



Measuring Fair Value

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Introduction and Basics

In February 2000, the Board issued FASB Concepts Statement No. 7, *Using Cash Flow Information and Present Value in Accounting Measurements*. Since then, the Board has incorporated the ideas from Concepts Statement 7 in Exposure Drafts on impairment of long-lived assets and asset removal obligations. Respondents to those Exposure Drafts have raised concerns about several elements of

those drafts that carried forward ideas from Concepts Statement 7.

FASB pronouncements usually provoke some controversy, and Concepts Statements are no exception. The principle objections raised in recent Exposure Drafts are largely the same objections raised when the Board was deliberating Concepts Statement 7. They focus on three areas:

- Use of the *expected-cash-flow approach* in developing present value measurements
- Use of *fair value* as the objective for measurements on initial recognition and subsequent fresh-start measurements that employ present value
- Inclusion of the entity's *credit standing* in the measurement of its liabilities.

Concepts Statement 7 is a departure from previous parts of the Board's conceptual framework. This Concepts Statement focuses on measurement with greater specificity than its predecessors. For the first time, it articulates a single objective for measurements on initial recognition and for subsequent fresh-start measurements, although that objective is limited to measurements that employ present value. It introduces techniques and ideas that have not been a common part of the accountant's tool kit, at least not explicitly. However, the principles articulated in Concepts Statement 7 carry forward ideas that first appeared in accounting literature in the early 1970s. The new techniques and ideas implement, at a very basic level, principles of economics and finance that date back to the 1950s and before.

The FASB recognizes its responsibility to maintain a continuing dialogue with constituents, especially when it introduces new ideas. To judge by the comment letters, many have interpreted Concepts Statement 7 as far more complex and difficult than the Board intended. Others may not have understood (or may not have accepted) the rationale behind the Board's conclusions. With that



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in mind, the Board and staff have prepared a series of articles to communicate both its rationale and its expectations for applications of Concepts Statement 7.

This is the third in a series of articles that explore the application of Concepts Statement 7. Previous articles discussed (1) the use of an expected-cash-flow approach to measurements and (2) the conceptual rationale behind the use of fair value as a measurement

objective. In this article, we turn our attention to the problems of estimating fair value and provide some guidance on using cash flows in the estimation process.

Elements and Principles

The first article in this series, *Expected Cash Flows*, outlined five elements of economic value and five practical principles drawn from Concepts Statement 7. The five elements of economic value are:

1. An estimate of the future cash flow, or in more complex cases, series of future cash flows at different times.
2. Expectations about possible variations in the amount or timing of those cash flows.
3. The time value of money, represented by the risk-free rate of interest.
4. The price for bearing the uncertainty inherent in the asset or liability.
5. Other, sometimes unidentifiable, factors including illiquidity and market imperfections.

The practical principles are:

1. Don't leave anything out. (But see item 5.)
2. Use consistent assumptions and don't count the same thing twice.
3. Keep your finger off the scale.
4. Aim for the average of a range, rather than a single most-likely, minimum or maximum amount.
5. Don't make up what you don't know.

Those elements and principles govern *what* is being measured, fair value and *how* to approach the measurement when using present value techniques.

What Is Fair Value?

The glossary to Concepts Statement 7 defines fair value of an asset or liability this way:

The amount at which that asset (or liability) could be bought (or incurred) or sold (or settled) in a current transaction between willing parties, that is, other than in a forced or liquidation sale.

That's a reasonably straightforward definition, but we can simplify it. Fair value is a price—a price at which two parties would agree to an exchange transaction. That's easy enough when there are established markets, but what about situations in which there are no outsiders who stand ready to buy the entity's assets or assume its liabilities? How can an accountant develop a reasonable estimate of fair value?

In its work on Concepts Statement 7 and other projects, the Board has found that an accounting estimate of fair value must begin with a series of assumptions. We need a frame of reference in which to identify the elements and apply the principles. The frame of reference here reflects expectations about how a market would operate, if one existed.

- The buyer of an asset (or the entity assuming a liability) has a use for the item in its current state and the ability to put it to use. If the item is a backhoe, we assume that the buyer is in the construction trade or used-equipment business. Buyers who don't understand the item (say, FASB Board members and staff) are not part of the market.
- The buyer of an asset (or the entity assuming a liability) will put the item to its *highest and best use*. This assumption is especially important for fixed assets like real estate. For example, an entity may own land now being used in agriculture. However, buyers of land in this area are interested in its potential for residential or commercial development and set prices accordingly. Fair value should incorporate assumptions about development, rather than continued operation in agriculture.

- The buyer of an asset (or the entity assuming a liability) can obtain reasonable information about the item's condition and uncertainties surrounding the potential cash flows. In the language of financial economics, there are no significant *information asymmetries*. If the item is a backhoe, we assume that the buyer can learn that it has an oil leak and several thousand hours of past use.
- The buyer of an asset (or the entity assuming a liability) is interested in the specific item in question. If the item is a backhoe, the buyer is interested in this particular make, model, age and physical condition, rather than a "market average" asset.
- The buyer and seller of an asset (or the entity seeking to extinguish or assume a liability) will transact in the market that is most advantageous, provided it has the ability to enter that market. This assumption is especially important when considering the fair value of groups of assets or liabilities. If the entity can obtain a better price (or incur lower costs) by transacting for the group, and the entity has the ability to enter that market, we assume that the transaction will take place in that market.

Some might suggest that these are significant, even unrealistic, simplifications. The give-and-take in real transactions often gives an advantage to the buyer or seller. A buyer might miss the oil leak and pay too much for the backhoe. A buyer might assume that "lemons" represent a high percentage of the used-equipment market and thus be unwilling to pay the price that would otherwise exist. Those may be valid objections, *but without a market to observe, we can't know how those factors would work themselves out* and, therefore, shouldn't consider those factors in an estimate of fair value.

Identifying the Asset or Liability

Several of the assumptions just described focus on a clear identification of the asset or liability in question. Accountants don't usually spend a lot of time questioning the nature of an asset or liability, at least, not when accounting for completed transactions. The buyer can point to the item and say, "We paid for that one." When estimating fair value, we must be sure that the estimate is for the asset or liability that is recognized in the financial statements, and not some other item. For example, most automobiles sold in the southern U.S. are equipped with air conditioning. The observed market price of automobiles assumes that they are similarly equipped. If the entity owns a fleet of automobiles without air conditioning, the observed market price of automobiles with air conditioning must be adjusted before it represents the estimated fair value of those assets recognized in the entity's financial statements.

The problem becomes more difficult when estimating the fair value of assets and liabilities that arise from day-to-day relationships with customers or others. A buyer of bank deposits, credit-card portfolios or insurance liabilities might adjust the price to incorporate the value of future business or cross-selling

opportunities with the customer base. However, many maintain that the item recognized in the financial statements—the asset or liability—represents only the existing balance. In their view, measurement should not become a device for recognizing intangible assets (like customer relationships) that would not otherwise be in the financial statements.

Others assert that the selling entity incurs costs to create the customer base, even if those costs are charged to expense when incurred. The intangible asset is “acquired” by the seller, and the observed or hypothetical market simply provides a means to capture the intangible asset’s value.

The interaction between fair value and unrecognized intangibles remains a difficult issue—one that standard setters have yet to completely resolve. However, the issue highlights the need for careful definition of the item in question before applying fair value measurement techniques. The series of examples below may help to illustrate the importance of a careful definition of the asset or liability.

The Marina

Question: Suppose the entity owns river front property that it operates as a marina. The property is located in an area that is currently undergoing extensive redevelopment. Surrounding properties have been sold to developers who are constructing residential townhouses. The expected present value of the marina’s cash flows is \$500,000. The estimated market value of the real estate, based on recent sales of adjacent river front property, is \$1,000,000. Is the fair value of this property based on its current use as a marina (\$500,000) or its development value (\$1,000,000)?

Answer: Before answering, we need to examine the underlying data. We must be sure that we have properly identified the asset that we are trying to value. In this case, the asset that we are trying to value is the asset recognized in the financial statements—land, buildings and equipment. The recognized asset is a component of the marina operation, the value of which includes both the recognized tangible assets and the business value of the marina, an unrecognized intangible asset. Unfortunately, we have no way to separate the “business” cash flows from the “fixed-asset” cash flows. The “lowest level for which there are identifiable cash flows that are largely independent”¹ is the marina operation.

But what could produce such a discrepancy between the two values? How can the expected present value of the cash flows from the operation be less than the market value of one component? We can envision at least two possibilities:

1. Perhaps management estimated the cash flows associated with the marina operation but assigned no terminal value, or a nominal terminal value, to the land. This seems unreasonable in the face of current development activity. Indeed, the land underneath the marina may become more valuable if surrounding development is successful. If we

assume, for purposes of illustration, that the present value of the land’s terminal value is about \$1,000,000 (its current market value), then the fair value of the marina operation is \$1,500,000.

2. Alternatively, perhaps management estimated the marina cash flows including the terminal fair value of the land. Managers estimated that the marina will produce negative cash flows over its remaining life having an expected present value of \$(500,000), leaving a net present value of \$500,000.

The two computations are summarized in the table below:

The Marina Understanding the Discrepancy		
	<u>Possibility 1</u>	<u>Possibility 2</u>
Expected present value of operating cash flows	\$ 500,000	\$(500,000)
Terminal value of real estate	—	<u>1,000,000</u>
Initial estimate	500,000	500,000
Correct for terminal value of real estate	<u>1,000,000</u>	—
Fair value of the marina operation	<u>\$1,500,000</u>	<u>\$ 500,000</u>
Allocated to recognized assets	<u>\$1,000,000</u>	<u>\$1,000,000</u>

In either case, the fair value of the asset recognized in the balance sheet—land, buildings and equipment—is \$1,000,000. The \$1,500,000 produced in possibility 1 includes the operating value of the business—a goodwill-like intangible that is not recognized in the financial statements absent a business combination. The \$500,000 produced in possibility 2 includes the present value of future operating losses—an amount that does not meet the definition of a liability and does not diminish the value of the asset in question.

The Biomanufacturing Facility

Question: Suppose the entity owns and operates a special-purpose manufacturing facility created to produce proprietary bioengineered products under the entity’s patent. Any other buyer of that property would operate the property as a warehouse. Comparable warehouse space sells for \$700,000. Managers estimate the present value of expected cash flows from the bioengineering operation at \$2,000,000. What is the fair value of the manufacturing facility?

Answer: Again, we must be sure that we have identified the asset that we are trying to measure. The asset recognized in the financial statements is land, building *and* equipment. Presumably, the entity has a significant investment in specialized equipment necessary to

¹FASB Statement No. 121, *Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of*, paragraph 8.

turn warehouse space into a biomanufacturing facility. Even though that equipment is specialized, our earlier assumptions postulate “a use for the item in its current state and the ability to put it to use.” The estimated fair value of that equipment is its value to another biomanufacturer. If we assume, for purposes of illustration, that the value of the equipment is \$500,000, then the estimated fair value of the asset recognized in the financial statements is the sum of the land and building (\$700,000) and equipment (\$500,000), a total of \$1,200,000.

What about the \$800,000 difference between the computed present value and estimated fair value? By elimination, that must be the value of patents, proprietary technology and the like. Under existing GAAP, those items are not recognized in financial statements unless acquired from others.

The Biomanufacturing Facility, Variation

Question: Suppose the entity owns and operates a special-purpose manufacturing facility created to produce proprietary bioengineered products under the entity’s patent. There is no available marketplace information about the fair value of the facility, and management concludes that the entity’s patents and proprietary technology cannot be valued independent of the manufacturing facility. The entity’s cost of land, building and equipment is \$1,200,000. The intangibles are not reported as assets in the financial statements. Managers estimate the present value of expected cash flows from the bioengineering operation at \$2,000,000. What is the fair value of the manufacturing facility?

Answer: Something less than \$2,000,000. As in the previous example, we know that the cash flows apply to the fair value of both the recognized assets and unrecognized assets. Presumably, the unrecognized intangibles have a value greater than zero, and if we knew it, that value should not be attributed to the fair value of the land, buildings and equipment that are recognized in the financial statements. Unfortunately, the assumed facts in this case don’t provide any way of knowing how to allocate the fair value. Even though we know that the \$2,000,000 includes both recognized assets (land, building and equipment) and unrecognized assets (patents and proprietary technology) it is the only available measure of fair value. In this unusual example, any other estimate would violate the last of the basic principles described in the introduction—don’t make up what you don’t know.

We pause here to emphasize that this example represents an extreme case, especially for assets like manufacturing facilities. We set up the extreme case to illustrate a limit on the ability of present value measurements to make fine distinctions. Cash flows associated with nonfinancial assets and liabilities usually represent the joint result of tangible and intangible contributions. Without external information, like the fair value information assumed in the marina and previous bioengineering examples, any attempt to identify the relative contributions made by tangible and intangible factors may be arbitrary. However, there are many other cases,

especially in financial instruments, service contracts and asset retirement obligations, in which accountants can incorporate marketplace (rather than entity-specific) information in individual assumptions about cash flows. Those marketplace assumptions should improve the extent to which the measurement represents the fair value of the item in question, rather than the joint value of the item and some other factor.

The Tax Limitation

Question: Suppose the entity owns an office building. Managers propose to estimate fair value based on expected future lease rates and operating costs over the remaining useful life of the building, adjusted for the terminal value of underlying land. Real estate in this jurisdiction is subject to a special property-tax limitation scheme. As long as the entity owns this property, annual property taxes are \$50,000. Property taxes to a new owner would be \$250,000 per year. Which amount should managers include in their estimate of fair value?

Answer: The amount that a buyer would pay—\$250,000. In this case, there is no buyer that could pay taxes at the entity’s current level. By law, no such buyer can possibly exist.

Estimating Fair Value

FASB pronouncements that require fair value include a hierarchy of fair value estimates. The most recent summary of the hierarchy is found in paragraphs 68–70 of FASB Statement No. 140, *Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities*:

Quoted market prices in active markets are the best evidence of fair value and shall be used as the basis for the measurement, if available. If a quoted market price is available, the fair value is the product of the number of trading units times that market price.

If quoted market prices are not available, the estimate of fair value shall be based on the best information available in the circumstances. The estimate of fair value shall consider prices for similar assets and liabilities and the results of valuation techniques to the extent available in the circumstances. Examples of valuation techniques include the present value of estimated future cash flows, option-pricing models, matrix pricing, option-adjusted spread models, and fundamental analysis. Valuation techniques for measuring financial assets and liabilities and servicing assets and liabilities shall be consistent with the objective of measuring fair value. Those techniques shall incorporate assumptions that market participants would use in their estimates of values, future revenues, and future expenses, including assumptions about interest rates, default, prepayment, and volatility. In measuring financial liabilities and servicing liabilities at fair value, the objective is to estimate the value of the assets

required currently to (a) settle the liability with the holder or (b) transfer a liability to an entity of comparable credit standing.

Estimates of expected future cash flows, if used to estimate fair value, shall be based on reasonable and supportable assumptions and projections. All available evidence shall be considered in developing estimates of expected future cash flows. The weight given to the evidence shall be commensurate with the extent to which the evidence can be verified objectively. If a range is estimated for either the amount or timing of possible cash flows, the likelihood of possible outcomes shall be considered either directly, if applying an expected cash flow approach, or indirectly through the risk-adjusted discount rate, if determining the best estimate of future cash flows. [Footnote references omitted.]

We can state these principles simply. If you can observe fair value directly from quoted prices, don't do any more. If you can't, use the available technique that will best approximate fair value. Techniques that are closer to a marketplace (example: of market comparable sales) are better than techniques that are more removed from a marketplace (example: present value).

Many objections to the use of fair value center on situations in which there are few market signals about the fair value of particular assets or liabilities. The absence of an observable market doesn't change the *objective* of the measurement, but it makes that objective harder to achieve. The question raised in the previous section remains. How can an accountant develop a reasonable estimate of fair value when no market exists?

The Board has long recognized that an entity's internal estimates of expected cash flows may be the only available information with which to estimate fair value. In paragraph 38 of Concepts Statement 7, the Board observed:

Adopting fair value as the objective of present value measurements does not preclude the use of information and assumptions based on an entity's expectations. As a practical matter, an entity that uses cash flows in accounting measurements often has little or no information about some or all of the assumptions that marketplace participants would use in assessing the fair value of an asset or a liability. In those situations, the entity must necessarily use the information that is available without undue cost and effort in developing cash flow estimates. The use of an entity's own assumptions about future cash flows is compatible with an estimate of fair value, as long as there are no contrary data indicating that marketplace participants would use different assumptions. If such data exist, the entity must adjust its assumptions to incorporate that market information.

An Example, Estimating the Fair Value of an Obligation

The first article in this series described a series of questions that take estimated cash flows associated with a liability from a single most-likely amount to an expected cash flow. The manager described in that first article might reasonably hope that the interrogation is over, but we have more questions to ask. Now, we need to understand whether the expected cash flows are those that we would reasonably expect another entity to consider in setting the price it would charge to assume the obligation. Let's turn to the basic cash flows, or cash flow surrogates, included in the estimate of fair value. As in the earlier examination of expected cash flows, most of this information can be developed from existing management systems.

The Elements of "Cost"

Question 1: Do the cash flows include avoided costs?

An entity may be able to avoid direct cash outflows, or incur lower amounts, by drawing on other resources. For example, the entity may be able to draw supplies from existing stocks rather than purchasing those supplies on the open market. An entity assuming the obligation would have to buy those supplies, and cash flows used to estimate fair value should reflect that fact rather than assigning zero to the cost of the supplies. Moreover, the cash flows should include the amounts that the outsider would incur. If the entity manufactures the supplies in question, cash flows should include the market price that an outsider would pay rather than the entity's cost to produce the items.

The same principle applies to the cost of employees who may be involved in settling the obligation. An assuming entity would seek to recover the full cost of using those employees, including all salary and benefits at market levels.

Question 2: Do the cash flows include overhead costs?

Settling an obligation often requires considerable management attention, along with services provided by administrative departments ranging from information systems to personnel. Again, an assuming entity would seek to recover some of those indirect costs from each job it undertakes. In old-fashioned cost accounting, this element of cash flows would be described as *overhead burden*. Determining the amount assigned to indirect costs involves considerable judgment, and the amount is unavoidably subjective. Internal transfer-pricing policies may be useful in determining the amount to include in cash flows. Alternatively, managers might consider the amount that they would attempt to recover if their entity assumed another's obligation.

Question 3: Do the cash flows include costs associated with fixed assets?

In some cases, settling an obligation requires the use of fixed assets. For example, an entity that must remove an asset and clean up the location may need heavy construction equipment. An outside contractor would seek to recover the cost of such equipment by adding a separate charge, often by assigning an hourly, daily or monthly rate to the use of individual items. Again, internal transfer-pricing policies may be useful in determining the amount assigned to fixed assets. Managers might also consider whether depreciation rates assigned to comparable new equipment (adjusted to include a return on investment) provide a reasonable surrogate for a contractor's fixed-asset charge rate.

Markup and Risk Adjustment

The initial estimate of expected cash flows, adjusted by the answers to questions 1–3, might be described as the expected cash flows on a full-absorption basis. The information used and the techniques for gathering that information are familiar to most accountants. Two elements of fair value remain, and they reveal a tension between the first and last basic principle of present value in accounting measurement. The first principle says, "Don't leave anything out," while the last says, "Don't make up what you don't know." It may not be possible to satisfy both of those principles.

Common intuition suggests that contractors hired to perform a job charge a price that they expect will cover all costs and return a profit margin, sometimes expressed as a markup on costs. The same intuition suggests that no entity would guarantee the amount of an uncertain expected cash flow without being paid to do so. If one entity assumes another's obligation, the price charged would include the markup (either its own or that of a subcontractor) and the price of the guarantee (the risk premium). Excluding those elements from the estimated fair value violates the first principle; it leaves out something important.

But can an accountant estimate the amounts without violating the last principle, without making up something he or she doesn't know? Maybe not. The Board recognized the difficulty in estimating the risk adjustment. In paragraph 62 of Concepts Statement 7, the Board observed:

An estimate of fair value should include the price that marketplace participants are able to receive for bearing the uncertainties in cash flows—the adjustment for risk—if the amount is identifiable, measurable, and significant. An arbitrary adjustment for risk, or one that cannot be evaluated by comparison to marketplace information, introduces an unjustified bias into the measurement. On the other hand, excluding a risk adjustment (if it is apparent that marketplace participants include one) would not produce a measurement that faithfully represents fair value. There are many techniques for

estimating a risk adjustment, including matrix pricing, option-adjusted spread models, and fundamental analysis. However, in many cases a reliable estimate of the market risk premium may not be obtainable or the amount may be small relative to potential measurement error in the estimated cash flows. In such situations, the present value of expected cash flows, discounted at a risk-free rate of interest, may be the best available estimate of fair value in the circumstances.

Estimating the profit margin element of fair value should be easier than estimating the risk adjustment. Any manager who regularly deals with contractors should be able to estimate the amount of estimated profit that they include in job prices. Indeed, that amount is often part of the negotiation process. Still, there may be situations in which the task is so unusual that any estimate would be speculation. There may be other situations in which the profit margin and the risk adjustment are intertwined and neither can be estimated. While managers should always endeavor to estimate these elements of fair value, there are situations in which the present value of expected cash flows (without including adjustments for markup or risk), discounted at the risk-free rate of interest, may be the best available estimate of fair value.

Concluding Observation

As stated earlier, fair value is the price at which an asset or liability would move from one holder or obligor to another. That amount is easy to see in established markets but may be hard to estimate when those markets do not exist. However, many of the elements can be estimated based on the entity's expectations using familiar techniques and information. In the absence of evidence that marketplace participants would have different expectations about cash flows, the result is the best estimate of fair value available. Concepts Statement 7 sets the objective, an estimate of fair value using the best tools available in the circumstance. However, the Board recognizes that, in the absence of observed market transactions, the estimate will require significant judgment and the result will be imprecise.

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