensation is paid out earlier.

Dutta and Reichelstein (2005) study a setting in which a manager makes decisions that have multi-period consequences, such as long-term construction activities. The manager may have a different horizon or higher discount rate than the owners of the firm. Dutta and Reichelstein construct a performance measure that is congruent in the sense that a positive NPV project always generates a positive period performance in all circumstances and monotonic increasing functions of compensation offered. Such a measure arises from a present-value-percentage-of-completion method, which effectively annuitizes the total performance. This revenue recognition principle is obviously inconsistent with the completed-contract method, but conceptually close to the percentage-of-completion method, although it does not comprise the effects of the time value of money.<sup>12</sup>

Arnegger and Hofmann (2007) examine input- and output-based measures to determine the degree of completion used in the percentage-of-completion method and find that their preferability depends on the manager's productivity and the risks occurring in the respective periods. Hofmann (2005) shows that too much early information can be detrimental if renegotiation of the compensation contract cannot be excluded. The reason is that compensation in later periods can, and will, be adjusted based on early performance, which creates an incentive of the manager to deviate from optimal decisions in early periods to optimise total expected compensation, anticipating such an adjustment. On the other hand,

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<sup>12</sup> See also Mohnen and Bareket (2007).

renegotiation is useful if unverifiable information becomes available during the contract term. For example, Schöndube (2008) shows that in this case the percentage-of-completion method can become preferable again.

Watts and Zimmerman (1986, 266-7) present an example of unintended consequences of revenue recognition based on production rather than sales: It may induce managers to build up inventory and to do not care about actually *selling* the products. They note that production-based revenue recognition has survived in the construction and mining industries because the firms had sales contracts and customers buy whatever quantity is produced. Therefore, selling is not an important issue and revenue recognition is based on the critical production process.

Dysfunctional incentives arise if paid-out compensation for performance that is ultimately not delivered cannot be reclaimed.<sup>13</sup> An example is rewarding managers early for *expected* revenue and income. Anecdotal evidence of such incentives comes from the energy company Enron. Enron followed a growth strategy in the energy development business internationally. A review of the projects, mainly power plants, revealed problems with many of these projects upon execution, resulting from overestimated demand and from ignoring technical and other problems. The fundamental reason for misestimates was that development managers received large bonuses for planning the projects based on projected profit, whereas managers that had to run the projects produced losses because of over-optimistic planning.<sup>14</sup>

Undesirable incentives can arise if the early revenue and income recognition is based on market pricing of the contracts. For example, in the early stages of the revenue recognition project the IASB (2008) discussed a fair value method of revenue recognition. This method requires that performance rights and obligations are measured at fair value. Assuming the

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<sup>13</sup> This is usually the case, as managers have limited liability or can resign early, rendering bonus banks that serve as “collateral” for compensation ineffective. Moreover, claw-back clauses in compensation contracts are usually tied to clear wrong-doing by the manager.

<sup>14</sup> Eichenwald (2005), ch. 3, describes several projects in detail. It should be noted that this example is not primarily a revenue recognition theme, but more one of an ill-designed internal performance measurement system.

contract is calculated with a profit margin, the whole expected profit is recognised at contract inception, leading to a “day-1” profit. One issue is that the subsequent execution of the contract is not expected to result in any more profit, but just breaks even on average. And a more subtle issue arises: Fair values are (or estimate) market prices and in forming them, market participants anticipate a manager’s incentives to influence future performance. From the manager’s perspective, market prices depend on *expected* performance, but are independent of *actual* performance, which diminishes the incentive usefulness of the performance measure.<sup>15</sup> Actual performance affects market prices only later when the market learns about it.

Similar issues arise for other contractual payments based on earnings, which the company is obliged to make, such as distribution of dividends. Such payments reduce the assets available to cover creditors’ claims in case of bankruptcy, and income tax payments, if loss carry-forwards are constrained.

### **2.3. Earnings management**

Because revenue is a key measure of financial performance, which is well understood in practice, it is not surprising that some firms have an incentive to structure transactions and to make accounting decisions to increase reported revenue and earnings.<sup>16</sup> There exists a large accounting literature that studies manipulation of revenue by companies, perhaps disproportionately large relative to the total population of firms and other important issues regarding revenue recognition.

Graham, Harvey, and Rajgopal (2005, p. 33) document that discretionary revenue recognition (to “book revenues now rather than next quarter (if justified in either quarter)”) ranks third among actions that managers agree with (40 per cent) to manage earnings upwards. And it is the top-ranked action among accrual earnings management methods, which

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<sup>15</sup> Dutta and Zhang (2002) derive this effect and show that the equilibrium is based on these lower incentives, which destroys company value.

<sup>16</sup> Schilit (2002) describes many observed practices in detail.

result from the particular use of accounting methods. The higher ranked actions all comprise real earnings management, which requires long-run suboptimal economic decisions. Nelson, Elliot, and Tarpley (2003) also report that revenue is an item subject to substantial earnings management. In a comprehensive report, the U.S. General Accounting Office examines restatements by public companies over the period from 1997 to 2006 (GAO 2002, 2006). It finds that in each year, one to seven per cent of all companies published restatements. For the period from 1997 to 2002, revenue recognition was with 38 per cent by far the largest category of improper accounting, followed by improper cost and expense recognition with 16 per cent. They swapped ranks in the period from mid-2002 to 2005, where cost or expense recognition led with 35 per cent (where a high proportion regarded accounting for leases), followed by revenue recognition with 20 per cent. Reasons for revenue recognition restatements are improper recognition, recognition of questionable revenues and other forms of misreported revenue.

Several studies examine published restatements of financial statements and enforcement actions against fraudulent companies. Restatements occur mainly for unintended, less for intended, errors. Fraudulent reporting is documented in the SEC Accounting and Auditing Enforcement Releases (AAERs). The Committee of Sponsoring Organizations of the Treadway Commission (COSO) sponsored an analysis of fraudulent reporting (Beasley et al. 2010), which identifies 347 AAER fraud cases over 1998 to 2007. Improper revenue recognition pertains to 61 per cent of these cases. Again, revenue recognition is the leading fraud technique. Recording fictitious revenues leads with 48 per cent, recording revenues prematurely follows with 35 per cent, and other forms of overstated revenues accounts for 2 per cent. A more detailed description includes the following techniques: Sham sales, round-tripping or recording loans as sales, bill and hold transactions, conditional sales, unauthorised shipments, consignment sales, premature revenues before all the terms of the sale were completed, improper cut-off of sales, and improper use of the percentage-of-completion method. Similar results have been found for other countries. For example, Brown and Tarca (2007) examine enforcement cases found by the Australian Securities and Investments Commission (ASIC) and the U.K. Financial Reporting Review Panel (FRRP) from 1998-

2004. 46 per cent of the ASIC cases and 23 per cent of the FRRP cases involve recognition in general, and 17 and 8 per cent, respectively, revenue recognition. In Germany, the Financial Reporting Enforcement Panel lists revenue recognition usually among the top five enforcement cases each year, trailing business combinations and financial instruments issues.<sup>17</sup>

A reason for the high incidence of restatements for revenue recognition issues is the complexity of both business practice and U.S. standards. Indeed, U.S. GAAP comprises a large number of pronouncements, which deal with certain business models and certain industries. Peterson (2012) finds that revenue recognition complexity significantly increases the probability of restatements. He measures complexity by the number of words and the number of methods describing revenue recognition in the notes to the financial statements. Restatements include both unintentional and intentional errors. Interestingly, higher complexity reduces the negative consequences of restatements, measured by less AAERs, less negative announcement cumulative abnormal returns, and lower CEO turnover. Thus, complexity is a factor considered by investors and regulators.

Other research examines incentives for earnings management. Callen, Robb, and Segal (2008) find that the fact that revenues are important for market pricing of loss companies makes it more likely that these companies issue restatements based on manipulated revenues. Marquardt and Wiedman (2004) examine earnings management in specific situations. They base much of their analysis on unexpected changes in accounts receivable, inventory, accounts payable, and accrued liabilities. They find that companies issuing equity are significantly more likely to accelerate revenue recognition, whereas companies in a management-buyout situation are likely to delay revenue recognition. Caylor (2010) examines whether companies use deferred revenue or accrued revenue (accounts receivable) to manage earnings to achieve typical earnings benchmarks. Using unexpected changes in both items he finds evidence consistent with companies trying to avoid negative earnings surprises, but no

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<sup>17</sup> See the recent DPR Tätigkeitsberichte (<http://www.frep.info/presse/taetigkeitsberichte.php>).

significant evidence for beating other benchmarks. While firms appear to use both deferred revenue and accrued revenue to manage earnings, there was a preference for managing deferred revenue before SOX became effective. Caylor attributes this finding to the fact that managing deferred revenue involves accounting earnings management, which is less costly than earnings management that involves real transactions.

It should be noted that empirical studies rely on a variety of proxies of earnings management, which capture different incentives and methods.<sup>18</sup> An often used proxy is unexpected (discretionary, abnormal) revenue, change in a balance sheet item, accruals, or earnings. Determining these variables requires a model of expected revenue, change in balance sheet items, and earnings, which are deducted from the actual amounts of these items to estimate unexpected revenue.<sup>19</sup> Other common proxies are the analysis of the distribution of firms achieving certain benchmarks or properties of earnings over time, such as smoothness. At least two issues arise with using these proxies: (i) Sophisticated investors can use the same proxies and should be able to adjust for expected earnings management. Earnings management is less effective if it can be easily detected with such methods, and it is not clear that management chooses earnings management that is easy to look through. (ii) It is not clear why unexpected items indicate earnings management; they may (also) include useful information. In fact, unexpected revenue may be exactly what is informative. For example, Beneish, Capkun, and Fridson (2013) study firms whose sales decline, but earnings increase, which, absent a structural change, may look like earnings management. They find that these firms report higher future earnings and cash flows, earn higher abnormal returns and experience a positive price reaction. These results are consistent with the view that these untypical sales and earnings pattern provide useful information about future performance.

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<sup>18</sup> For a survey, see Dechow, Ge, and Schrand (2010).

<sup>19</sup> Stubben (2010) finds evidence that unexpected revenues are a better proxy for earnings management than unexpected accruals that are most common in the earnings management literature.

Several studies use changes in pronouncements on revenue recognition in the U.S. During the 1990s and early 2000s the AICPA and the SEC issued guidance to discourage or constrain (too) early revenue recognition, particularly in the software industry. The motivation was mainly to reduce the discretion of companies in revenue recognition and to make financial statements more comparable. Empirical studies generally find that earnings management declined after the guidance became effective; however, they show that the information content of earnings declined as well. In the following, I discuss some of these studies in more detail.

Zhang (2005) uses the adoption of the AICPA's release of SOP 91-1 in 1991 to examine the information content of early versus late revenue recognition in the U.S. software industry. SOP 91-1 required companies to recognise revenue from licensing software at delivery and revenue from post-contract customer support over time (if collectability is probable). First-time application of SOP 91-1 was retrospective and, thus, provides data on the cumulative effect of the regime change. Zhang compares properties of revenues for firms that had used early revenue recognition with those that did not have to change their revenue recognition policy after introduction of SOP 91-1. He finds that revenue of early recognition companies is higher correlated with stock returns, but that accounts receivable are less informative and predictive of future revenues.

Srivastava (2013) examines the effects of the introduction of AICPA's SOP 97-2 with rules for revenue recognition in multiple-element contracts in the software industry. Prior to that, revenue was allocated to the elements based on stand-alone selling prices, but it was possible to use estimated selling price if these were not available. SOP 97-2 eliminated the use of estimated selling prices and required companies to defer the entire revenue until all components were delivered. Srivastava finds that this change actually reduced earnings management of revenue, and the value relevance of earnings declined. However, the value relevance of deferred revenue in the statement of financial position increased, inducing an increase in value relevance if both items are taken together.



Altamuro, Beatty, and Weber (2005) examine the effects of the introduction of SAB 101 in the U.S. in 1999, which provided the SEC staff's interpretation of the general revenue recognition rules. SAB 101 contains strict criteria when revenue should be recognised, which led the FASB to add a project to develop revenue recognition principles. Altamuro et al. find that earnings management declined, but that the association between earnings and future cash flows declined as well.

Davis (2002) finds that grossed-up and barter revenue, mainly found in the software industry, led to lower value relevance of revenue after the burst of the Internet bubble around 2000. Rasmussen (2013) examines semiconductor firms, which recognise revenue either when products are delivered to distributors (sell-in) or when the distributors sell the products to customers (sell-through). The semiconductor industry faces several revenue risks for product returns due to factors such as short product life cycles, price uncertainties, and demand fluctuations. She finds that the value relevance of unexpected earnings of sell-in firms (that recognise revenue early) is lower than for sell-through firms. This result is contrary to prior studies and is attributed to serious manipulation concerns because manipulation of revenue not only involves accounting but also real earnings management, such as channel stuffing.

This research emphasises that revenue recognition principles may have unintended consequences. In particular, even if a standard were perfectly appropriate if no earnings management is assumed, it may provide less information than another standard that is less susceptible to earnings management. These considerations make the selection of the revenue recognition principle a challenge for the standard setter, who must trade off the costs and benefits of using different critical events. To some extent, presentation and disclosure rules can provide information based on other principles.

### **3. Revenue recognition: Fundamental accounting issues**

#### **3.1. Economic earnings cycle**

To highlight the conceptual issues involved in revenue recognition, it is useful to begin with a description of a typical earnings cycle.<sup>20</sup> Table 1 depicts the stages of a generic earnings cycle and the risks that are resolved in each stage of an activity, transaction, or event.<sup>21</sup> In addition, it indicates entries in the financial statements generated in each stage, based on current accounting standards.

The cycle starts with expenditures for capacity, technological capabilities, research and development, marketing, among others. Some of them are recognised as assets and depreciated over their useful life, while others are immediately recognised as expenses in the period they are incurred.<sup>22</sup> Therefore, Table 1 includes two entries. The cash flow statement mirrors the different recognition by presenting these items under investing and operating cash flows, respectively. Risks that resolve in this stage are primarily technical risks.

An important stage in the earnings cycle is the agreement to a contract with a customer. Glover and Ijiri (2002) refer to this stage as “revenue origination” in contrast to “revenue realisation,” which usually occurs at a later stage. Table 1 depicts this stage before production starts, but it can occur later, depending on the specificity of the product or service. A contract with a customer resolves the sales risks, that is, whether there exists a market and what price can be achieved for the good or service. Some sales risks may remain, for example, if customers have the right to return the asset or the agreed-upon price is variable.

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<sup>20</sup> The use of the term “earnings cycle” is intended to avoid the term “earnings process” that is often used in relation with the revenue-expense approach.

<sup>21</sup> Glover and Ijiri (2002) list more stages for e-commerce activities.

<sup>22</sup> If expenses that are not recognised as assets according to other standards arise in anticipation of a contract or after contract inception and if they directly relate to the contract, they are recognised as contract asset (work-in-progress, inventory).

Tab. 1: A generic earnings cycle

<b>Activity, transaction, event</b>	<b>Major risks resolved</b>	<b>Financial statements effects</b>		
		<b>Statement of cash flows</b>	<b>Statement of profit or loss and OCI</b>	<b>Statement of financial position</b>
Investment, qualifying development	Technical risks	Investing cash outflows		Fixed assets
R&D, marketing activities	Technical risks	Operating cash outflows	Expenses	
Contract inception	Sales risks			
Advance payment	Credit risk	Operating cash inflow		Cash and contract liability
Production (conversion)	Technical, production, and (input) market risks	Operating cash outflows	Expenses not covered in cost of goods sold	Contract asset (inventory)
Delivery to customer	Product risks		Revenue, cost of goods sold	Receivable, derecognition of contract asset and liability, provision
Final payment	Credit and market risks	Operating cash inflow	Possible expenses	Derecognition of receivable
Post-delivery obligations	Risks of obligations arising	Possible operating cash outflows	Possible income or expenses	Derecognition of provision

Production risks include technical risks of manufacturing, non-performance, damage, deterioration, obsolescence and the like. Most of these risks resolve over the time of production, while some technical risks remain until after usage of the good or service by the customer.

The delivery of the good or service to the customer is another significant stage in the earnings cycle. It gives the customer the opportunity to inspect the goods or receive the services and to check if they satisfy the specifications, and it transfers the risks commonly associated with ownership, such as damage or loss, to the customer. Table 1 refers to these risks as product risks.

The table includes one instance of early advance payment but such payments can occur at multiple times contingent on what is agreed upon in the contract. Formally, payments are detached from the production process, although they are often based on the achievement of milestones, financing agreements and the like, depending on financing needs and risks. The consideration may also be variable, so that market risks are present.

Post-delivery obligations include warranty, product liability, or disposal obligations that the firm must provide for (if they are not separate performance obligations). They are determined in the contract or by general laws. Risks include technical risks, such as performance, obsolescence, and damage caused by the product.

For simplicity, other transactions, such as product returns and the like, are not included in Table 1. The table also does not specifically show depreciation expenses of fixed assets that are not part of the production cost and adverse changes in the estimated contract costs and revenues, which can lead to impairment of related assets and to a provision for onerous contracts at any stage of the process.

### **3.2. Recognition as information aggregation procedure**

Financial statements aggregate a large number of transactions and events into a small number of items in the financial statements, which are then further aggregated by adding or subtracting them from one another to arrive at key performance measures, such as net assets (equity), earnings numbers, and cash flows from different activities. Aggregation can consist of including particular pieces of information and excluding others<sup>23</sup> or of weighting pieces of information and averaging them. Recognition and measurement are the primary aggregation procedures, and presentation and disclosure requirements are in place to provide disaggregate information on these key performance measures, such as a break-down into major components. It is obvious that aggregation generally destroys information that may be useful. One can argue about what degree of aggregation is useful in financial statements, and there have been suggestions to provide more raw information and leave it to the users to aggregate

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<sup>23</sup> Demski (2004) labels exclusion as “truncation.”

them based on their own information needs.<sup>24</sup> However, such approaches have not gained practical importance.

The material outcome of companies' business activities are cash flows. As shown in Table 1, the stages in the earnings cycle lead to cash flows that are initially uncertain because the earnings cycle contains many different risks. The completion of each stage resolves or reduces particular risks. The residual risk of cash flows declines accordingly (if the risks are independent). Eventually, all cash flows realise and there is no more cash flow risk attributable to the earnings cycle. This stage can occur very late, particularly if the post-delivery stage extends over a long period. The cash inflows and cash outflows that arise during the earnings cycle are presented in the statement of cash flows.

Revenue recognition includes two interrelated decisions: One is *when* to recognise or start to recognise revenue; the other is *how much* revenue to recognise at the recognition event(s), which is a measurement issue. The recognition decision is based on the occurrence of a critical event in the earnings cycle and the mere fact that revenue is recognised provides the information that this critical event has indeed occurred. The amount of revenue may reflect an estimate of the expected revenue from the contract or a minimum revenue, if the measurement of residual risk at that time is cautious. Early recognition implies that the amount of revenue recognised is still highly uncertain because many risks have not yet been resolved. Late recognition results in an amount of revenue that is highly certain, but less timely.

The criteria that must be fulfilled before revenue is recognised are based on the stages of the earnings cycle and the risks that are resolved when the respective stages are completed. In principle, the possibilities for critical events for revenue recognition range over the full

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<sup>24</sup> Sorter (1969) discusses an "events" approach, which focuses on the ability to reconstruct events aggregated in the financial statements. See also Johnson (1970). Much of this disaggregation can be done by presentation and disclosures and also by complementing financial information with non-financial information. More recently, the developments in information technology would make it easy to provide raw data and let users manipulate the data.

earnings cycle, beginning with contract inception, production, delivery, and payment. And indeed, most of them have been proposed and/or used in accounting standards: The percentage-of-completion method is based on progress of production, delivery is the usual realisation principle for finished goods and services, and instalment sales are based on customer payments. Contract inception is the recognition principle for financial instruments (IAS 39 and IFRS 9) and was considered by the IASB in the early phases of the revenue recognition project as well.

Selection of the critical event requires a trade-off between the qualitative characteristics of the resulting financial information. The key fundamental characteristics are relevance and reliability, which are often in conflict, and so are other desirable characteristics, such as timeliness and precision. Such trade-offs are not specific to revenue recognition, but arise in most accounting issues. Moreover, opportunities for manipulation of revenue differ across revenue recognition principles and make them an important constraint for the usefulness of revenue and earnings figures.

One might consider selecting more than one recognition principle and produce several alternative performance measures that are all presented with equal prominence in the financial statements (multi-measurement statements). This route has not been taken up in current accounting standards and in practice, probably for the reason that users demand a single key performance measure rather than several ones, from which they would have to pick and choose.<sup>25</sup> Inexperienced users may also be confused by several bottom-line numbers.

It is well-known from decision theory that the value of information generally depends on the specific characteristics of the decision problem. For example, the wealth and the risk attitude of users may differ, as do the alternatives and constraints they face, and the availability of other information (such as cash flow information). Except for highly specific

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<sup>25</sup> IAS 1 distinguishes profit and loss from other comprehensive income, which can be used to portray the consequences of two different realisation principles for earnings. See also IASB (2013), ch. 8, for a discussion of principles that guide what items are included in other comprehensive income.

settings, it is impossible to find a revenue recognition principle that is overall preferable. Rather, the information resulting from choosing as the critical event a particular stage of the earnings process is important.

Following the distinction made earlier between decision usefulness and stewardship, the criteria for choosing the most useful critical event can differ for these two objectives. In a decision-usefulness context, the value of information increases in its timeliness because capital providers can use the information to make decisions earlier. It also increases in the precision and reliability of the information, but timely information is usually less precise. Capital providers adjust the weight with which the piece of information changes their expectations of future cash flows. In the extreme, they may just ignore unreliable information. Moreover, market participants use other information than that provided in the financial statements.<sup>26</sup>

In a stewardship context, parties commit to specific consequences of information in the contract. They are well aware of the degree of reliability of available information used in the contract when they negotiate and rationally anticipate the consequences. Low precision and low reliability reduce the efficiency of the outcomes from the contract. Furthermore, even if other information becomes available, parties are bound to the terms of the contract after initiation. They can impound such information only in costly renegotiation. In contrast, timeliness becomes less of an issue as long as the contract extends to the point in time when the information becomes available.

Financial statements are a late, and usually the ultimate, source of information about a company's performance in a particular period. Therefore, they have strong confirmatory value, which makes them distinct from other information that exists about companies.<sup>27</sup> The

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<sup>26</sup> See Antle and Demski (1989), Liang (2001), Christensen and Demski (2003), and Christensen (2010).

<sup>27</sup> See, e.g., Kothari, Ramanna, and Skinner (2010), Ball, Jayaraman, and Shivakumar (2012). The Conceptual Framework (IASB 2010b, QC8-10) discusses predictive and confirmatory value, albeit not in a stewardship context.

confirmatory value stems from allowing users to assess the credibility of earlier information, such as management or analyst forecasts in a decision-usefulness setting or to management budgets or targets in a stewardship setting. Of course, many elements of financial statements are based on some estimates (see Barth 2006). The issue is the degree of remaining risk that is acceptable before revenue and income are recognised. Hence, late recognition tends to have fewer disadvantages than in a decision-usefulness context, whereas for stewardship purposes later, but more precise, information is often more useful.<sup>28</sup>

Several analytical papers study the trade-off between early versus late recognition in a stewardship context.<sup>29</sup> For example, Antle and Demski (1989) find that the preferability of early or late information depends on the time in which the risk of the outcome of the production process is resolved. Liang (2000) considers the presence of private information of the manager, which is partly conveyed by the recognition of revenue. He shows that recognition is most useful when the moral hazard problem is most critical, which may not coincide with when most risks are resolved. The reason is the resolution of such risks can be completely uninformative about the manager's performance (e.g., certain exogenous market risks). He also shows that late recognition is beneficial in that it disciplines early communication by the manager. Christensen, Feltham, and Şabac (2005) allow for renegotiation of management compensation contracts. They find that early information is costly because it allows the owners to fine-tune the compensation after observing that information, which generates ex ante incentives for the manager to take other than value-maximizing actions. Christensen and Demski (2003) give several examples in which the costs and benefits of early versus late recognition vary substantially, illustrating the difficulties in finding a single revenue recognition principle preferable in a broader context.

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<sup>28</sup> It should be noted that this statement depends on the content of the information. For example, in an management performance context, later information may comprise volatility that is uninformative about the manager's actions and, hence, not useful but even costly in terms that the manager must be compensated for additional risk.

<sup>29</sup> For a survey see Liang (2001).



This research also puts doubt on the possible success of standard setters striving to develop a *single* overall revenue recognition principle. Consistency in the sense of the same recognition principle applying to all customer contracts has not much meaning in an information-economics context. Business models, firms, and industries can differ widely in their economic characteristics, and so can the most useful revenue recognition principles. This observation is consistent with the large body of specific revenue recognition standards that developed in the U.S. However, there is an overarching principle on the meta-level: recognition should be based on the resolution of the most important risk underlying the earnings cycle. This observation suggests that revenue recognition might be best dealt with a general principle rather than detailed recognition criteria. It should be noted, though, that there are benefits to a standardisation of revenue recognition, which provides a boundary to too little prescription.

### **3.3. Alternative concepts of revenue recognition**

Traditionally, there exist two contrary concepts for the determination of net assets and income: the revenue-expense and the asset-liability approach. This distinction goes back to over a hundred years of accounting theory.<sup>30</sup>

The revenue-expense approach presumes the primacy of determining income over a period and includes principles for revenue recognition and the matching of expenses to these revenues. Assuming that the sum of recognised revenue is equal to the sum of the cash inflows from the contract over the full earnings cycle, revenue allocates the cash inflows based on the realisation principle and cash outflows are recognised as expenses matched to

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<sup>30</sup> The prime proponents of the revenue-expense approach are Schmalenbach (1919) and Paton and Littleton (1940). Early proponents of the asset-liability approach are Hatfield (1909) and Simon (1886), but there are many others that distinguish themselves by what measurement concept they favoured. See, e.g., Mattessich (2008), particularly ch. 3 and 11. Bromwich, Macve, and Sunder (2010) discuss their close relation. Brief summaries of the antecedents relating to revenue recognition can be found in Liang (2001) and Zülch, Fischer, and Willms (2006).

revenue.<sup>31</sup> Assets and liabilities arise as mere “residuals,” representing the difference between revenues, expenses and the corresponding cash flows (accruals). The revenue-expense approach implies measurement of these assets and liabilities at historical cost, but other measurement bases can be incorporated, for example, if losses are anticipated. Fair value, though, does not seem to follow easily from this approach.

The asset-liability approach presumes the primacy of the determination of net assets (equity) at the balance sheet date. A contract generates assets and liabilities, and the goal is to depict them in the statement of financial position. Revenue and income are recognised as a result of changes in the values of these assets and liabilities. In essence, the recognition and measurement of contract assets and liabilities determine revenue recognition.<sup>32</sup>

Current IFRSs borrow elements from both approaches. The current standards IAS 18 and IAS 11 are closer to the revenue-expense approach, whereas the new standard is based on the asset-liability approach. Over the last decades, the FASB – followed by the IASB – began favouring the asset-liability approach, which it applied for certain accounting themes, such as deferred taxes and more recently revenue recognition. The main reason is that the asset-liability approach arguably provides a more objective anchor for revenue recognition than the realisation and matching principles under the revenue-expense approach.<sup>33</sup> However, Dichev (2008) argues that conceptually, income determination is clearer and more useful than assets and liabilities and earnings are the most prominent information in financial statements. In line

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<sup>31</sup> If revenue is recognised based on the progress of production and, in particular, progress measured by incurred costs, then the expenses in fact determine revenue recognition.

<sup>32</sup> A similar concept underlies the accounting for financial instruments.

<sup>33</sup> For example, the revenue-expense approach can lead to accruals in the statement of financial position that do not fulfil the recognition criteria for assets and liabilities. The primacy of the asset-liability approach puts discipline on such accruals.

with this, Dichev et al. (2013) report that 92 per cent of the surveyed CFOs agree that policies that match expenses with revenues are likely to produce high quality earnings.<sup>34</sup>

The material difference is that the revenue-expense approach attempts to follow the earnings cycle directly, whereas the asset-liability approach can lead to revenue and earnings patterns that are influenced by changes in the value of assets and liabilities that are unrelated to the earnings cycle. For example, the value of contract assets or liabilities may be affected by changes in interest rates and other market risks. Another example is an unconditional government subsidy, which is allocated over the earnings cycle under the revenue-expense approach, but immediately recognised in income under the asset-liability approach because no liability arises.<sup>35</sup>

Aside from the fundamental issue of the primacy of the balance sheet or the income statement and what performance “should” ideally be, both approaches rely on critical events, either by directly determining the recognition of revenue and expense or by determining the recognition of contract assets and liabilities, which then results in revenue and expense. Therefore, the two approaches can be designed to result in similar outcomes.

Under the revenue-expense approach, revenue is recognised if it is earned and realised (or realisable).<sup>36</sup> It captures the idea that the earnings cycle must be sufficiently definite and certain to trigger recognition. Many commentators suggested that these criteria are difficult to describe in general terms and to consistently apply in practice.<sup>37</sup> The revenue-expense approach mainly uses two stages, production and delivery, depending on whether or not there is a contract with the customer.

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<sup>34</sup> This statement received the most agreement in the questionnaire, followed – interestingly – by policies that use conservative accounting principles (75 per cent).

<sup>35</sup> See Wüstemann and Kierzek (2005).

<sup>36</sup> See SFAC 5, para. 83-84.

<sup>37</sup> For example, Sprouse (1966) labeled deferrals in the balance sheet very descriptively as “What-You-May-Call-Its.” However, whether the asset-liability approach avoids such deferrals would seem to depend on the definition of assets and liabilities.

Under the asset-liability approach revenue is basically recognised when a receivable arises and is recognised.<sup>38</sup> There is a range of recognition criteria that can be invoked.<sup>39</sup> For example, they may depend on actual delivery, on transfer of legal ownership, on “economic” or legal entitlement to consideration, embodying factual and legal conditions. PAAinE (2007b) discusses three different versions of what it calls the critical events approach, which requires revenue recognition based on (i) contract completion, (ii) completion of a “part-contract” as defined in the contract for which consideration is due (a variant includes separate identification of performance obligations), and (iii) completion of a “part-contract” by referring to what has separate economic value to the customer. The first two versions basically refer to the right to consideration as the critical event.<sup>40</sup> Under this strict control principle, revenue of many construction contracts can be recognised only after completion because no obligation of the customer to pay the contracted consideration arises before that date. The reason is that, formally, a right to consideration arises only after completion of the full contract, even if it contains a number of separate performance obligations. The third version offers a weaker criterion, which is based on economic rather than formal rights. It assumes, however, that such an “economic” right eventually turns into a formally enforceable right. PAAinE (2007b) refers to the continuous approach and proposes four ways to measure the progress of the earnings cycle based on: (i) the cost incurred by the supplier; (ii) the decrease in the risks of the contract; (iii) the value of the goods created under the contract increases; and (iv) the passage of time.

Ohlson et al. (2011) suggest tying revenue recognition directly to payments received by customers and decoupling income recognition completely from revenue recognition. They

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<sup>38</sup> The new standard conceptually changes the linkage between receivables and revenue recognition by assuming that performance obligations and a contract asset arise with contract inception and revenue arises if the contract liability is satisfied. However, assuming netting of contract assets and liabilities, revenue is recognised when a (net) contract asset increases, which is equivalent to traditional understanding.

<sup>39</sup> See the discussion in the Discussion Paper on the Conceptual Framework (IASB 2013, para. 3.16-38).

<sup>40</sup> See also Wüstemann and Kierzek (2005).

argue that this criterion focuses on what customers do to the company, rather than the converse, what the company does to satisfy the contract. It is easily observable and verifiable and it eliminates deferrals of revenue. One may argue that payments are easily manipulable, but they still manifest an economic assessment by the customer about the company's performance or ability to perform. From an information economics perspective, the principle to recognise revenue based on customer payments provides no incremental information over and above the information conveyed in the statement of cash flows.<sup>41</sup> It may be informative in special situations, e.g., if collectability is a significant risk, but then it is a matter of judgement whether revenue should reflect operating or also financial performance.

### **3.4. Measurement bases**

Measurement is crucial for the amount of revenue that is recognised under the asset-liability approach. However, measurement issues also arise in the revenue-expense approach for the recognition of income. For example, consider investment in assets needed for production and the build-up of inventory during production, which are not directly matched as cost of production. The measurement of such assets affects the income in the periods. Contract assets are usually measured at cost, which presumes that the contract is expected to recover these costs.<sup>42</sup>

When the FASB and IASB started discussions of a comprehensive standard on revenue recognition, they decided to use the asset-liability approach and developed a fair value model, also referred to as measurement model or current exit price approach. Under this approach the critical event for the rise of contract assets and liabilities is the agreement to a contract with the customer. Both the contract asset and the liability are measured at fair value at contract inception and then are remeasured at each reporting date. The changes in their fair values over contract execution determine revenue and income.

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<sup>41</sup> See, e.g., Christensen and Demski (2003).

<sup>42</sup> For a discussion see Ordelheide (1988).

The fair value of the contract asset represents the current value of the consideration that the company expects to receive out of the contract. The fair value of the contract liability measures the expected cash outflows to perform to fulfil the contract. Assuming the company is able to generate a profit from the contract, the fair value of the consideration is greater than that of the performance obligation. In that case, fair value measurement can lead to the recognition of revenue and profit (a “day-1” profit) at contract inception. This result is consequent if one considers the contract agreement as the event under which assets and liabilities are recognised. In terms of the earnings cycle, this is equivalent to considering the (substantial) resolution of the sales risk as the primary critical event that triggers recognition. The performance of a company is then tied to its ability to acquire customer contracts, not to its performance in producing the goods or services promised. A benefit is that it provides early information about future expected revenue.

An issue with the fair value model is that there are usually no market prices for customer contracts, so fair values must be estimated using management’s assumptions (level 3).<sup>43</sup> This implies that revenue and, even more importantly, income depend on expected future performance as judged by management, whose performance is to be evaluated. Despite the fact that an asset-liability approach combined with fair value measurement is a conceptually appealing method, it misses out on reliability as one of the key comparative advantages of accounting information over other information channels.<sup>44</sup>

In the discussion paper on revenue recognition, the IASB (2008) evaluates the fair value model (current exit price approach) with respect to its effect on the pattern of revenue recognition and issues involved with determining fair values.<sup>45</sup> In particular, “the boards [the IASB and the FASB] are uncomfortable with an approach that allows an entity to recognise revenue before the entity transfers to the customer any of the goods and services that are

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<sup>43</sup> Undesirable effects of unreliable performance measures are discussed in section 2.

<sup>44</sup> See also Christensen (2010).

<sup>45</sup> See also the summary of discussions in Schipper et al. (2009).

promised in the contract.” (IASB 2008, para. 5.20), which is an interesting factual argument, probably based on some reliability notion or its lack thereof. The IASB is also concerned that fair value measurement makes this model complex and revenue recognition prone to errors that lead to adjustments in consecutive periods.

The fair value includes an estimate of the cash outflows a market participant would expect to incur to fulfil the contract, a risk premium a market participant would demand for the risks involved, and the time value of money. The latter two components are the source of a (nominal) profit, and they are recognised as profit based on the evolution of the fair values over time until the contract assets and liabilities are extinguished. In a perfect market, the fair value of the consideration is equal to the fair value of the performance obligation and no “day-1” profit arises. In an imperfect market, differences occur. One cause is transaction costs that are not part of fair value, another is capabilities of a company to perform better than their competitors. Acquiring such capabilities requires investment in intangibles, which are (usually) not recognised as assets in the financial statements. That is, what is reported as profit from a customer contract is in part due to a deficiency of financial statements to recognise all assets necessary to fulfil the contract. Indeed, no capitalization of intangibles tends to make performance of a contract look better.<sup>46</sup> Glover and Ijiri (2002) and Horton, Macve, and Serafeim (2011) emphasise that a comprehensive revenue recognition standard requires dealing with the recognition of intangibles, such as marketing, R&D, human resources, and even inherent goodwill. Only then can the asset-liability approach with fair value measurement provide a revenue and income pattern consistent with the underlying economics.

An alternative measurement base to fair value is deprival value and its counterpart for liabilities, relief value (Horton, Macve, and Serafeim 2011). The relief value of contract liabilities equals the higher of the replacement liability and a value they label obligation satisfaction, which is the lower of the present value of the cash flows to settle the liability and

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<sup>46</sup> Of course, this effect depends on the regularity of companies investing in intangibles and fulfilling customer contracts. In a steady-state situation, there is no effect on profit but on net assets that increase if investment expenditures are recognised.

the net transfer value (the payment required to transfer the obligation to a third party). The relief value mirrors the value arising from an optimal action by management in the fictitious situation facing the removal of the liability.<sup>47</sup> In a perfect market, the relief value converges to fair value. This measurement approach has apparently not been considered by the IASB and FASB in detail.

The IASB and FASB developed an asset-liability approach with cost-based measurement, labelled original transaction price approach or customer consideration model.<sup>48</sup> It assumes that the value of the contract asset and liability are equal at contract inception. Then, by definition, no “day-1” profit or loss arises at contract inception. Subsequently, the performance obligation is not remeasured based on factors that affect its current value unless the contract becomes onerous. Indeed, the asset-liability approach with cost-based measurement produces similar outcomes as the revenue-expense approach, if the same critical events are used.<sup>49</sup>

Measurement at cost traditionally includes conservative features. A contract with a customer becomes onerous if the unavoidable expected cost to settle the performance obligation exceeds the consideration expected to be received. This form of conservatism is labelled conditional conservatism because it is contingent on the occurrence of a specific event that gives rise to an expected loss.<sup>50</sup> The effect of conservatism is to recognise a loss immediately when it is expected, overriding the recognition based on the critical events that govern the recognition of revenue and income. In the extreme, it can lead to a “day-1” loss if

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<sup>47</sup> See also Nobes (2011).

<sup>48</sup> See IASB (2008), Schipper et al. (2009).

<sup>49</sup> There are differences between the stipulated amount of consideration and the transaction price, so the model does not necessarily allocate contractual cash flows to the periods of performance. An example is a financing component in the contract, which is discussed later.

<sup>50</sup> On the other hand, unconditional conservatism does not include additional information. An example is not recognizing research expenditures as an asset.



a contract is signed for which a loss is anticipated (e.g., if a firm wants to fill otherwise free capacity).

In much of the academic literature, conditional conservatism is considered desirable and an indicator of high-quality financial statements.<sup>51</sup> The pervasiveness of conservative accounting is often considered as evidence for the (net) economic benefits of conservatism because otherwise it would have disappeared over time.<sup>52</sup> Actually, revenue recognition standards, including the new IFRS, contain a number of conservative rules (discussed in more detail below).<sup>53</sup>

Conservatism has been found particularly valuable in stewardship settings. Earnings are a common component in executive compensation contracts and affect management decisions. Recognizing losses early, a manager internalises expected losses from projects, which reduces an incentive to invest in short-term positive projects that have long-term negative consequences. It also induces the manager to abandon projects that turn out to generate losses earlier. Assuming that managers are over-optimistic or have incentives to overstate earnings, conservatism restricts the potential to recognise revenue based on upward biased expectations and mitigates earnings management. Similarly, conservatism induces managers to reveal unfavourable events, thus complementing the inherent incentive to reveal favourable events voluntarily. Conservatism can be valuable if accounting numbers are used in debt covenants. For example, it can provide early warning signals that lead to violation of a debt covenant and provide a continuing or abandonment decision through the allocation of decision rights. Indeed, Zhang (2008) finds that more conservative companies are more likely to violate debt covenants. Ewert and Wagenhofer (2012) discuss the contracting literature in detail and show that many often intuitively plausible arguments fail in certain cases. In particular, while the

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<sup>51</sup> For surveys see, e.g., Watts (2003a, 2003b), Kothari, Ramanna, and Skinner (2010), and Shivakumar (2013).

<sup>52</sup> Beatty, Weber, and Yu (2008) find that the majority of debt covenants written in practice include conservative modifications, suggesting a demand for additional conservatism through contracts.

<sup>53</sup> For more instances of conservative accounting in current and newly developed IFRSs see Barker and McGeachin (2013).

literature finds value in biased relative to neutral earnings, the desirable direction of bias (i.e., conservative or aggressive bias) depends on the circumstances.

## **4. The new revenue recognition standard**

### **4.1. Background**

Over ten years ago, the FASB and the IASB initiated a joint project to develop a single comprehensive standard for revenue recognition. Their effort was predominantly driven by the fact that companies developed business models with specific, and often highly complex, contracts with customers. For example, they included a number of options, variable consideration, and the bundling of a variety of goods and services into a single customer contract. The U.S. standard setter reacted to this situation by issuing detailed guidance for specific business models and particular industries to address issues that had been brought to its attention. The result was more than a hundred standards and in total more than 200 pieces of literature.<sup>54</sup> Inevitably, these literatures gave conflicting guidance for economically similar transactions. In contrast, the IASB follows a more principles-based standard setting approach and had only two standards, IAS 11 and IAS 18, and a few interpretations. Both standards originate from 1993, a time when IFRS still tried to develop a full set of standards to foster its acceptance. These standards do not include much guidance for different and for new business models, hence, application of these standards to more complex transactions is therefore difficult. Moreover, IAS 11 and IAS 18 are based on different concepts: IAS 11 basically follows the revenue-expense approach, whereas IAS 18 includes elements of an asset-liability approach with cost-based measurement.

The boards issued a joint discussion paper in 2008, in which they developed an asset-liability approach to revenue recognition based on the origination of rights to consideration and performance obligations through a contract with a customer.<sup>55</sup> As discussed above, the

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<sup>54</sup> See IASB (2008), para. S2, and Schipper et al. (2009).

<sup>55</sup> One may question whether that is a meaningful objective after all. E.g., Sunder (2005) argues that detailed codification of financial reporting will always lead to undesirable outcomes.

boards initially showed sympathy for a fair value measurement model of these rights and obligations, but moved away to a measurement based on the original transaction price. The main arguments for this move were high accounting complexity and little additional information.<sup>56</sup>

The next step was the publication of a joint exposure draft in 2010 (IASB 2010a), which developed this approach further. The boards received nearly 1,000 comment letters suggesting that many of the specific requirements were difficult and costly to apply and that the standard would require many companies to substantially modify their traditional revenue recognition practices. In 2011, the boards issued a revised exposure draft, which addressed many of these concerns. In particular, it introduced several simplifications and added criteria for revenue recognition of performance obligations that are satisfied over time, allowing companies to recognise revenue earlier. The final standard will be issued in 2014. The analysis is based on the 2011 revised Exposure Draft and subsequent agenda papers prepared by staff up to the time of writing this paper, henceforth referred to as ED-rev.

The rest of this section reviews the core principles of the new standard and discusses whether, and how, it reflects what academic research has found and whether the standard is internally consistent and consistent with the Conceptual Framework. The latter task is difficult because the Conceptual Framework is a moving target as both standard setters began working on a new Conceptual Framework, which aims to address fundamental accounting issues many of which are directly relevant for revenue recognition. They include recognition and measurement of assets and liabilities, measurement, and presentation and disclosure of items related to customer contracts (IASB 2013a). It is interesting to see how the revenue recognition standard influences (rather than is influenced by) the development of the Conceptual Framework.

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<sup>56</sup> See ED-rev, para. BC125.

## 4.2. The critical event for recognition

According to IFRS, revenue is an increase in economic benefits during the accounting period in the form of inflows or enhancements of assets or a decrease of liabilities that result in increases in equity that arise in the course of an entity's ordinary activities.<sup>57</sup> Revenue arises from producing and selling goods and rendering services and mainly comprises sales (or turnover), fees, royalties, interest income, and the like from customers. Revenues are distinguished from gains, which represent other items of income and may, or may not, arise in the course of the ordinary activities of the entity.

The new standard considers a contract with a customer as a necessary precondition for revenue recognition. If the company becomes a party of such a contract, it obtains a right to consideration in exchange for performance obligations. Rather than accounting for the resulting contract assets and contract liabilities separately, they are netted giving rise to a net contract asset or liability. Initially, the contract asset is measured at the transaction price, which is the amount of consideration to which the company is entitled, and the contract liability is measured at the same amount. Therefore, at initial measurement, the net contract position is nil, and no profit or loss is recognised. The asset-liability approach aims at limiting companies' discretion for earnings management, and the cost-based measurement reduces the discretion further.

The general principle is that revenue is recognised when the promised goods or services (referred to the "asset" in the standard) are transferred to the customer. This transfer leads to a reduction of the (gross) contract liability, which is either a reduction of the (net) contract liability or an increase in the (net) contract asset. The standard defines this transaction as "when (or as) the customer obtains control of that asset" (ED-rev, para. 31). Control is the ability to direct the use of the asset and to obtain substantially all benefits from the asset and to prevent others from doing so. Analogous to other IFRSs, this criterion captures economic

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<sup>57</sup> See the definitions in ED-rev and in the Conceptual Framework (IASB 2010b), para. 4.29, which the IASB intends to leave largely unchanged in the new Framework (IASB 2013a), para. 2.46. For a critical analysis of this definition see Nobes (2012).

ownership; legal ownership or a legal right to consideration are not decisive, but indicative for a transfer of control.

The standard distinguishes two cases: the performance obligation is satisfied at a point in time or it is satisfied over time. If the performance obligation is satisfied at a point in time, this point in time depends on the contractual agreements and on indicators such as physical possession, the customer's acceptance of the good, legal ownership, the allocation of the significant risks and rewards of ownership, and the present right to payment for the asset.

A performance obligation is satisfied over time if it creates or enhances an asset that the customer already controls; or if it does not create an asset with an alternative use to itself (e.g., if a good is specific to the customer) but at least one of three conditions is met: (i) the benefits of the asset are consumed by the customer simultaneously with the company's performance; (ii) it would not be necessary to substantially re-perform the company's completed performance to date if another supplier were to fulfil the remaining obligation; and (iii) the company has a right to payment for performance completed to date and it expects to fulfil the contract as promised.

The latter two conditions significantly extend the criterion of transfer of control over and above its original meaning, because neither condition is equivalent or implies a transfer of control. Both conditions were added in the revised exposure draft to mitigate concerns by companies that the strict transfer of control criterion included in the first exposure draft prohibits them to recognise revenue prior to actual transfer of control. However, these conditions are inconsistent with the core principle of the standard,<sup>58</sup> which implies that such cases are accounted for by recognizing a contract asset, for example work-in-progress, rather than revenue and income. Economically, the important difference is that by not transferring the asset (or part of it) to the customer the company retains the product risks. This extension of the original criterion essentially introduces a production-process based criterion to revenue

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<sup>58</sup> See also the alternative view of Linsmeier in the revised U.S. exposure draft (IASB 2011, para. AV7).

recognition, which the standard principally excludes.<sup>59</sup> And the new standard substantially recovers the percentage-of-completion method of the current IAS 11, albeit labelling it differently.

The proximity to IAS 11 is also evident from the requirements of how to measure the progress towards complete satisfaction of a performance obligation that is satisfied over time. The standard refers to output-based and input-based methods. Output-based methods measure the value of the satisfied performance obligation to the customer or the right to invoice if it is based on performance completed. Input-based methods measure actual efforts exerted or, under specific circumstances, the costs incurred by the company to date. If a company is unable to reasonably measure the progress, it recognises revenue only to the extent of costs incurred, as long as it expects to recover the full costs, which is reminiscent of the completed-contract method under IAS 11.

A typical concern with the asset-liability approach is that the recognised income and, hence, performance in each period is a direct consequence of the recognition and measurement of contract assets and liabilities, which may not fully reflect the economics of the contract with the customer. In particular, profit margins across the periods over which the contract is fulfilled may be volatile, which impairs the predictability of future performance. In the revenue-expense approach expenses are matched to the revenues, explicitly attempting to mitigate such effects. And, as discussed earlier, users tend to favour smooth earnings streams.

The standard addresses such concerns by incorporating specific rules for licences of intellectual property with sales- or usage-based royalties. Generally, licences are performance obligations that can be satisfied at a point in time or over time, contingent on whether they grant access to intellectual property that is static or dynamic in that it changes over time, e.g., through further activities by the firm. This assessment determines whether revenue is recognized at the licence date or over the licence period. A particular issue is if the amount of

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<sup>59</sup> The Basis for Conclusions in ED-rev, para. BC24 and BC103, discusses the relation between the core principle, transfer of the asset, with a principle based on a right to payment and finds that they are not the same.

the royalty depends on sales or other usage indicators of the customer. For such licences, the standard defines an exception from the revenue recognition principle, which requires that consideration is included in the transaction price when sales or usage actually occurs. This is exactly when the risk has been resolved. Hence, this exception establishes another critical event based on price risk. Moreover, it renders the distinction between satisfaction at a point in time or over time irrelevant because both will lead to the same revenue pattern for such licences.

The new standard also specifies the recognition of contract assets that are not in the scope of other IFRSs. Companies are obliged to recognise costs to fulfil a contract if they relate directly to a contract,<sup>60</sup> if they generate or enhance resources used in satisfying future performance obligations, and if the costs are recoverable. These requirements are also applicable to anticipated contracts. Furthermore, companies must recognise the incremental costs of obtaining a contract as a contract asset (except if amortization is less than a year). The standard also includes rules for subsequent measurement of such assets, which include amortization and impairment as adjusted to contract assets other than other assets. Even though not all conceivable costs related to a contract meet these requirements, these specific recognition rules help smooth the earnings stream reported from fulfilling the contract. These recognition rules appear to extend the common recognition criteria underlying IFRS<sup>61</sup> (and the concepts considered in the discussion paper on the Conceptual Framework, IFRS 2013a). To the extent that this is the case, they are not consistent with an asset-liability approach, but include elements of a revenue-expense approach.

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<sup>60</sup> ED-rev provides guidance on which costs satisfy this criterion and which do not. The direct costs need not match the costs defined in a cost-plus contract to be refundable (plus a profit margin). Hence, even though such a contract is a prime example for an economic matching, it is unlikely to be accounted for as such under ED-rev.

<sup>61</sup> In particular, costs incurred before contract inception are unlikely to meet the recognition criteria for assets. The first exposure draft of revenue recognition prohibited recognition of costs to obtain a contract (IASB 2010a, para. BC158).

In sum, the different phases of the deliberation of the new standard reveal that the IASB started with a single revenue recognition principle based on delivery (transfer of control), which was then opened up to embody other critical event. While many commentators would consider this development an introducing undesirable inconsistency in the standard, the result reflects insights gained from research: Under an information economics perspective, the revenue recognition requirements should be those that follow the most informative resolution of risks. If the risks differ widely, then different recognition principles are appropriate. Note that there is still a single, consistent principle underlying this perspective: It is the overarching principle to follow the resolution of the most important risks. Application of this principle implies different revenue recognition principles at the lower level.

#### **4.3. Dealing with multiple-element contracts**

A contract may include promises of several goods and services. Distinct promises are called performance obligations, and the revenue recognition requirements apply to each performance obligation. Sometimes contracts are substantially linked, and then they are combined before performance obligations are identified. These rules are important because they affect the total transaction price and the share allocated to the performance obligations.

Particular issues arise with post-delivery obligations, such as warranties. If the customer can buy warranty separately, it is considered a separate performance obligation. The same outcome obtains if warranty is not sold separately, but provides the customer with a service in addition to a standard warranty. A warranty that only provides assurance that the good complies with the contracted specifications is accounted for by recognizing a provision. The economic difference is that a performance obligation leads to a deferral of revenue and profit margin, as the performance obligation includes a profit margin, whereas a provision usually does not.

The transaction price in the contract (or the combined contract) must be allocated to the separate performance obligations. This step requires the determination of the transaction price. A particular issue is whether customer credit risk should be considered. Credit risk captures the fact that the cash inflows can fall below what the company was contractually



entitled to receive. Consistent with the earnings cycle, the original exposure draft considered this risk in the determination of the transaction price, which was defined as the amount the company expects to receive from the customer. This requirement was changed in the revised exposure draft, which explicitly excludes credit risk from the transaction price. The effect is that total revenue recognised on a contract tends to exceed the payments from the customer. A conceptual justification may be that credit risk is often viewed as part of the finance function of companies. Later deliberations considered introducing a general collectability threshold.

The general principle is that the transaction price should be allocated based on the stand-alone selling prices of the performance obligations. The standard includes guidance how to determine the stand-alone selling price if it is not readily observable. It includes, for example, the adjusted market assessment approach and the expected cost plus a margin approach. This guidance resembles that for the determination of fair values, although fair value is not explicitly mentioned. Other factors are whether a price discount can be attributed to a single performance obligation and whether variable price elements are related to a performance obligation.

In the revised exposure draft, the boards added the residual approach,<sup>62</sup> even though it is inconsistent with the other guidance. The residual approach is applicable if the stand-alone selling price of a performance obligation is highly variable or uncertain. Then its stand-alone selling price is assumed to be the difference between the transaction price and the sum of the stand-alone selling prices of the other performance obligations. No further allocation is necessary, as the sum of the stand-alone selling prices is equal to the transaction price by definition.

The allocation of the transaction price to the performance obligations has several consequences for reported performance. The revenue recognised for a performance obligation depends on characteristics (prices, uncertainty) of the other performance obligations. It can lead to different amounts of revenue for completed similar performance obligations.

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<sup>62</sup> Current U.S. GAAP contains a similar method.

Furthermore, it can bias the profit margins of the performance obligations, particularly if the margins based on the stand-alone selling prices vary significantly.<sup>63</sup>

A customer contract may include a financing component. The standard requires the separation of a significant financing component in a contract by adjusting the promised consideration by the time value of money so that the transaction price that is allocated to the performance obligations reflects the consideration if the customer paid at the point in time when the goods or services are transferred.<sup>64</sup> According to the standard, the interest rate used to determine the amount of the financing component is the discount rate in a separate financing transaction between the company and the customer at contract inception. It reflects the individual credit risk of the respective party and any collateral. It need not be identical to the discount rate specified in the contract. Since the discount rate includes the customer credit risk assessed at contract inception, revenue includes initial credit risk, but no subsequent credit risk changes.

An alternative concept would be to regard the financing component as another performance obligation, as its terms are negotiated jointly with the other performance obligations. This concept would require an adjustment of the discount rate in line with the allocation of the transaction price to all performance obligations based on their stand-alone prices. ED-rev includes some presentation and disclosure rules to assist users in understanding the financing effects inherent in revenue.

#### **4.4. Conservatism in revenue recognition**

Prudence was defined in the original Framework of the IASB as “the inclusion of a degree of caution in the exercise of the judgements needed in making the estimates required under conditions of uncertainty, such that assets or income are not overstated and liabilities or

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<sup>63</sup> Note that these effects are a consequence of not following a fair value measurement approach and recognizing a “day-1” profit.

<sup>64</sup> Determination of the financing component can be difficult because it requires anticipation of when the performance obligations are satisfied.

expenses are not understated” (IASB 1989, para. 37). In the overhaul of the Conceptual Framework (IASB 2010b), the IASB (jointly with the FASB) eliminated prudence because it is at odds with the qualitative characteristic of faithful representation and particularly neutrality. The recent discussion paper on the Conceptual Framework does not contain any indication that the IASB intends to modify that view (IASB 2013a). Despite that, the new standard on revenue recognition contains several rules that flow from the application of conservatism, which is in line with much accounting research that emphasises the importance of conservative accounting. Including conservative requirements in the revenue recognition standard appears to contradict the (existing and developing) Conceptual Framework. Consistent with the Framework, though, in none of these rules the boards argue with conservatism directly.

Table 2 summarises how the standard deals with major risks in the earnings cycle and indicates whether the respective requirement is conservative or neutral. Major instances of conservatism are discussed in more detail below. Two main conclusions result from the Table: One is that conservative requirements are prevalent and they are the norm rather than the exception. The other conclusion is that there appears to be no consistent principle underlying the individual requirements, which would tell which kind of risks and uncertainties are accounted for neutrally or conservatively.

Tab. 2: How the revenue recognition standard deals with risks in a customer contract

Type of risk	Specific risk	Requirement in the standard	Neutral	Conservative
Technical risks	Feasibility	Impairment of assets used to fulfil the contract (according to IAS 36)		×
	Increased production costs	Impairment of contract assets, onerous test		×
	Contract costs	No recognition as asset if not distinguishable whether they relate to satisfied or remaining performance obligations		×
Quantity risks	Customer returns, refunds	Estimate consideration reasonably assured to be entitled based on expected returns; For amounts not reasonably assured deferral of revenue recognition	×	×
	Customer option for additional goods or services	Separate performance obligation if material right; Otherwise accounting if option is exercised	×	
Price risks	Uncertain consideration	Estimate based on (a) expected value or (b) most likely amount; Variable consideration included in transaction price only if highly probable that no revenue reversal occurs	×	×
	Change in transaction price	Prospective adjustment of revenue	×	
Collectability risk	Customer credit risk	Not included in transaction price (except for collectability threshold)		Aggressive
Delivery risks	Progress towards satisfaction of performance obligation over time	Output or input methods; or costs incurred if firm is unable to reasonably measure outcome	×	×
	Customer acceptance	No revenue recognition until customer has accepted		×
Accounting risk	Uncertain stand-alone selling price of a performance obligation	Residual approach for allocation transaction price to performance obligations		?
Post-delivery risks	Warranty, product liability, etc	Provision with expected amount (if not separate performance obligation)	×	

One significant element of conservatism is the accounting for onerous contracts. If the unavoidable expected cost to settle the performance obligation exceeds the consideration expected to be received, contract assets if available are tested for impairment first, and the residual value of the difference in the values is recognised as a liability for the onerous contract and remeasured at each reporting date. This requirement is consistent with current practice. The reason the boards include this requirement is that “an onerous test is a necessary component of a revenue model in which the initial measurements of performance obligations are not routinely updated. The onerous test provides users with important information by, in effect, remeasuring performance obligations to reflect significant adverse changes in circumstances.” (ED-rev, BC204). It does not discuss why it believes this is the case or why favourable changes in circumstances should not be reflected in the financial statements.

Interestingly, the standard limits the onerous test to performance obligations that are satisfied over time and only to those that are satisfied over more than a year. There is no apparent conceptual basis to such a constraint, except for cost-benefit considerations. The boards explain it by the intention to “limit[s] the risk of unintended consequences of applying the onerous test to some contracts.” (ED-rev, BC208).

The onerous test is applied on the performance obligation level, which is more conservative than an application at the contract (or combined contract) level. This is consistent with defining performance obligations as the unit of account, but the contract level is used to allocate the transaction price to the performance obligations and, thus, plays an important role in determining whether a performance obligation is onerous. For example, a contract may be profitable, although some performance obligations in the contract are not, perhaps because they have lower margins due to the spreading of a price discount relative to their stand-alone selling prices.<sup>65</sup> It is debatable if the recognition of an onerous performance obligation provides useful information. An onerous test at the contract level would take

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<sup>65</sup> Another example is learning effects (see the earlier discussion).

account of the diversification of risks across performance obligations within the same contract.<sup>66</sup>

Another element of conservatism occurs for uncertain consideration. Generally, variable consideration must be estimated at the inception of the contract in determining the transaction price. However, it should only be included if it is highly probable that it will not result in a significant reversal of cumulative revenue recognized previously. This requirement leads to conservative accounting for revenue because “highly probable” is a probability significantly greater than 50 per cent. The transaction price is updated based on changes in the circumstances that underlie the estimate. The boards justify the constraint “because revenue is an important measure to users of financial statements when valuing an entity and because a significant portion of errors in financial statements have related to the overstatement or premature recognition of revenue.” (IASB 2011, para. BC198).

Related to uncertain consideration is the risk of collectability of the consideration due to customer credit risk. Interestingly, customer credit risk is generally not included in the transaction price and, hence, revenue, but leads to impairment of the receivable. This requirement leads to aggressive recognition of revenue because revenue is recognised at the maximum amount of consideration, which the firm is entitled to. It is only through impairment rules that conservatism comes in again when the receivable is subsequently measured. However, if collectability is questionable from the beginning of the contract, the standard contains a collectability threshold, which requires that it must be probable that the firm will collect the consideration it will be entitled to apply the revenue recognition model.

A third instance of conservatism is the constraint on revenue recognition on a performance obligation that is satisfied over time, if the company is unable to reasonably measure the outcome of the performance obligation. Then the revenue is limited by the costs

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<sup>66</sup> A similar diversification argument would apply to a group of similar performance obligations, regardless of whether they are bundled in the same contract or not.

incurred for satisfying the performance obligation. In effect, this rule precludes that profit is recognised if measurement is highly uncertain and unreliable.

A contract may include a right of the customer to return a good to the company or to be entitled to a refund for a service. Generally, revenue is recognised based on expected returns or refunds. If the company is unable to estimate the amount of consideration to which it is reasonably assured to be entitled, it recognises a refund liability and recognises revenue only after updating the assessment in each period. Again, high uncertainty is dealt with by a conservative accounting policy.

The allocation of the transaction price to the performance obligations in a contract includes a conservative element by allowing for the residual method if the stand-alone selling price of a performance obligation is highly uncertain. In that case, it is not estimated directly, but replaced by the difference between the transaction price and the stand-alone selling prices of the other performance obligations. Presuming a bundled contract contains a discount on the stand-alone selling prices of its components, this implies a low allocated transaction price of, and revenue from, the performance obligation whose selling price is difficult to estimate. On the other hand, the allocated transaction prices of the other performance obligations are likely to be overstated.<sup>67</sup> Hence, the total effect of this requirement depends on the specific characteristics of the performance obligations in the contract.

## **5. Conclusions**

In its discussion paper on revenue recognition PAAinE (2007b, p. 13) observes: “Everyone knows what revenue is and when it arises. Or so it is often claimed. Yet, on closer inspection it becomes clear that, except in the simplest of transactions, that is not actually the case.” Therefore, the effort of the IASB (jointly with the FASB) to develop a single comprehensive standard on revenue recognition is commendable.

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<sup>67</sup> The standard does not contain a revenue cap that was contained in U.S. GAAP, which would limit the transaction price allocated to a satisfied performance obligation to the amount that is not contingent on the satisfaction of performance obligations in future periods.

This paper reviews the fundamental accounting concepts relevant for the recognition of revenue and of income. Starting with the earnings cycle and the risks it involves, it shows the range of possibilities for revenue recognition. Revenue recognition informs about two interrelated pieces of information: One is that a particular critical event has occurred; the other is the expected (or minimum) performance that results from the customer contract. It also shows that the distinction between revenue-expense and the asset-liability approach is more conceptual than practical.<sup>68</sup> Revenue recognition under either approach uses a particular set of critical events that result from the stages of the earnings cycle.

The selection among different critical events depends on the information that the resolution of risks in each stage of the earnings cycle provides in a particular decision environment. Research shows that it is not necessarily the event at which the most serious risk resolves, but that one which allows users to learn most about the company's performance. This insight suggests that striving for a single revenue recognition principle is not the best way forward. Consistent with that, during the deliberations of the new standard the IASB extended the critical event from the transfer of control to (substantially) a production-process based criterion for many cases. However, to be fair it was probably not research but the reactions from the constituency in the due process that led the standard setters to modify their original proposal.

Regarding measurement, the new standard is essentially cost based and makes several concessions to conservative accounting, which introduces a degree of caution if the residual risk of the benefits from a customer contract is significant. I discuss cases of conservative accounting against the background of the Conceptual Framework, which requires neutral information and eliminates conservatism as a qualitative characteristic. Identifying conservative elements in the revenue recognition standard suggests – in line with much research – that conservatism (still) is important. Unfortunately, due to the elimination of

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<sup>68</sup> See also Bromwich, Macve, and Sunder (2010).



conservatism as a qualitative characteristic, the conservative requirements in the standard are not guided by an underlying principle, but appear somewhat ad hoc.

Linsmeier states in his alternative view on the revised exposure draft “that many of the issues he has identified have arisen in an effort to minimise differences with current practice by including in the proposed standard past guidance in existing literature.” (IASB 2011, para. AV10). Some instances of inconsistencies result from trading off costs and benefits: they are labelled “practical expedients” and include exemptions or options deviating from the base accounting treatment. Others arise from a deliberate deviation from the basic concept. From an information-economics point of view, inconsistencies within the standard and with the current Conceptual Framework are not necessarily undesirable. As this paper shows, there are good economic reasons for using different critical events for revenue recognition based on the resolution of risks along the earnings cycle and for conservatism to handle residual risk of the benefits of customer contracts.

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