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Fair value measurements

Partially updated September 2022

About the Fair value guide

PwC is pleased to offer our accounting and financial reporting guide for *Fair value measurements*.

This guide summarizes the applicable accounting literature, including relevant references to and excerpts from the FASB's Accounting Standards Codification (the Codification). It also provides our insights and perspectives, interpretative and application guidance, illustrative examples, and discussion on emerging practice issues.

This guide should be used in combination with a thorough analysis of the relevant facts and circumstances, review of the authoritative accounting literature, and appropriate professional and technical advice. Guidance on financial statement presentation and disclosure related to fair value disclosures can be found in PwC's *Financial statement presentation* guide (FSP 20).

References to US GAAP

Definitions, full paragraphs, and excerpts from the FASB's Accounting Standards Codification are clearly labelled. In some instances, guidance was cited with minor editorial modification to flow in the context of the PwC Guide. The remaining text is PwC's original content.

References to other PwC guidance

This guide provides general and specific references to chapters in other PwC guides to assist users in finding other relevant information. References to other guides are indicated by the applicable guide abbreviation followed by the specific section number. The other PwC guides referred to in this guide, including their abbreviations, are:

- *Business combinations and noncontrolling interests (BCG)*
- *Derivatives and hedging (DH)*
- *Financial statement presentation (FSP)*
- *Income taxes (TX)*
- *Loans and investments (LI)*
- *Property, plant, equipment and other assets (PPE)*

Summary of significant changes

Following is a summary of the noteworthy revisions to the guide. Additional updates may be made to future versions to keep pace with significant developments.

General note: IFRS content was removed from the previous version of this guide. Refer to PwC's *Manual of Accounting—IFRS* for discussion of fair value measurements in accordance with IFRS.

Revisions made in September 2022

FV 4, Fair value fundamentals

- **FV 4.2.2.1** was updated to reflect the impact of ASU 2022-03.
- The content formerly in **FV 4.8** was moved to **FV 4.8A** and a new **FV 4.8** was added to reflect the impact of ASU 2022-03.

FV 6, Application to financial assets and financial liabilities

- The content formerly in **FV 6.2.4** was moved to **FV 6.2.4A** and a new **FV 6.2.4** was added to reflect the impact of ASU 2022-03.

Revisions made in March 2022

FV 2, Scope

- **FV 2.2.1** was updated to clarify the applicability of ASC 820 within lease accounting guidance.
- **FV 2.3** was updated to reflect the ASC 820 scope exception discussed in ASC 610-20.
- **FV 2.4** was updated to clarify the practicability exceptions in ASC 820-10-15-3.

FV 4, Fair value fundamentals

- **FV 4.2.4.3** was updated to discuss the recession of ASR 118.
- **FV 4.2.8** was updated to reflect the “portfolio exception” applicable to nonfinancial items accounted for as derivatives under ASC 815.
- **FV 4.8** was updated to reflect the FASB’s proposal related to the fair value measurement of equity securities subject to contractual restrictions.

FV 5, The fair value option

- **FV 5 .3.2** was updated for ASU 2020-06.
- **FV 5.3.3** was updated to discuss the applicability of ASC 610-20.

FV 6, Application to financial assets and financial liabilities

- Updates were made to reflect the impact and implementation of ASC 326, *Financial Instruments--Credit Losses*.
- **FV 6.6.2** was updated for ASU 2020-01.

FV 7, Nonfinancial assets and liabilities, and business combinations

- Former FV 7.6, *Holdings in associates, joint ventures, & subsidiaries*, was removed.

- **FV 7.3.3.6** was updated for ASU 2021-08.
- **FV 7.3.3.6A** was added to discuss the accounting for deferred revenue prior to the adoption of ASU 2021-08.
- **FV 7.5.1** was updated to clarify the guidance of ASC 410, *Asset Retirement and Environmental Obligations*.

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***Chapter 1:
Introduction—updated
March 2022***

1.1 Fair value guide overview—updated September 2022

This chapter provides a high-level overview of fair value measurements. It highlights the items for which fair value measurements are required or permitted, summarizes the authoritative guidance that governs fair value measurements under US GAAP, and discusses the key concepts included in the fair value guidance. The concepts included in this chapter are further discussed in ensuing chapters of this guide.

Recent standard setting

In June 2022, the FASB issued ASU 2022-03, *Fair Value Measurements of Equity Securities Subject to Contractual Sale Restrictions*. ASU 2022-03 clarified that a contractual restriction on the sale of an equity security (for example, an underwriter lock-up agreement) is not considered part of the unit of account of an equity security. As a result, such restriction is not considered in measuring the fair value of the equity security. ASU 2022-03 is effective for public business entities for fiscal years beginning after December 15, 2023, and interim periods within those fiscal years. For all other entities, the guidance is effective for fiscal years beginning after December 15, 2024, and interim periods within those fiscal years. Early adoption is permitted for both interim and annual financial statements that have not yet been issued or made available for issuance. Refer to FV 4.8 for additional details.

1.2 Why is fair value important?

Fair value continues to be an important measurement basis in financial reporting. It provides information about what an entity might realize if it sold an asset or might pay to transfer a liability. In recent years, the use of fair value as a measurement basis for financial reporting has been expanded, even as the debate over its usefulness to stakeholders continues.

Determining fair value often requires a variety of assumptions and significant judgment. Thus, investors desire timely and transparent information about how fair value is measured, its impact on current financial statements, and its potential to impact future periods.

There are numerous items for which fair value measurements are required or permitted.

ASC 820, *Fair Value Measurement*, provides authoritative guidance on fair value measurement. The scope of ASC 820 is discussed in FV 2.

1.3 Key concepts in ASC 820

ASC 820 defines how fair value should be determined for financial reporting purposes. It establishes a fair value framework applicable to all fair value measurements under US GAAP (except those measurements specifically exempted; see further discussion in FV 2).

Under ASC 820, fair value is measured based on an “exit price” (not the transaction price or entry price) determined using several key concepts. Preparers need to understand these concepts and their interaction. They include the unit of account, principal (or most advantageous) market, the highest and best use for nonfinancial assets, the use and weighting of multiple valuation approaches and/or techniques, and the fair value hierarchy. Preparers also need to understand valuation theory to ensure that fair value measurements comply with the accounting standard.

The following sections detail the key concepts in ASC 820.

1.3.1 Fair value is based on the price to sell an asset or transfer (not settle) a liability

ASC 820-10-20 defines fair value as “the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

In many cases, the price to sell an asset or transfer a liability (the exit price) and the transaction (or entry) price will be the same at initial recognition; however, in some cases, the transaction price may not be representative of fair value. In those cases, a reporting entity may recognize an initial gain (or loss) as a result of applying ASC 820. The fact that the fair value measurement is based on a valuation model that uses significant unobservable inputs does not alter the requirement to use the resulting value in recording the transaction.

The initial (or “Day One”) gain or loss is the unrealized gain or loss, which is the difference between the transaction price and the fair value (exit or transfer price) at initial recognition. The recognition of that unrealized gain or loss depends on the accounting model for the asset or liability, as specified in other GAAP (e.g., the gain or loss on available-for-sale debt securities would be reported in other comprehensive income, while the gain or loss on trading securities would be reported in income). ASC 820 describes some of the conditions that may give rise to a Day One gain or loss (e.g., different entry and exit markets).

Under the fair value standard, a liability’s fair value is based on the amount that would be paid to transfer that liability to another entity with the same credit standing. The transfer concept assumes the liability continues after the hypothetical transaction; it is not settled. The valuation of a liability should incorporate nonperformance risk, which represents the risk that a liability will not be paid. Nonperformance risk includes the impact of a reporting entity’s own credit standing. Credit risk, as with other valuation inputs, should be based on assumptions from the perspective of a market participant. (See the “*Focus on market participant assumptions*” section below.)

If there is no market for the liability, but it is held by another party as an asset, the liability should be valued using the assumptions of market participants that hold the asset, assuming the holders have access to the same market. Priority is given to quoted prices (for the same or similar liability held as an asset in active or inactive markets). However, a valuation technique would be used if quoted prices are not available.

1.3.2 Determining the unit of account

A fair value measurement is performed for a particular asset or liability. The characteristics of the asset or liability should be taken into account when determining fair value if market participants would consider these characteristics when pricing the asset or liability. Such characteristics include (1) the condition and/or location of the asset or liability and (2) any restrictions on sale, transferability, or use of the asset.

When applying ASC 820, it is important to determine the appropriate unit of account (i.e., the level at which an asset or liability is aggregated or disaggregated for recognition purposes under the applicable guidance). An asset or liability measured at fair value may be (1) a standalone asset or liability (e.g., a financial instrument, an investment property, or a warranty liability) or (2) a group of assets, a group of liabilities, or a group of assets and liabilities (e.g., a reporting unit or a business).

The level at which fair value is measured is generally consistent with the unit of account specified in other guidance. However, as discussed under the “*Application to nonfinancial assets*” section below, for non-financial assets, fair value measurements may be determined assuming that the asset is used in combination with other assets and liabilities as a group.

Also, for financial assets and liabilities that qualify, as discussed in ASC 820-10-35-18D, fair value may be measured at a group or portfolio level. Even when fair value is measured for a group of assets or liabilities, if fair value is a required measurement or disclosure in the financial statements, it should be attributed to the unit of account specified in other guidance on a systematic and rational basis.

1.3.3 *Focus on market participant assumptions*

ASC 820 emphasizes that fair value is a market-based measurement, not an entity-specific measurement. As such, management’s intended use of an asset, or planned method of settling a liability, are not relevant when measuring fair value. Instead, the fair value of an asset or liability should be determined based on a hypothetical transaction at the measurement date, considered from the perspective of a market participant. For instance, if a market participant were to assign value to an asset acquired in a business combination, the market participant assumptions should be incorporated in determining its fair value, even if the acquiring company does not intend to use the asset.

1.3.4 *Importance of determining the market*

A key principle in ASC 820 is the concept of valuation based on the principal market or, in the absence of a principal market, the most advantageous market. The principal market is the market with the greatest volume and level of activity for the asset or liability being measured at fair value. The market where the reporting entity, or a business unit within the overall reporting entity, would normally enter into a transaction to sell the asset or transfer the liability is presumed to be the principal market, unless there is evidence to the contrary.

The principal market must be available to and accessible by the reporting entity. If there is a principal market, fair value should be determined using prices in that market. If there is no principal market, or the reporting entity doesn’t have access to the principal market, fair value should be based on the price in the most advantageous market (the market in which the entity would maximize the amount received to sell an asset or minimize the amount that would be paid to transfer a liability).

The determination of the most advantageous market may require the reporting entity to consider multiple potential markets and the appropriate valuation premise(s) in each market (for nonfinancial assets). Once the potential markets are identified, the reporting entity should value the asset in each market to determine which one is the most advantageous. If there are no accessible markets, the reporting entity should value the asset in a hypothetical market based on assumptions of potential market participants.

1.3.5 *Application to nonfinancial assets*

The highest and best use concept is applicable to fair value measurements of nonfinancial assets. It takes into account a market participant’s ability to generate economic benefits by using an asset in a way that is physically possible, legally permissible, and financially feasible.

The highest and best use of a nonfinancial asset is determined from the perspective of a market participant, even if the reporting entity intends to use the asset differently. In determining the highest

and best use, the reporting entity should consider whether the nonfinancial asset would provide maximum value to a market participant on its own or when used in combination with a group of other assets or other assets and liabilities.

1.3.6 *Financial assets and liabilities with offsetting net risk positions*

Although the concept of highest and best use does not apply to financial assets and liabilities, there is an exception to the valuation premise when an entity manages its market risk(s) and/or counterparty credit risk exposure within a portfolio of financial instruments (including derivatives that meet the definition of a financial instrument), on a net basis.

The “portfolio exception” allows for the fair value of those financial assets and financial liabilities to be measured based on the net positions of the portfolios (i.e., the price that would be received to sell a net long position or transfer a net short position for a particular market or credit risk exposure), rather than the individual values of financial instruments within the portfolio. This represents an exception to how financial assets and financial liabilities are measured outside of a portfolio, where each unit of account would be measured on an individual basis.

1.3.7 *Incorporation of standard valuation approaches and techniques*

ASC 820-10-35-24A requires consideration of three broad valuation approaches: the market approach, the income approach, and the cost approach. It also provides examples of valuation techniques that are consistent with each valuation approach.

The guidance requires that entities consider all valuation approaches applicable to what is being measured and the availability of sufficient data. In some cases, one valuation approach may be sufficient, while in other cases, the reporting entity may need to incorporate multiple approaches, depending on the specific fact pattern.

Under ASC 820, reporting entities are required to consider the risk of error inherent in a particular valuation technique (such as an option pricing model) and/or the risk associated with the inputs to the valuation technique. Accordingly, a fair value measurement should include an adjustment for risk if market participants would include such an adjustment in pricing a specific asset or liability.

See further discussion in FV 4.4.

1.3.8 *The fair value hierarchy*

ASC 820-10-35-37 establishes a three-level hierarchy of fair value measurements to provide greater transparency and comparability of fair value measurements and disclosures among reporting entities. The guidance prioritizes observable data from active markets, placing measurements using only those inputs in the highest level of the fair value hierarchy (Level 1). The lowest level in the hierarchy (Level 3) includes inputs that are unobservable, which may include an entity’s own assumptions about cash flows or other inputs. In addition, in response to some constituents’ concerns about the reliability of fair value measurements based on unobservable data, additional disclosure is required for Level 3 measurements.

See further discussion in FV 4.5.

1.3.9 Other key concepts

Other concepts and requirements of ASC 820 include the following:

- *Prohibition against use of blockage factors*—A blockage factor is a discount applied in measuring the value of a security to reflect the impact on the quoted price of selling a large block of the security at one time. ASC 820-10-35-36B prohibits application of a blockage factor in valuing assets or liabilities when measuring financial instruments in any level of the hierarchy. That is, no discounts or premiums that adjust for the size of a holding are permitted, as they are not characteristics of the asset or liability being measured. Other premiums or discounts that are necessary to adjust for the characteristic of the asset or liability in a Level 2 or 3 fair value measurement may be applied (for example, a control premium).
- *Valuation of restricted securities*—ASC 820 requires a reporting entity to value all securities reported at fair value based on market participant assumptions. Thus, if a market participant would reduce the quoted price of an identical unrestricted security due to a restriction on sale, that reduction should be incorporated in the fair value measurement. Consideration of the restriction in the fair value measurement is allowed only if it is an attribute of the security and does not arise from an agreement or condition that is not an attribute of the security itself. For example, a separate agreement to restrict the sale of a security, which does not amend the security itself, would not affect the fair value of the security. See further discussion in FV 4.8, FV 4.8A, FV 6.2.4, and FV 6.2.4A.
- *Transaction costs*—Transaction costs are not considered an attribute of the asset or liability and therefore should not be included in the measurement of fair value. While excluded from the determination of fair value, transaction costs should be considered in determining the most advantageous market. In making that determination, a reporting entity should calculate the net amount that would be received from the sale of an asset or paid to transfer a liability. The price received or amount paid is adjusted by the transaction costs. See further discussion in FV 4.2.4.1 and FV 4.2.4.2.

1.4 Disclosure requirements

ASC 820 includes extensive disclosure requirements that apply to both recurring and nonrecurring fair value measurements. These disclosures are discussed within ASC 820-10-50. The objective of the disclosures is to help users of the financial statements assess (1) the valuation techniques and inputs used in measuring assets and liabilities at fair value on the balance sheet on a recurring and nonrecurring basis and (2) the effect of recurring fair value measurements determined using significant unobservable inputs (i.e., Level 3 measurements) on earnings or other comprehensive income for the reporting period. Various factors must be considered in order to meet those objectives, including the necessary amount and detail of information, what emphasis must be placed on the different disclosure requirements and the appropriate level of aggregation necessary for the disclosures. See further discussion within FSP 20.

1.5 AICPA Accounting and Valuation Guide

The AICPA's Private Equity and Venture Capital Task Force (the "Task Force") along with the Financial Reporting Executive Committee released the final publication of the accounting and valuation guide, *Valuation of Portfolio Company Investments of Venture Capital and Private Equity Funds and Other Investment Companies* ("the VC and PE Guide") in August 2019.

The VC and PE Guide provides guidance for investment companies and their advisors, including, but not limited to, company management, boards of directors, valuation specialists and independent auditors. It includes examples and case studies illustrating leading practices, which were developed by the Task Force related to the valuation of illiquid investments by investment companies within the scope of FASB ASC 946, *Financial Services—Investment Companies*. The VC and PE Guide is not authoritative and is not meant to change any existing guidance. Rather, it is designed to help interpret and apply existing fair value concepts consistent with ASC 820, *Fair Value Measurement*.

The VC and PE Guide may also be useful for non-investment companies, such as corporate venture capital groups or pension funds, which make investments in similar types of portfolio companies and pursue similar strategies. However, the numerous and varied aspects of these non-investment entities were not considered or contemplated in the preparation of the VC and PE Guide.

***Chapter 2: Scope—updated
March 2022***

2.1 Chapter overview — scope of ASC 820

This chapter discusses the scope of ASC 820. This chapter identifies the accounting standards that call for the use of fair value in accordance with ASC 820 and explains the various items that are outside their scope.

2.2 Scope of ASC 820

ASC 820 applies when accounting pronouncements require or permit fair value measurements, measurements based on fair value (such as fair value less costs to sell), and disclosures about fair value measurements, with limited exceptions, as specified in FSP 20.

Significant accounting standards that call for the use of fair value include those in Figure FV 2-1:

Figure FV 2-1

Significant items that call for the use of fair value in accordance with ASC 820, excluding industry-specific topics

Debt and equity investments (ASC 320) ¹	Goodwill and intangibles (ASC 350)	Property, plant, and equipment (ASC 360)
Asset retirement and environmental obligations (ASC 410)	Exit and disposal costs (ASC 420)	Guarantees (ASC 460)
Troubled debt restructurings (ASC 470-60)	Distinguishing liabilities from equity (ASC 480)	Derecognition of Nonfinancial Assets (ASC 610-20) ²
Employee benefits (ASC 715 and ASC 960)	Stock compensation (ASC 718)	Business combinations (ASC 805)
Derivatives (ASC 815)	Hybrid financial instruments (ASC 815-15)	Financial instruments (ASC 825)
Financial assets/liabilities eligible for fair value option (ASC 825-10)	Nonmonetary transactions (ASC 845)	Leases (ASC 842) ³
Transfers and servicing (ASC 860)		

¹ ASU 2016-01, *Recognition and Measurement of Financial Assets and Financial Liabilities*, amends ASC 320 such that it now addresses only debt securities and ASC 321 addresses equity securities. See PwC's *Loans and investments* guide for information on the effective date of ASU 2016-01.

² Upon adoption of ASC 610-20, *Gains and Losses on Derecognition of Nonfinancial Assets*, more transactions, such as joint venture contributions, nonmonetary exchanges, and sales of assets not to customers will be measured at fair value. ASC 610-20 is effective concurrent with ASC 606, *Revenue from Contracts with Customers*.

³ ASC 840, *Leases*, did not require the use of fair value in leases for classification or measurement. ASC 842, *Leases*, superseded that scope exception. Therefore, there are instances in ASC 842 that call for fair value measurements. See PwC's *Leases* guide for information on ASC 842.

2.2.1 Application of fair value within ASC 840, Leases

ASC 840, Leases, did not require the use of fair value in leases for classification or measurement. Under US GAAP, examples of the application of ASC 820 to lease transactions under ASC 840 are as follows:

When applying Step 2 of the impairment test under ASC 360, the fair value of a capital lease asset should be estimated in accordance with ASC 820. It should be noted that ASC 840 includes interpretative guidance under which a lessee would record an asset subject to lease as if it were the legal owner. This can happen when a lessee is deemed the accounting owner of an asset it intends to lease upon completion of construction (i.e., a build-to-suit lease). It can also occur when real estate is subject to a sale leaseback (either directly or imputed) and contains prohibited forms of continuing involvement. In such cases, the legal form of the transaction does not alter the accounting requirement to reflect the asset as property, plant, and equipment, nor affect its required evaluation in accordance with ASC 360.

In the case of an operating lease, the lessor continues to recognize the property under lease as a long-lived asset. Therefore, the lessor should apply the guidance in ASC 360 in assessing potential impairment. If application of Step 2 of the impairment assessment is required, ASC 820 should be applied in the determination of fair value.

Under US GAAP, fair value measurements used in accounting for exit or disposal activities in accordance with ASC 420 should be determined based on the principles of ASC 820, unless the practicability exception in ASC 420 applies. Reporting entities with leases that will be terminated are required to recognize and measure exit and disposal liabilities at fair value at the time that they are incurred. For example, when a lessee terminates an operating lease, it should record a liability for the fair value of the cost of terminating the contract following the guidance for liability measurement in ASC 820. Under US GAAP, accounting for a termination of a capital lease is governed by the lease accounting guidance in ASC 840.

A reporting entity may have an exit or restructuring plan that involves ceasing use of assets under an operating lease and perhaps entering into a subleasing arrangement. Under US GAAP (ASC 420-10-30-7 through ASC 420-10-30-9), a liability should be measured at fair value when the entity ceases using the rights conveyed by the lease (the “cease-use” date). Determination of the liability’s fair value should be based on the remaining lease rentals, reduced by any actual or estimated sublease rentals that could be reasonably obtained, regardless of whether the reporting entity actually intends to enter into a sublease. ASC 420-10-35-1 indicates that the cash flows related to the lease would be discounted using a credit-adjusted, risk-free rate. The liability is measured in accordance with ASC 820, and as such, should incorporate the inputs and assumptions that would be used by market participants.

2.3 Fair value scope exceptions

ASC 820 does not apply to the following:

- Share-based payment transactions (see FV 2.3.1)
- Standards that require or permit measurements that are similar to fair value, but that are not intended to measure fair value (see FV 2.3.2), such as: (i) lower of cost or market (net realizable

value) measurements in accordance with ASC 330; and (ii) transactions measured based on standalone selling price (under ASC 606)

- Accounting principles that address fair value measurements for purposes of lease classification or measurement in accordance with ASC 840 (see FV 2.3.3)
- Recognition and measurement of revenue from contracts with customers under ASC 606
- Recognition and measurement of gains and losses upon the derecognition of nonfinancial assets in accordance with ASC 610-20

2.3.1 Share-based payments

The fair value standard does not apply to share-based payments accounted for under ASC 718, *Compensation—Stock Compensation*. In addition to excluding transactions under ASC 718, the exception also extends to related interpretive guidance, such as ASC 505-50, *Equity—Equity-Based Payments to Non-Employees*.

2.3.2 Measurements similar to fair value

The fair value standard does not apply to measurements that are similar to fair value, but that are not fair value. These include:

- Under ASC 606, an entity is required to allocate consideration to the various elements in an arrangement based on their relative standalone selling prices. In practice, although the measurement principles contained in ASC 606 are meant to maximize the use of observable inputs, they may result in values that are substantially different from a measurement of fair value under ASC 820. This is because ASC 606 allows for the consideration of certain entity-specific factors that are not considered under ASC 820. ASC 820-10-15-2 excludes measurements from its scope that are similar to fair value but that are not intended to measure fair value, such as standalone selling price, which is the price at which an entity would sell a promised good or service separately to a customer.
- Lower of cost and net realizable value measurements in accordance with ASC 330, *Inventory*.

ASC 330 defines “net realizable value.”

Definition from ASC Master Glossary

Net Realizable Value: Estimated selling prices in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation.

2.3.2.1 Fair value measurements of alternative investments using NAV

There are different accounting requirements in US GAAP for measuring the fair value of investments in investment companies.

ASC 820 permits an entity with certain investments in investment companies to use the reported net asset value without adjustment as a measure of fair value. See FV 6.2.6 for further details.

2.3.3 Lease accounting

Under US GAAP, the practicability exception in FV 2.4 does not apply to an acquisition by a not-for-profit entity that is required to be measured at fair value in accordance with ASC 805, regardless of whether those assets and liabilities are related to leases.

New guidance

The FASB issued ASU 2019-01 to amend ASC 842 for certain lessors (that are not manufacturers or dealers). ASC 840 allowed such lessors to use the cost of the underlying leased asset (subject to applicable volume or trade discounts) instead of fair value (as defined in ASC 820) when assessing lease classification and measuring the lease. Thus, qualifying lessors can capitalize acquisition and delivery costs associated with the underlying asset. Because fair value equals the qualifying lessor's cost, no selling profit or loss is recognized at lease inception for sales-type and direct financing leases. The new leases standard did not carry forward this exception, but the new amendment reinstates the fair value exception for impacted lessors.

The amendments in ASU 2019-01 amend Topic 842. That Topic has different effective dates for fiscal years beginning after December 15, 2019, including interim periods within public business entities and entities other than public business entities. The effective date of those amendments is for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years for any of the following: (a) public business entities, (b) not-for-profit entities that have issued, or are a conduit bond obligor for, securities that are traded on an exchange or over-the-counter market, and (c) employee benefit plans that file with or furnish financial statements to the SEC. For all other entities, the effective date is for fiscal years beginning after December 15, 2020, and interim periods within fiscal years beginning after December 15, 2021. Early application is permitted.

2.4 Practicability exceptions

ASC 820 does not eliminate certain practicability exceptions presented in other accounting standards. ASC 820-10-15-3 describes those practicability exceptions, which include:

- Measurements that use a transaction price (an entry price) as an exit price at initial recognition

For example, ASC 820 does not impact the ability under ASC 460, Guarantees, to initially measure the fair value (an exit price) of a guarantee using a transaction price (an entry price).
- Instruments for which fair value is not reasonably determinable such as those within the scope of ASC 845, *Nonmonetary Transactions*, ASC 410, *Asset Retirement and Environmental Obligations*, ASC 420, *Exit or Disposal Cost Obligations*, and the Retirement Benefits guidance under ASC 715-30 and ASC 715-60 (participation rights)
- Certain assets acquired and liabilities assumed in a business combination measured under alternative measurement methods in ASC 805-20-30-10
- Financial assets or financial liabilities of a collateralized financing entity when the financial assets or financial liabilities are measured using the measurement alternative (see FV 6.2.7.1)
- Instruments for which fair value cannot be reasonably estimated, such as noncash consideration promised in a contract under ASC 606

***Chapter 3:
Framework for application of
ASC 820—updated March
2022***

3.1 Overview of the ASC 820 fair value standard

ASC 820 establishes an overall framework for purposes of measuring fair value. This chapter describes the five steps of the framework.

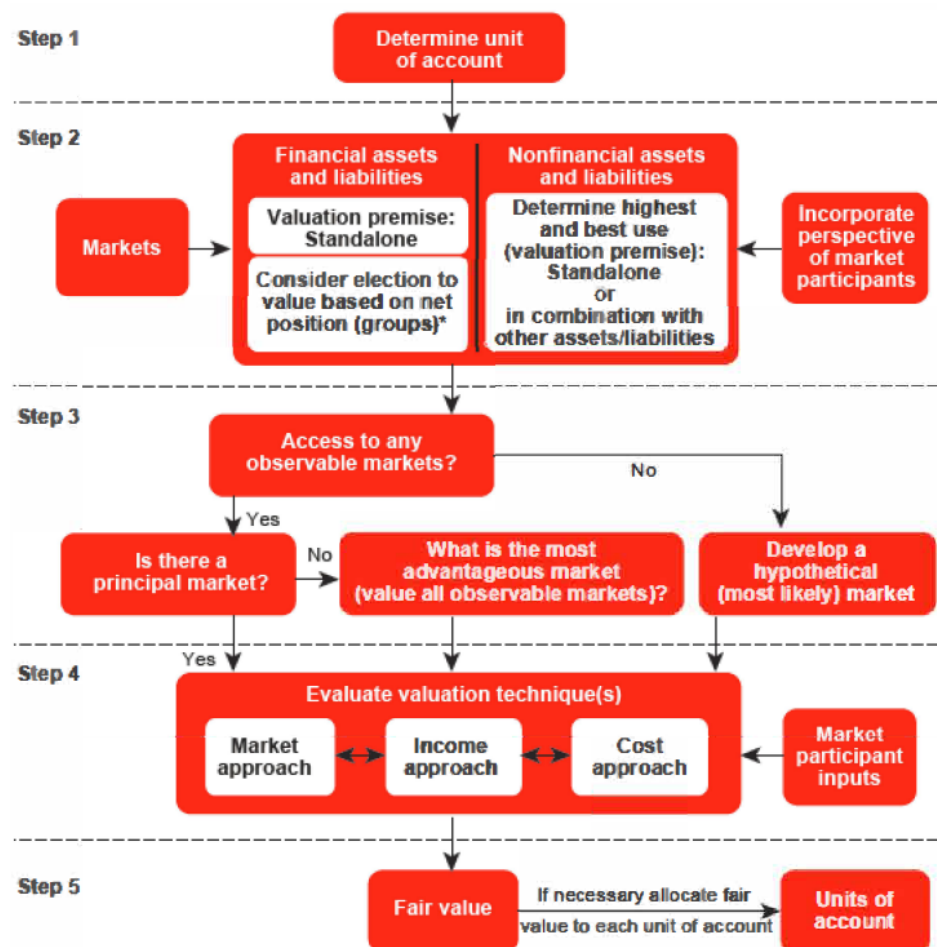
3.1.1 Framework for application of the fair value standard

In accordance with the framework, a reporting entity should apply a structured approach when determining all fair value measurements that are within the scope of ASC 820.

Figure FV 3-1 illustrates key elements of the framework.

Figure FV 3-1

ASC 820-10-35-1 “provides a general framework, which applies to both initial and subsequent measurement”



* The election to value groups of financial assets and liabilities with offsetting market or credit risks on the basis of the net risk position is subject to the conditions in ASC 820-10-35-18E. See FV 6.6 for a discussion of this exception.

The concepts underlying the fair value standards are discussed in FV 4. Practical application considerations are provided in FV 6, FV 7, and FV 8.

Each step of the five-step application methodology is detailed below.

3.1.2 Step one: determine unit of account

The reporting entity must determine the unit of account (i.e., what is being measured). As discussed in ASC 820-10-35-2E, the unit of account is generally determined based on other applicable guidance, unless denoted otherwise within ASC 820. For example, ASC 815 specifies that the unit of account for a derivative is the contract, while under ASC 350-20, the unit of account for the first step of a goodwill impairment analysis is the reporting unit. See further discussion in FV 4.2.1.

3.1.3 Step two: determine valuation premise

After determining the unit of account, the reporting entity must assess the valuation premise based on the nature of the asset or liability being measured.

3.1.3.1 Nonfinancial assets

In accordance with ASC 820-10-35-10A, “A fair value measurement of a nonfinancial asset takes into account a market participant’s ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset in its highest and best use”. The highest and best use for a nonfinancial asset must be determined based on the perspective of market participants, even if the reporting entity intends a different use. Consideration of the highest and best use for a nonfinancial asset is an integral part of the identification of potential markets in which the asset can be sold and establishes the valuation premise. The valuation premise may be either for the asset to be used in combination with other assets, other liabilities, or both. Alternatively, the valuation premise may be for the asset to be used on a standalone basis. See further discussion of the determination of the highest and best use in FV 4.2.5.

3.1.3.2 Financial assets

The concept of “highest and best use” does not apply to financial assets. The fair value of financial assets must be measured on a standalone basis. ASC 820-10-35-18D includes an exception in instances in which an entity manages its market risk(s) and/or counterparty credit risk exposure within a group (portfolio) of financial instruments on a net basis (the “portfolio exception”). If elected, the portfolio exception allows an entity to measure the fair value of those financial assets (and financial liabilities) based on the net position of the portfolio (i.e., the price that would be received to sell a net long position or transfer a net short position for a particular market or credit risk exposure), rather than the individual positions within the portfolio (i.e., the gross positions).

3.1.3.3 Liabilities

Financial and nonfinancial liabilities are valued based on the transfer of the liability to a market participant on the measurement date. However, reporting entities must still consider market participant assumptions relative to the transfer of the liability. If the liability is held by another party as an asset, the liability should be valued using the assumptions of the market participants that hold the asset, assuming they have access to the same markets, whether or not the asset has a quoted market price.

The valuation premise for financial assets and liabilities (including the election of the portfolio exception) is discussed in FV 6.6.

3.1.4 Step three: determine markets for basis of valuation

Once a reporting entity has considered the unit of account, potential markets, market participants, and the valuation premise, it must assess whether it has access to any observable markets. If access is available, a reporting entity must consider the following:

- Is there a principal market for the asset or liability?

The principal market is the market with the greatest volume and level of activity for the asset or liability. If there is a principal market, the fair value measurement should be based on the price in that market, even if the price in another market is potentially more advantageous. The reporting entity cannot consider potentially more advantageous markets in its fair value measurements when it has a principal market. Unless there is contrary evidence, the market in which the reporting entity would normally sell the asset or transfer the liability is presumed to be the principal market (or, in the absence of a principal market, the most advantageous market).

- What is the most advantageous observable market?

If the reporting entity does not have a principal market, it should determine the most advantageous observable market for sale of the asset or transfer of the liability. As part of this determination, a reporting entity will need to consider all observable markets to which it has access and which inputs can be reasonably obtained. In some cases, a reporting entity will need to determine the value in multiple markets and may need to consider both valuation premises (for nonfinancial assets) in one or more markets, in order to determine the most advantageous market.

The market that results in the highest value for the asset or the lowest amount that would be paid to transfer the liability (after transaction costs) will represent the most advantageous market.

In the application of the framework, it is important to note that the determination of highest and best use for nonfinancial assets, and development of the fair value measurement are based on market participant assumptions in markets to which the reporting entity has access.

If there are no observable markets for the asset or liability or the market is not active, the reporting entity must develop a hypothetical market based on the assumptions of potential market participants. See further discussion in FV 4.2.3.

3.1.5 Step four: apply the appropriate valuation approaches/technique

ASC 820-10-35-24A outlines three potential valuation approaches: the market approach, the cost approach, and the income approach. It requires that the reporting entity consider and apply each valuation approach and technique that is appropriate in the circumstances and for which market participant pricing inputs can be obtained without undue cost and effort. For example, a reporting entity should consider market conditions, nonperformance risk, risks and uncertainties, and other attributes and inputs that would bear on the fair value measurement. See FV 4.4.

3.1.6 Step five: determine fair value

The outcome of the market determination and the application of valuation approaches/techniques will be a fair value measurement. If a nonfinancial asset is valued in combination with other assets, the fair value is calculated based on the assumption that the market participant already owns the other assets. In certain circumstances, the total calculated value must be allocated to each unit of account in the asset grouping.

Finally, ASC 820-10-35-18D includes a portfolio exception for measuring a group of financial assets and liabilities at fair value on a net basis. The exception allows for the measurement of fair value based on the net risk position of a group of financial assets and liabilities. Refer to FV 6.6 for further details.

***Chapter 4:
Fair value fundamentals—
updated March 2022***

4.1 *Fair value fundamentals overview—updated September 2022*

This chapter discusses the key concepts in ASC 820, including the definition of fair value, inputs to fair value measurements, and the fair value hierarchy. It also addresses certain issues associated with the application of these concepts.

Recent standard setting

In June 2022, the FASB issued ASU 2022-03, *Fair Value Measurements of Equity Securities Subject to Contractual Sale Restrictions*. ASU 2022-03 clarified that a contractual restriction on the sale of an equity security (for example, an underwriter lock-up agreement) is not considered part of the unit of account of an equity security. As a result, such restriction is not considered in measuring fair value of the equity security. ASU 2022-03 is effective for public business entities for fiscal years beginning after December 15, 2023, and interim periods within those fiscal years. For all other entities, the guidance is effective for fiscal years beginning after December 15, 2024, and interim periods within those fiscal years. Early adoption is permitted for both interim and annual financial statements that have not yet been issued or made available for issuance. Refer to FV 4.8 for additional details.

4.2 *Definition of fair value*

ASC 820-10-20 defines fair value.

ASC 820-10-20

The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Under ASC 820, fair value is based on the exit price (the price that would be received to sell an asset or paid to transfer a liability), not the transaction price or entry price (the price that was paid for the asset or that was received to assume the liability). Conceptually, entry and exit prices are different. The exit price concept is based on current expectations about the sale or transfer price from the perspective of market participants. In accordance with ASC 820-10-35-9, a fair value measurement should reflect all of the assumptions that market participants would use in pricing an asset or liability.

ASC 820-10-35 provides guidance to determine:

- Unit of account (FV 4.2.1)
- Principal or most advantageous market (FV 4.2.2)
- Market participants (FV 4.2.3)
- Price (FV 4.2.4)
- Application to nonfinancial assets (FV 4.2.5)

- Application to liabilities and instruments classified in shareholders' equity (FV 4.2.6 and FV 4.2.7)
- Application to financial assets and financial liabilities with offsetting positions in market risks or counterparty credit risk (FV 4.2.8)

4.2.1 Unit of account—updated September 2022

As described in ASC 820-10-35-2B through ASC 820-10-35-2E, a fair value measurement relates to a particular asset or liability. Thus, the measurement should incorporate the asset or liability's specific characteristics, such as condition, location, and restrictions, if any, on sale, transferability, or use, if market participants would take those characteristics into account when pricing the asset or liability at the measurement date. Refer to FV 4.8, which further notes that restrictions that are not part of the unit of account of an equity security are not considered in measuring fair value.

In some cases, the fair value measurement will be applied to a standalone asset or liability (e.g., a financial instrument or a nonfinancial asset) or a group of related assets and/or liabilities, such as a business or a reporting unit. How the fair value measurement applies to an asset or a liability depends on the unit of account.

The unit of account is determined based on the level at which the asset or liability is aggregated or disaggregated in accordance with US GAAP applicable to the particular asset or liability being measured.

ASC 820 addresses how to measure fair value and not what is being measured. Accordingly, ASC 820 does not change the unit of account prescribed by other standards.

ASC 820 emphasizes the unit of account (as defined in other guidance), generally requiring that the fair value of financial instruments be measured based on the level of the unit of account, rather than at an aggregated or disaggregated level. In some cases, the unit of account may not be clear. There are few instances in which the unit of account is explicitly defined. Often, it is inferred from the recognition or measurement guidance in the applicable standard and/or from industry practice. For example, it is clear that the unit of account for evaluating goodwill impairment is the reporting unit. On the other hand, the guidance on accounting for securities by investment companies is not explicit as to the unit of account. Also, there are times when the unit of account varies depending on whether one is considering recognition, initial measurement, or subsequent measurement, including impairments.

A prominent example of when the application of unit of account has been problematic relates to the fair value of investments in listed subsidiaries (referred to as the "P*Q" issue). The problem specifically is whether the unit of account is the investment as a whole or each share.

Some believe that the unit of account for associates, joint ventures, and subsidiaries is the investment as a whole, and others believe that the fair value of a listed investment quoted in an active market is the product of the share price at the date of measurement and the number of shares held ($P \times Q$).

Entities should disclose clearly in the financial statements the fair value model that they have used. Significant implied premiums or discounts are likely to be scrutinized by regulators.

4.2.2 **Determination of the principal or most advantageous market**

ASC 820-10-35-5 through ASC 820-10-35-6C discuss the concepts of principal market and most advantageous market. In accordance with these concepts, the transaction to be fair valued should take place either in:

- The principal market, that is the market with the greatest volume and level of activity for the asset or liability, or
- In the absence of a principal market, the most advantageous market. The most advantageous market is the market that maximizes the amount that would be received to sell the asset or minimizes the amount that would be paid to transfer the liability, after taking into account transaction costs and transportation costs. However, although transaction costs are taken into account when determining which market is the most advantageous, the price used to measure the asset's fair value is not adjusted for those costs (although it is adjusted for transportation costs).

The principal market is the market with the greatest volume and level of activity *for the asset or liability*, not necessarily the market with the greatest volume of activity for the particular reporting entity. This concept emphasizes the importance of considering the market participant's perspective.

In evaluating the principal or most advantageous markets, ASC 820-10-35-6A restricts the eligible markets to only those that the entity can access at the measurement date.

If there is a principal market for the asset or liability, ASC 820-10-35-6 states that fair value should be based on the price in that market, even if the price in a different market is potentially more advantageous at the measurement date. It is only in the absence of the principal market that the most advantageous market should be used.

To determine the principal market, the reporting entity needs to evaluate the level of activity in various markets. However, the entity does not have to undertake an exhaustive search of all possible markets in order to identify the principal or most advantageous market; it should take into account all information that is readily available. In the absence of evidence to the contrary, the market in which an entity normally transacts is presumed to be the principal market, or the most advantageous market in the absence of a principal market.

In many cases, a reporting entity may regularly buy and sell a particular asset and may have clearly identified exit markets. For example, a company engaged in trading natural gas may buy and sell financial gas commodity contracts on the New York Mercantile Exchange and in bilateral markets. In determining the principal market, the company would need to evaluate the level of activity in various markets. The reporting entity's principal market will be the market in which the gas commodity contracts have the greatest activity, even if the prices in other markets are more advantageous or if the reporting entity itself has greater trading volume in another market. Assuming the reporting entity has access, the fair value measurement will be based on the price in the asset's principal market.

Example FV 4-1 illustrates the framework for identifying the principal or most advantageous market.

EXAMPLE FV 4-1

Market identification

In a territory, there are two available markets for soy beans:

□ Export

This is the market in which higher prices are available for the producer. However, there are limitations in the volumes that can be sold in this market because the government sets a limit on the volume of exports and each producer needs to get an authorization to export its production. It is rare for the government to authorize more than 25% of the production for export.

□ Domestic

The prices are lower in this market as compared to the export market, but there are no restrictions in terms of volume (other than the demand for the product by purchasers).

Producers intend to sell all of the production they can in the export market and, when they do not have any further authorization to export, will sell the remaining production in the domestic market.

What is the principal market?

Analysis

Although the most advantageous market is the export market in that it gives the higher benefits to the producers, the domestic market is the principal market as it can handle all of the volume that producers have to sell.

Question FV 4-1

Assume a company in the business of refining oil into gasoline enters into a contract to purchase a quantity of crude oil and the contract qualifies as a derivative instrument under ASC 815, *Derivatives and Hedging*. When determining the fair value of the contract for crude oil, is the company permitted to consider the market for gasoline products as the principal market into which the crude oil is sold?

PwC response

No. We do not believe that the gasoline market is an appropriate principal market in this fact pattern.

The unit of account for the crude oil contract is established by ASC 815 as the entire contract. The price of gasoline would not provide an appropriate valuation, because the price considers the process of converting crude oil to gasoline. In this example, we would expect the potential markets for the crude oil contract to be based on the wholesale markets in which the crude oil can be sold.

4.2.2.1 Market determination – other considerations—updated September 2022

The ASC Master Glossary defines an orderly transaction.

Definition from the ASC Master Glossary

Orderly transaction: A transaction that assumes exposure to the market for a period before the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets or liabilities; it is not a forced transaction (for example, a forced liquidation or distress sale).

ASC 820-10-35-6C addresses the use of market participant assumptions.

ASC 820-10-35-6C

Even where there is no observable market to provide pricing information about the sale of an asset or the transfer of a liability at the measurement date, a fair value measurement shall assume that a transaction takes place at that date, considered from the perspective of a market participant that holds the asset or owes the liability. That assumed transaction establishes a basis for estimating the price to sell the asset or to transfer the liability.

The definition emphasizes the use of market participant assumptions in the determination of fair value. In addition, the concept of an orderly transaction excludes a distressed sale or a forced liquidation as an input in the determination of fair value. For example, assume the normal lead time for sale of an operating asset is approximately three months, which allows for marketing and sufficient due diligence by market participants. However, if a company needed to raise cash quickly due to a liquidity crisis, it may agree to a distressed sale of certain operating assets at lower-than-market prices. These transactions would not be representative of the fair value for the related assets. In a forced liquidation, the transaction price may not equal the fair value of the asset or liability at initial recognition (see further discussion in FV 4.3).

Reporting entities have the responsibility to determine the principal market, and in the absence of a principal market, the most advantageous market. This allows for differences in markets used among entities with different activities, even those that are party to the same transaction. ASC 820-10-55-47 through ASC 820-10-55-49 describes a dealer that enters into an interest rate swap with a retail customer. From the perspective of the dealer, the principal market for the swap is the dealer market; however, the principal market for the retail customer is the retail market because the customer does not have access to the dealer market.

In addition, different operating units within a reporting entity may have access to different markets and each separate unit should individually consider the principal market, and in the absence of a principal market, the most advantageous market. Therefore, the same reporting entity could have different fair value measurements for identical or similar assets or liabilities, depending on the operating units holding the assets or liabilities and differences in the markets to which they have access and the differences in assumptions of the market participants in those markets. For example, a reporting entity's operating units located in Asia, Europe, and the US may each hold investments in the same debt and equity securities. The fair value measurements reported by the operating units may differ at times due to differences in the markets to which they have access and the level of activity for the asset in each market. ASC 820 requires that each reporting unit consider the facts and circumstances appropriate to its valuation of the asset or liability being valued and follow the framework, independent of other reporting units that may be valuing an identical or similar asset or liability.

With the adoption of ASU 2022-03, as described in FV 4.8, ASC 820-10-35-6B will be updated to note that a contractual sale restriction does not change the determination of the principal (or most advantageous) market. In other words, the reporting entity would still follow considerations within ASC 820 to determine the principal (or most advantageous) market without regard to the contractual restriction, as a contractual restriction is not part of the unit of account of the asset.

4.2.2.2 Secondary markets

Secondary markets exist when investors trade among themselves, rather than investing directly through the issuer of a financial instrument in the primary market. In secondary markets, sometimes called “aftermarket,” the issuer of the instrument is typically not involved in the transaction, as the instrument has already been issued. The New York Stock Exchange is a type of liquid secondary market for stocks of publicly traded companies. Secondary markets also exist for private equity investments, where both current funded private equity investments as well as any remaining unfunded commitments are traded. However, this type of secondary market tends to be less liquid than those of publicly traded instruments. Therefore, similar to any other asset or liability, when determining the fair value measurement of an instrument traded in a secondary market with limited activity, it is necessary to consider all available trade data in developing market participant assumptions, including from thinly traded secondary markets.

4.2.3 Market participants

ASC 820 emphasizes that a fair value measurement should be based on the assumptions of market participants; it is not an entity-specific measurement. Market participants are buyers and sellers in the principal (or the most advantageous) market for the asset or liability. They are interested in and could benefit from ownership of a specific asset or liability.

The ASC Master Glossary provides characteristics of market participants.

Partial definition from the ASC Master Glossary

Market participants: Buyers and sellers in the principal (or most advantageous) market for the asset or liability that have all of the following characteristics:

- a. They are independent of each other, that is, they are not related parties...
- b. They are knowledgeable, having a reasonable understanding about the asset or liability and the transaction using all available information, including information that might be obtained through due diligence efforts that are usual and customary
- c. They are able to enter into a transaction for the asset or liability
- d. They are willing to enter into a transaction for the asset or liability, that is, they are motivated but not forced or otherwise compelled to do so

The term “related parties” is used consistent with its use in ASC 850, *Related Party Disclosures*. ASC 820-10-35-9 includes factors to consider when identifying market participants.

Excerpt from ASC 820-10-35-9

...[T]he reporting entity shall identify characteristics that distinguish market participants generally, considering factors specific to all of the following:

- a. the asset or liability
- b. the principal (or most advantageous) market for the asset or liability
- c. market participants with whom the reporting entity would enter into a transaction in that market.

The reporting entity is not required to identify specific market participants, but instead to develop a profile of potential market participants. The determination of potential market participants is a critical step in the overall determination of fair value due to the emphasis on the use of market participant assumptions. In some cases, the identification of market participants may be straightforward, as there may be general knowledge of the types of entities that transact in a particular market. However, in certain other cases, a reporting entity may need to make assumptions about the type of market participant that may be interested in a particular asset or liability. The determination of the appropriate market and market participants may have a significant effect on the fair value measurement.

Question FV 4-2

How should a reporting entity assess multiple markets (and therefore, multiple market participants) when determining fair value?

PwC response

In some cases, a reporting entity may have more than one potential exit market and many market participants in each exit market. ASC 820-10-35-54J states that the reporting entity need not undertake an exhaustive search of possible markets to identify the principal market, or in the absence of the principal market, the most advantageous market, but it should consider information that is reasonably available. Therefore, the reporting entity can use the price in the market in which it normally enters into transactions, unless there is evidence to the contrary. Consistent with this guidance, a reporting entity should use information that is reasonably available to it when developing its profile of market participants.

4.2.3.1 *No observable markets or no access to markets*

There may be situations when there is no observable market for an asset or liability, or a reporting entity may not have access to any markets. For example, there may be no specific market for the sale of an intangible asset. In such cases, the reporting entity should identify potential market participants (e.g., strategic or financial buyers).

Another example is an existing market for buying and selling internet domain names. Although it may not be a principal or most advantageous market for a reporting entity, if the reporting entity has no principal market, the market may provide data for the valuation of domain names.

A reporting entity should determine the characteristics of a market participant to which it would hypothetically sell the asset if it were seeking to do so. Once the market participant characteristics have been determined, the reporting entity would identify the assumptions that those market participants would consider when pricing the asset. The reporting entity should construct a hypothetical or “most likely” market for the asset based on its own assumptions about what market participants would consider in negotiating a sale of the asset or transfer of the liability.

If there are no apparent exit markets or if the reporting entity does not have access to any known or observable markets, activity in inaccessible known markets may be considered in developing the inputs that would be used in a hypothetical market. However, the information from the inaccessible market may need adjustment for any differences in the characteristics of the asset or liability being measured and the price observed within a market. That is, the need to adjust the inputs applies even when the inputs are observable.

Some common characteristics that may prevent an entity from accessing a particular price within a market are:

- A reporting entity’s need to transform the asset or liability in some way to match the asset or liability in the observable market
- Restrictions that may be unique to the reporting entity’s asset or liability that are not embedded in the asset or liability in the observable market
- Marketability or liquidity differences between the asset or liability in the observable market relative to the reporting entity’s asset or liability

4.2.3.2 *Changing market participants*

The applicable market participants may change over time; therefore, a reporting entity should reconsider potential market participants each time a fair value measurement is performed. For example, financial buyers may have been identified as market participants in a previous fair value measurement because they were active in a specific market, such as the purchase of a retail business. However, if strategic buyers become active in acquiring the assets or liabilities being measured, they may become appropriate market participants to consider in the fair value measurement as it becomes more likely that they would transact in the current market.

4.2.4 *The price*

The standard provides guidance on the price as it relates to fair value.

ASC 820-10-35-9A

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction in the principal (or most advantageous) market at the measurement date under current market conditions (that is, an exit price) regardless of whether that price is directly observable or estimated using another valuation technique.

4.2.4.1 **Transaction costs**

The ASC Master Glossary defines transaction costs as:

Definition from the ACS Master Glossary

Transaction costs: The costs to sell an asset or transfer a liability in the principal (or most advantageous) market for the asset or liability that are directly attributable to the disposal of the asset or the transfer of the liability and meet both of the following criteria:

- a. They result directly from and are essential to that transaction.
- b. They would not have been incurred by the entity had the decision to sell the asset or transfer the liability not been made (similar to costs to sell, as defined in ASC 360-10-35-38).

ASC 820-10-35-9B addresses the impact of transaction costs on fair value.

Excerpt from ASC 820-10-35-9B

The price in the principal (or most advantageous) market used to measure the fair value of the asset or liability shall not be adjusted for transaction costs. Transaction costs shall be accounted for in accordance with other Topics.

While transaction costs are not included in the fair value of the asset or liability under ASC 820, these amounts are included when assessing the net transaction proceeds to determine the most advantageous market, as illustrated in Example FV 4-2.

4.2.4.2 **Transportation costs**

If location is a characteristic of the asset or liability being measured (e.g., in the case of a physical commodity), the fair value measurement should incorporate transportation costs. The cost of transporting a physical asset from its current location to the market should be considered in the computation of fair value that is based on the price in that market. For example, assume a company intends to sell corn by using a corn futures contract on the Chicago Board of Trade. The contract calls for physical delivery to the Chicago Switching Yard; therefore, because the location of the corn is an attribute of the contract, the company should deduct the cost of physically transporting the corn to the sale location in the calculation of fair value.

Example FV 4-2 demonstrates the impact of transportation costs and transaction costs on fair value and market identification.

EXAMPLE FV 4-2

The impact of transportation costs and transaction costs on fair value and market identification

FV Company has an asset that is sold in two different markets, Market A and Market B, with similar volumes of activities, but with different prices. FV Company enters into transactions in both markets and can access the price in those markets for the asset at the measurement date. There is no principal market for the asset. Information from both markets is presented as follows.

	Market A	Market B
Price	\$27	\$25
Transport costs	(3)	(2)
	\$24	\$23
Transaction costs	(3)	(1)
Net amount received	\$21	\$22

How should FV Company measure the fair value of the asset?

Analysis

As a principal market for the asset does not exist, FV Company should measure the fair value of the asset using the price in the most advantageous market. The most advantageous market is the market that maximizes the amount that would be received to sell the asset, after taking into account transaction costs and transport costs (that is, the net amount that would be received in the respective markets).

FV Company would receive greater net proceeds in Market B (\$22) than in Market A (\$21). As a result, the fair value of the asset should be measured using the price in that market (\$25), less transport costs (\$2), resulting in a fair value measurement of \$23.

If either Market A or Market B had been the principal market for the asset (that is, the market with the greatest volume and level of activity for the asset), FV Company would measure the asset's fair value using the price that would be received in that market, after taking into account transport costs.

4.2.4.3 Inputs based on bid and ask prices

Bid-ask price quoting is common within markets for certain securities and commodities. In these markets, dealers stand ready to buy at the bid price and sell at the ask price. If an input is based on bid and ask prices, the fair value measurement should represent the price within the bid-ask spread at which market participants would transact on the measurement date.

A reporting entity may establish a policy to use bid prices for long positions (assets) and ask prices for short positions (liabilities). Alternatively, ASC 820-10-35-36D does not preclude the use of mid-market pricing (i.e., the midpoint between the bid and the ask prices) or other pricing convention that is used by market participants within the bid-ask spread as a practical expedient for fair value. Many reporting entities use the mid-market convention because it simplifies some of the necessary calculations and allows the use of the same quotes and prices when calculating the fair value of both assets and liabilities. However, use of the mid-market convention as a practical expedient may result in a measurement that is less precise than use of the price at which the reporting entity expects to trade. When electing mid-market pricing, a reporting entity does not need to evaluate mid-market pricing against expectations of where it actually would trade within the bid-ask range.

There are times when use of bid-ask pricing is appropriate, and times when reporting entities should consider using valuation techniques. Use of bid-ask pricing and therefore, the mid-market practical expedient, is presumed appropriate for inputs within a bid-ask spread that fall within Level 1 of the fair value hierarchy (i.e., unadjusted observable quoted prices for identical assets or liabilities). Beyond that, judgment is required.

Generally, the less observable the input, the less probable it is subject to a bid-ask spread and, therefore, the less likely that use of bids, asks, or a mid-market convention would be appropriate. For example, it may not be appropriate to apply bid-ask pricing or a mid-market convention when the bid-ask spread is wide. A wide bid-ask spread could indicate the inclusion of a pricing element other than transaction costs (e.g., a liquidity reserve).

Under US GAAP, bid-ask spread pricing methods appropriate under ASR 118, *Accounting for Investment Securities by Registered Investment Companies*, are appropriate for determining fair value. ASR 118 states: “Some companies as a matter of general policy use the bid price, others use the mean of the bid and asked prices, and still others use a valuation within the range considered best to represent the value in the circumstances; each of these policies is acceptable if consistently applied.” The bid-ask pricing described in ASC 820 is consistent with ASR 118, which is only applicable to registered investment companies. ASR 118 was intended to establish board practices to determine the fair value of securities when market quotations were not readily available, such as when only a bid or asked price are available on the valuation date, the spread between bid and ask is substantial, or the security is thinly traded. However, in December 2020 the SEC passed Rule 2a-5, Good Faith Determinations of Fair Value, whose implementation has rescinded the ASR 118 standard effective March 8, 2021. The release of this rule by the SEC is the first to address registered investment companies’ valuation practices since the original release of ASR 118 back in 1970. The rule outlines new procedures required of registered investment companies and business development companies for estimating the fair values of their investments in good faith under the Investment Company Act of 1940. Note that SEC Rule 2a-5 is applicable only to registered investment companies and business development companies and does not impact GAAP practices under ASC 820.

Once established, a reporting entity should apply its convention consistently.

Question FV 4-3

Can a reporting entity change its use of a mid-market practical expedient pricing convention?

PwC response

While there may be circumstances when reporting entities may need to reconsider their use of the mid-market practical expedient, we generally believe that it should be applied consistently.

Example FV 4-3 illustrates recording a gain or loss at the inception of a contract as a result of the use of a mid-market pricing convention.

EXAMPLE FV 4-3

Recording a gain or loss at the inception of a contract as a result of the use of a mid-market pricing convention

FV Company enters into a six-month forward contract for the purchase of natural gas at an actively traded location (its principal market for that type of transaction) and the contract is accounted for at fair value under ASC 815.

The bid-ask spread is \$1 (bid: \$99; ask: \$100). Use of the midpoint (\$99.50) convention will result in a \$0.50 loss at initial recognition assuming FV Company purchased at the ask price and recorded the contract using the mid-price convention.

Is it appropriate to record a loss at inception on the forward contract?

Analysis

Yes. Because the contract is actively traded and was entered into in FV Company's principal market, the transaction price would be expected to be the same as the exit price. For Level 1 inputs, it is expected that differences between the mid-market pricing and the transaction prices would be due to transaction costs and should be minimal. Thus, use of the mid-market pricing results in recognition of an initial loss.

However, if the bid-ask spread were significant, FV Company would evaluate it to determine whether the midpoint is truly indicative of the fair value of the contract.

Question FV 4-4

How should a reporting entity account for transaction costs in a bid-ask spread?

PwC response

While conceptual and/or economic arguments can be made that transaction costs represent a component of the bid-ask spread, we do not believe a reporting entity needs to bifurcate the bid-ask spread to identify and account separately for transaction costs, which are typically not included in fair value measurements. In other words, the unadjusted bid, ask, or mid-prices, depending on the reporting entity's convention, are considered fair value.

4.2.5 Application to nonfinancial assets – the valuation premise and highest and best use

Under ASC 820-10-35-10A, the concepts of the valuation premise and highest and best use are only relevant when measuring the fair value of nonfinancial assets.

4.2.5.1 Highest and best use of nonfinancial assets

The highest and best use of a nonfinancial asset or group of nonfinancial assets and nonfinancial liabilities is the use by market participants that maximizes the value of the nonfinancial asset(s). As such, the determination of highest and best use impacts the fair value measurement. The concept refers to both (1) the different ways of utilizing the individual asset (e.g., as a factory or residential

site), the highest and best use, and (2) the valuation premise, whether the maximum value is on a standalone basis or in combination with other assets.

In determining the highest and best use, the reporting entity considers the current use and any other use that is financially feasible, justifiable, and reasonably probable. For example, a reporting entity may intend to operate a property as a bowling alley, while market participants would pay a higher price to use the asset as a parking lot and zoning requirements allow for this change in use. In this case, the fair value of the property should be based on its highest and best use (in the principal or most advantageous market) as a parking lot.

4.2.5.2 *Interaction of unit of account and valuation premise for nonfinancial assets*

The ASC Master Glossary defines the unit of account as follows:

Definition from the ASC Master Glossary

Unit of account: The level at which an asset or liability is aggregated or disaggregated in a Topic for recognition purposes.

The unit of account represents what is being valued, based upon other relevant US GAAP for the asset or liability being measured, while the valuation premise determines whether the maximum value of the nonfinancial asset is on a standalone basis or in combination with other assets.

The unit of account determines what is being measured for purposes of recognition in the financial statements by reference to the level at which the asset or liability is aggregated or disaggregated when applying other applicable US GAAP. A reporting entity should go through the fair value framework to establish the principal, most advantageous, or hypothetical market based on the unit of account being valued.

Whether the valuation premise is in combination with other assets and liabilities or standalone is determined from the perspective of market participants. That is, a unit of account may be grouped with other units of account to achieve the highest and best use. In considering potential markets, a reporting entity may need to consider different groupings of nonfinancial assets to determine which grouping provides the highest value from the perspective of a market participant. However, a unit of account may not be included in more than one group in the final determination of fair value. ASC 820 requires the unit of account to be measured assuming that the market participant has, or has access to, the other assets in the group.

The valuation premise may also be on a disaggregated basis. Disaggregation is the process of determining the fair value of a unit of account based on the individual sale of the components of the group. This is applicable if a unit of account can be sold in components that would maximize the overall value of the unit of account from the perspective of market participants. As with asset groupings, the reporting unit must have access to the market into which components of a unit of account would be sold.

ASC 820-10-35-11A

The fair value measurement of a nonfinancial asset assumes that the asset is sold consistent with the unit of account specified in other Topics (which may be an individual asset). That is the case even when that fair value measurement assumes that the highest and best use of the asset is to use it in combination with other assets or with other assets and liabilities because a fair value measurement assumes that the market participant already holds the complementary assets and associated liabilities.

The guidance indicates that the unit of account for nonfinancial assets may differ from the unit of measurement. If the highest and best use of an asset is that it should be combined with other assets, the fair value is determined for the asset in combination with those other assets. This may require the value of the group to be allocated to the components in a systematic and rational manner.

When applying the concepts of both aggregation and disaggregation, the valuation should be allocated to the individual components such that the ultimate valuation relates solely to the unit of account.

A business is an example of assets and liabilities used in combination. Separate assets often work together or complement each other. Liabilities associated with the complementary assets can include liabilities that fund working capital. However, liabilities used to fund assets other than those within the group of assets cannot be included in the valuation.

4.2.6 Application to liabilities

Under ASC 820-10-35-16, the fair value of a liability is based on the price to transfer the obligation to a market participant at the measurement date, assuming the liability will live on in its current form. Even though most liabilities restrict their transfer, fair value should not be adjusted for such restrictions to the liability. However, in the absence of an observable market for the transfer of a liability, ASC 820-10-35-16B requires that preparers consider the value of the corresponding asset held by a market participant, if applicable, when measuring the liability's fair value.

The Basis for Conclusions of ASU 2011-04 noted this concept.

Excerpt from Basis for Conclusions of ASU 2011-04, para BC33

...in the boards' view, the fair value of a liability equals the fair value of a properly-defined corresponding asset (that is, an asset whose features mirror those of the liability), assuming an exit from both positions in the same market.

The Board believes that fair value from the viewpoint of investors and issuers should be the same in an efficient market, otherwise arbitrage would result. They considered whether these different viewpoints could result in different fair values because the asset is liquid but the liability is not. The asset holder could easily sell the asset to another party, whereas the liability will be more difficult to transfer to another party. The Board decided that there was no conceptual reason why a different fair value should result, given that both parties are measuring the same instrument with identical contractual terms in the same market.

ASC 820-10-35-18B states that there should be no separate inputs or adjustments to existing inputs for restrictions on transfer of liabilities in the measurement of fair value. Paragraph BC37 of ASU

2011-04 indicates that the Board had two reasons for this guidance. First, restrictions on the transfer of a liability relate to the performance of the obligation whereas restrictions on the transfer of an asset relate to its marketability. Second, nearly all liabilities include a restriction on transfer, whereas most assets do not. As a result, the effect of a restriction on transfer of a liability would theoretically be the same for all liabilities. This differs from the treatment of assets with restrictions. See FV 4.8.

The fair value of the liability may not be the same as the fair value of the corresponding asset in certain circumstances, such as when the pricing includes a bid-ask spread. In such cases, the liability should be valued based on the price within the bid-ask spread that is most representative of fair value for the liability, which may not necessarily be the same as the price within the bid-ask spread that is most representative of fair value for the corresponding asset.

ASC 820-10-35-16H addresses the situation in which a quoted price for the transfer of an identical or similar liability or instrument classified in a reporting entity's shareholder's equity is not available and the identical item is not held by another party as an asset. In that case, the reporting entity should measure fair value using a valuation technique from the perspective of a market participant that owes the liability or has issued the claim on equity.

4.2.6.1 Nonperformance risk

Reporting entities are required to consider nonperformance risk in the value of a liability.

ASC 820-10-35-17

The fair value of a liability reflects the effect of nonperformance risk. Nonperformance risk includes, but may not be limited to, a reporting entity's own credit risk. Nonperformance risk is assumed to be the same before and after the transfer of the liability.

This concept assumes that the liability would be transferred to a credit-equivalent entity. However, transfers of liabilities are rare. In practice, most liabilities are settled with the holder or may be extinguished through execution of an offsetting contract. Therefore, measuring the transfer value of a liability has proven to be a challenge when settlement has historically been the primary means for exit and there is no market for the corresponding asset.

ASC 820-10-35-16 also provides guidance on the income approach for the measurement of certain liabilities at fair value. ASC 820-10-35-16J indicates that the compensation that a market participant would require for taking on the obligation includes the return that the market participant would require for (1) undertaking the activity and (2) assuming the risk associated with the obligation. The return for *undertaking the activity* represents the value of fulfilling the obligation, for example, by using resources that could be used for another purpose. The return for *assuming the risk* represents the value associated with the risk that cash outflows may ultimately differ from expectations.

See FV 8 for a detailed discussion of incorporation of credit risk in the fair value measurement of assets and liabilities.

4.2.6.2 Difference between financial and nonfinancial liabilities

Unlike a financial liability, which requires only a cash transfer for settlement, satisfying a performance obligation may require the use of other operating assets.

A performance obligation may be contractual or noncontractual, which affects the risk that the obligation is satisfied. These differences affect the variability and magnitude of risks and uncertainties that can influence the settlement or satisfaction of the obligation and its fair value. Therefore, it is important to be aware of these differences when measuring the fair value of performance obligations. This is particularly critical when considering future cash flow estimates and applicable discount rates when using the income method to measure fair value.

ASC 820 includes five examples to illustrate the measurement of liabilities. Refer to ASC 820-10-55-57 (Case A) through ASC 820-10-55-85 (Case E) for further details.

Question FV 4-5

How does fair value measurement based on a transfer price differ from a valuation based on settlement of a liability with the counterparty?

PwC response

The value of a liability measured at fair value is the price that would be paid to transfer the liability to a third party. The amount that would be required to pay a third party (of equivalent credit or nonperformance risk) to assume a liability may differ from the amount that a reporting entity would be required to pay its counterparty to extinguish the liability.

For example, a financial institution transferee may be willing to assume non-demand-deposit liabilities for less than the principal amount due to the depositors because of the relatively low funding cost of such liabilities. However, in other instances, an additional risk premium above the expected payout may be required because of uncertainty about the ultimate amount of the liability (e.g., asbestos liabilities or performance guaranties). The risk premium paid to a third party may differ from the settlement amount the direct counterparty would be willing to accept to extinguish the liability. In addition, the party assuming a liability may have to incur certain costs to manage the liability or may require a profit margin.

These factors may cause the transfer amount to differ from the settlement amount. In measuring liabilities at fair value, the reporting entity must assume that the liability is transferred to a credit equivalent entity and that it continues after the transfer (i.e., it is not settled). Accordingly, it follows that the hypothetical transaction used for valuation is based on a transfer to a credit equivalent entity that is in need of funding and willing to take on the terms of the obligation.

In application, there may be significant differences between settlement value and transfer value. Among the differences is the impact of credit risk, which is often not considered in the settlement of a liability, as demonstrated in Example FV 4-4.

EXAMPLE FV 4-4

Transfer value compared to settlement value

A debt obligation is held by a bank with a face value of \$100,000 and a market value of \$95,000. The interest rate is at market; however, there is a \$5,000 discount due to market concerns about the risk of nonperformance.

What is the presumed settlement value and transfer value of the note?

Analysis

Absent exceptional circumstances, the counterparty (Counterparty A) would be required to pay the full face value of the note to settle the obligation, as the bank may not be willing to discount the note by the credit risk adjustment. Therefore, the settlement value would be equal to the face amount of the note.

To calculate the transfer value, Counterparty A must construct a hypothetical transaction in which another party (Counterparty B) with a similar credit profile is seeking financing on terms that are substantially the same as the note. Counterparty B could choose to enter into a new note agreement with the bank or receive the existing note from Counterparty A in a transfer transaction. In this hypothetical transaction, Counterparty B should be indifferent to obtaining financing through a new bank note or assumption of the existing note in transfer for a payment of \$95,000. The bank should also be indifferent to Counterparty B's choice, as both counterparties have similar credit profiles. Therefore, the transfer value would be \$95,000, \$5,000 less than the settlement amount.

Under ASC 820, reporting entities should adopt an approach to valuing liabilities that incorporates the transfer concept. There is no exemption from or practical expedient for this requirement.

4.2.7 *Instruments classified in shareholders' equity*

The principles in ASC 820 are also applied to "own issued equity instruments" and instruments classified in shareholders' equity. An example of this is when equity interests are issued as consideration in a business combination. The guidance specifies that even when there is no observable market to provide pricing information about the transfer of an entity's own equity instrument, the entity should measure the fair value of its own equity instruments from the perspective of a market participant who holds the instrument as an asset.

Similar to the application to liabilities, when equity instruments are not held by other parties as assets in an observable market, an entity should use a valuation technique using market participant assumptions.

4.2.8 *Financial assets and liabilities with offsetting risks*

ASC 820-10-35-18D includes an exception to the general valuation principles when an entity manages its market risk(s) and/or counterparty credit risk exposure within a group (portfolio) of financial instruments, on a net basis. This exception includes portfolios of derivatives that meet the definition of a financial instrument that are managed on a net basis.

The "portfolio exception" allows for the fair value of those financial assets, financial liabilities, and nonfinancial items accounted for as derivatives under ASC 815 to be measured based on the net positions of the portfolios (i.e., the price that would be received to sell a net long position or transfer a net short position for a particular market or credit risk exposure), rather than the individual values of financial instruments within the portfolio. When using the portfolio exception, the unit of measurement is the net position of the portfolio even though the unit of account is the individual instrument. Therefore, size is an attribute of the portfolio being valued, and a premium or discount based on size is appropriate if incorporated by market participants. This represents an exception to how financial assets, financial liabilities, and nonfinancial items accounted for as derivatives under ASC 815 are measured under ASC 820, which requires each unit of account within a portfolio to be measured on its own (that is, on a gross basis).

For further discussion of the portfolio exception, see FV 6.6.

4.3 Fair value at initial recognition

Certain accounting standards require or permit an asset or a liability to be initially recognized at fair value. ASC 820-10-30-3 states that in many cases the transaction price equals fair value, such as when on the transaction date the transaction to buy an asset takes place in the market in which the asset would be sold. In determining whether a transaction price represents the fair value at initial recognition, a reporting entity should take into account factors specific to the transaction and to the asset or the liability. As discussed in ASC 820-10-30-3A, a transaction price may not represent fair value in certain situations:

- a related party transaction;
- a transaction under duress or a forced transaction;
- the unit of account for the transaction price does not represent the unit of account for the asset or liability being measured; or
- the market for the transaction is different from the market for the asset or liability being measured.

Under US GAAP, if the transaction involves one or more of the above factors, a reporting entity may determine that the transaction price does not represent the fair value of the asset or the liability at initial recognition, resulting in recognition of a Day one gain or loss.

4.4 Valuation approaches, techniques, and methods

ASC 820-10-35-24A describes three main approaches to measuring the fair value of assets and liabilities: the market approach, the income approach, and the cost approach. ASC 820-10-55-3A through ASC 820-10-55-3G also provides examples of valuation techniques that are consistent with each valuation approach. In practice, valuation professionals often refer to valuation methods. In our experience, valuation techniques and methods are synonymous. We use the terms interchangeably in this guide.

ASC 820-10-35-24A and ASC 820-10-50-2(bbb) clarify meaning of the terms “valuation technique” and “valuation approach.” At times, the literature uses these terms interchangeably; however, they were designed to have different meanings. While “valuation technique” is not a defined term, the guidance provides examples of valuation techniques, indicating that valuation techniques are more granular than valuation approaches. In certain instances, a valuation of a single instrument or a class of instruments may include multiple approaches and/or techniques.

The technical correction also clarified the disclosure requirement relating to changes in valuation approaches and techniques. See FSP 20 for discussion of the disclosure requirement.

4.4.1 **Market approach**

The market approach is often used as the primary valuation approach for financial assets and liabilities when observable inputs of identical or comparable instruments are available. ASC 820-10-55-3A through ASC 820-10-55-3B defines the market approach.

ASC 820-10-55-3A

The market approach uses prices and other relevant information generated by market transactions involving identical or comparable (that is, similar) assets, liabilities, or a group of assets and liabilities, such as a business.

ASC 820-10-55-3B

For example, valuation techniques consistent with the market approach often use market multiples derived from a set of comparables. Multiples might be in ranges with a different multiple for each comparable. The selection of the appropriate multiple within a range requires judgment, considering qualitative and quantitative factors specific to the measurement.

The market approach is also used commonly for real estate when comparable transactions and prices are available, and can be used to value a business or elements of equity (e.g., NCI). The market approach may also be used as a secondary approach to evaluate and support the conclusions derived using an income approach.

Matrix pricing is a valuation technique within the market approach. It is a mathematical technique that may be used to value debt securities by relying on the securities' relationship to other benchmark quoted prices and is commonly used to price bonds, most notably corporate and municipal bonds.

4.4.2 **Cost approach**

The cost approach assumes that the fair value would not exceed what it would cost a market participant to acquire or construct a substitute asset of comparable utility, adjusted for obsolescence. ASC 820-10-55-3D defines the cost approach.

ASC 820-10-55-3D

The cost approach reflects the amount that would be required currently to replace the service capacity of an asset (often referred to as current replacement cost).

This approach assumes that a market participant buyer would not pay more for an asset than the amount for which it could replace the service capacity of that asset. Obsolescence includes “physical deterioration, functional (technological) obsolescence, and economic (external) obsolescence.” Therefore, in using a replacement cost approach, a reporting entity would need to consider the impact of product improvements.

The cost approach is typically used to value assets that can be easily replaced, such as property, plant, and equipment.

4.4.3 *Income approach*

The income approach is applied using the valuation technique of a discounted cash flow (DCF) analysis, which requires (1) estimating future cash flows for a certain discrete projection period; (2) estimating the terminal value, if appropriate; and (3) discounting those amounts to present value at a rate of return that considers the relative risk of the cash flows and the time value of money. Terminal value represents the present value at the end of the discrete projection period of all subsequent cash flows to the end of the life of the asset or into perpetuity if the asset has an indefinite life.

ASC 820-10-55-3F defines the income approach.

ASC 820-10-55-3F

The income approach converts future amounts (for example, cash flows or income and expenses) to a single current (that is, discounted) amount. When the income approach is used, the fair value measurement reflects current market expectations about those future amounts.

Income approaches are used to measure the value of liabilities, intangible assets, businesses (e.g., for purposes of computing an internal rate of return, or to measure the fair value of an NCI or previously held equity interest when the price is not observable), and financial instruments when those assets are not traded in an active market.

ASC 820-10-55-4 discusses the use of present value techniques in the determination of fair value. Those techniques include the “discount rate adjustment” technique and the “expected cash flow (expected present value)” technique.

ASC 820 neither prescribes the use of one single specific present value technique nor limits the use of specific present value techniques to measure fair value, instead indicating that a reporting entity should use the appropriate technique based on facts and circumstances specific to the asset or liability being measured and the market in which they are transacted, and with all valuation techniques, maximizing the use of relevant observable inputs and minimizing the use of unobservable inputs.

ASC 820-10-55-5 indicates that the following key elements from the perspective of market participants should be captured in developing a fair value measurement using present value:

Excerpt from ASC 820-10-55-5

- a. An estimate of future cash flows for the asset or liability being measured.
- b. Expectations about possible variations in the amount and timing of cash flows representing uncertainty inherent in the cash flows.
- c. The time value of money, represented by the rate on risk-free monetary assets that have maturity dates or durations that coincide with the period covered by the cash flows and pose neither uncertainty in timing nor risk of default to the holder (that is, a risk-free interest rate)....
- d. The price for bearing the uncertainty inherent in the cash flows (that is, a risk premium).
- e. Other factors that market participants would take into account in the circumstances.

- f. For a liability, the nonperformance risk relating to that liability, including the reporting entity's (that is, the obligor's) own credit risk.

ASC 820-10-55-6 also discusses general principles that govern the application of all present value techniques.

ASC 820-10-55-6

- a. Cash flows and discount rates should reflect assumptions that market participants would use when pricing the asset or liability.
- b. Cash flows and discount rates should take into account only the factors attributable to the asset or liability being measured.
- c. To avoid double counting or omitting the effects of risk factors, discount rates should reflect assumptions that are consistent with those inherent in the cash flows. For example, a discount rate that reflects the uncertainty in expectations about future defaults is appropriate if using contractual cash flows of a loan (that is, a discount rate adjustment technique). That same rate should not be used if using expected (that is, probability-weighted) cash flows (that is, an expected present value technique) because the expected cash flows already reflect assumptions about the uncertainty in future defaults; instead, a discount rate that is commensurate with the risk inherent in the expected cash flows should be used.
- d. Assumptions about cash flows and discount rates should be internally consistent. For example, nominal cash flows, which include the effect of inflation, should be discounted at a rate that includes the effect of inflation. The nominal risk-free interest rate includes the effect of inflation. Real cash flows, which exclude the effect of inflation, should be discounted at a rate that excludes the effect of inflation. Similarly, after-tax cash flows should be discounted using an after-tax discount rate. Pretax cash flows should be discounted at a rate consistent with those cash flows.
- e. Discount rates should be consistent with the underlying economic factors of the currency in which the cash flows are denominated.

In practice, adjusting the expected cash flows to reflect systematic risk is often difficult. In most instances, therefore, for nonfinancial assets, the discount rate that is applied to cash flows incorporates systematic or non-diversifiable risk, which is often represented by a weighted-average cost of capital that would be required by a marketplace participant. However, adjustments made to the discount rate tend to underweight risk. Additionally, the discount rate is a single point estimate, while expected cash flows are weighted by different probabilities of occurrence in the future.

4.4.4 Application of valuation techniques

Figure FV 4-1 highlights common valuation techniques within each of the valuation approaches.

Figure FV 4-1
Valuation approaches and techniques

Cost approach	Market approach	Income approach
<i>“Mark-to-cost”</i>	<i>“Mark-to-market”</i>	<i>“Mark-to-model”</i>
<ul style="list-style-type: none"> □ Replacement cost method □ Reproduction cost method 	<ul style="list-style-type: none"> □ Market pricing based on recent transactions □ Multiples 	<ul style="list-style-type: none"> □ Relief from royalty method □ Price premium method □ Multi-period excess-earnings method (MEEM) □ Incremental cash flow method □ Contingent claims/real option models □ Discounted cash flow method

The selection of appropriate valuation techniques may be affected by the availability of relevant inputs and the relative reliability of the inputs, or by the type of asset or liability being valued. In some cases, one valuation technique may provide the best indication of fair value (e.g., the use of the market approach in the valuation of an actively traded equity security); however, in other circumstances, multiple valuation techniques may be appropriate (e.g., in valuing a reporting unit or cash-generating unit for purposes of step 1 of a goodwill impairment test).

The application of each technique may indicate different estimates of fair value. These estimates may not be equally representative of the fair value due to the assumptions made in the valuation or the quality of inputs used. Using multiple valuation techniques can act as a check on these assumptions and inputs. The reporting entity should carefully evaluate the inputs and assumptions used if the range of values is wide. Fair value should be based on the most representative point within the range considering the specific circumstances.

ASC 820-10-35-24C

If the transaction price is fair value at initial recognition and a valuation technique that uses unobservable inputs will be used to measure fair value in subsequent periods, the valuation technique shall be calibrated so that at initial recognition the result of the valuation technique equals the transaction price. Calibration ensures that the valuation technique reflects current market conditions, and it helps a reporting entity to determine whether an adjustment to the valuation technique is necessary (for example, there might be a characteristic of the asset or liability that is not captured by the valuation technique). After initial recognition, when measuring fair value using a valuation technique or techniques that use unobservable inputs, a reporting entity shall ensure that those valuation techniques reflect observable market data (for example, the price for a similar asset or liability) at the measurement date.

As discussed in ASC 820-10-35-25 through ASC 820-10-35-26, reporting entities should consistently apply the valuation techniques used to measure fair value for a particular type of asset or liability. However, it is appropriate to change a valuation technique or an adjustment that is applied to a

valuation technique if the change will result in a measurement that better represents fair value; for instance, a change in a particular technique's weighting when multiple valuation techniques are used may be appropriate based on changes in facts and circumstances. A change in valuation technique may also be warranted as new markets develop, new information becomes available, information previously used is no longer available, valuation techniques improve, or market conditions change. Revised valuations resulting from a change in the valuation technique or its application are accounted for as a change in accounting estimate, with the change impacting the current and future periods, if applicable.

4.4.4.1 Application of the income approach to foreign currencies

When a discounted cash flow analysis is done in a currency that differs from the currency used in the cash flow projections, the cash flows should be translated using one of the following two methods:

- Discount the cash flows in the reporting currency using a discount rate appropriate for that currency. Convert the present value of the cash flows at the spot rate on the measurement date.
- Use a currency exchange forward curve, if available, to translate the reporting currency projections and discount them using a discount rate appropriate for the foreign currency.

4.5 Inputs to fair value measurement and hierarchy

To increase consistency and comparability in reporting fair value measurements, ASC 820-10-35-37 establishes the fair value hierarchy to prioritize the inputs used in valuation techniques. There are three levels to the fair value hierarchy (Level 1 is the highest priority and Level 3 is the lowest priority):

- Level 1: observable inputs that reflect quoted prices (unadjusted) for identical assets or liabilities in active markets
- Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability either directly or indirectly
- Level 3: unobservable inputs (e.g., a reporting entity's or other entity's own data)

The ASC Master Glossary defines a principal market as “the market with the greatest volume and level of activity for the asset or liability.” It further states that market participants are buyers and sellers in this market that are independent of each other, knowledgeable, and willing and able to enter into a transaction for the asset or liability. The determination of the reporting entity's principal market is made from the perspective of the reporting entity; the availability of pricing inputs is not part of that assessment. For example, if the reporting entity is a retail customer and does not have access to the wholesale market, the reporting entity's principal market is the retail market and quoted prices in the wholesale market will not qualify as fair value for that reporting entity.

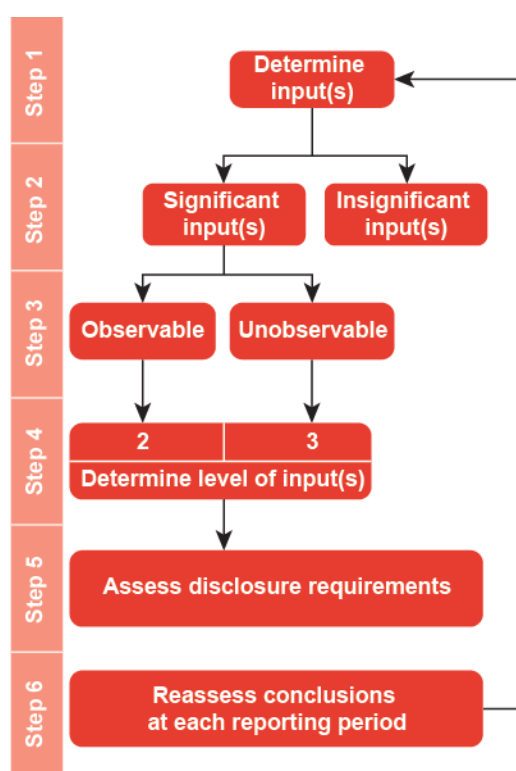
If a price for the exact unit of account (i.e., a Level 1 input) is not available in the principal market, then the reporting entity will have to use a valuation technique with one or more inputs from the same or other markets to derive fair value. The availability of pricing inputs from other markets may impact the choice of valuation technique. For example, if Level 1 inputs are available in another market (i.e., a market approach), that approach may provide more objective evidence of fair value than an income approach using Level 2 inputs from the principal market. However, in either case, the resulting fair value measurement would not be considered a Level 1 input.

By distinguishing between inputs that are observable in the marketplace, and therefore more objective, and those that are unobservable and therefore more subjective, the hierarchy is designed to indicate the relative subjectivity and reliability of the fair value measurements.

Disclosure is required by level; as the objectivity of the inputs decrease, disclosure increases. Certain required disclosures are applicable only to those fair value assets and liabilities characterized as Level 3.

Figure FV 4-2 illustrates the steps to differentiate Level 2 and Level 3 in the fair value hierarchy of a fair value measurement. Level 1 fair value measurements have been excluded from the framework as they have a Level 1 price for the entire unit of account.

Figure FV 4-2
Fair value hierarchy framework (for Levels 2 and 3)



Steps 1 through 4 are explained in the following sections. See FSP 20 for the required disclosures.

4.5.1 **Step 1: determine all inputs to valuation techniques**

Inputs broadly refer to the information that market participants use to make pricing decisions, including assumptions about risk. Inputs may include price information, revenue growth, changes in profitability, volatility factors, specific and broad credit data, liquidity statistics, and all other factors that have more than an insignificant effect on the fair value measurement.

Reporting entities should use observable inputs when available.

4.5.2 **Step 2: determine which inputs are significant**

In some cases, a valuation technique used to measure fair value may include inputs from multiple levels of the fair value hierarchy. ASC 820-10-35-37A indicates that the asset or liability is categorized in its entirety on the lowest level of a significant input. One significant unobservable input results in the entire asset or liability being classified in Level 3. Therefore, the reporting entity needs to identify all significant inputs when determining the appropriate classification within the hierarchy.

Assessing the significance of a particular input to the fair value measurement requires judgment, and should consider factors specific to the asset or liability. There are no bright lines for determining significance. A reporting entity should develop and consistently apply a policy for assessing significance.

In assessing the significance of unobservable inputs to an asset or liability's fair value, a reporting entity should (1) consider the sensitivity of the asset or liability's overall value to changes in the input and (2) assess the likelihood of variability in the input over the life of the asset or liability. An input could be unobservable and have little impact on the valuation at initial recognition, but the same input could have a significant remeasurement impact if markets and related assumptions change.

Additionally, we believe reporting entities should perform the significance assessment on an individual input level and an aggregate input level, considering aggregation of inputs when more than one item of unobservable data (or more than one parameter) is used to measure the fair value of an asset or liability.

ASC 820-10-55-21(b) provides an example of an interest rate swap with a ten-year life that has an observable yield curve for nine years. In that example, provided that the extrapolation of the yield curve to the tenth year is not significant to the fair value measurement of the swap in its entirety, the fair value measurement is considered Level 2. Had the reporting entity judged the final year of the instrument to be a significant input, it would have been a Level 3 measurement.

4.5.3 **Step 3: determine if significant inputs are observable**

Observable inputs include both Level 1 and Level 2 inputs. We believe observable inputs include the following.

- Prices or quotes from exchanges or listed markets (e.g., New York Mercantile Exchange, Chicago Board of Trade, London Stock Exchange, Tokyo Stock Exchange, or New York Stock Exchange and Euronext) in which there is sufficient activity
- Proxy observable market data that is proven to be highly correlated and has a logical, economic relationship with the instrument being valued (e.g., electricity prices in two different locations or "zones" that are highly correlated)
- Other direct and indirect market inputs that are observable in the marketplace

Determining what constitutes observable inputs will require significant judgment.

The following list of characteristics, if present, would provide evidence that an input is derived from observable market data. However, inputs need not have all of the following characteristics for it to qualify as observable market data.

□ *Supported by market transactions*

Although data need not be traced directly to a “live” or “perfectly offsetting” transaction, there should be strong evidence that (1) the data sources draw their information from actual market transactions between other market participants or (2) the information is used by market participants to price actual market transactions. The reporting entity will normally need to perform a degree of review and/or verification of the data supporting the quote.

□ *Not proprietary*

Observable data incorporated into an input of a valuation technique comes from sources other than within the reporting entity that is making the determination. In addition, the data should be distributed broadly, and not limited in its distribution to only the entity making the determination or to a small group of users. The data should be available to and regularly used by participants in the relevant market/product sector as a basis for pricing transactions or verifying such prices. Even an internally developed assumption may be an observable input if it can be corroborated to an external source.

□ *Readily available*

Market participants should be able to obtain access to the data, although the supplier of the information could impose a reasonable fee for access.

□ *Regularly distributed*

The term “regular distribution” means that the data is made available in a manner that is timely enough to allow the data to be meaningful in pricing decisions. Further, there should be procedures in place to verify that changes between intervals have not occurred that would render the data meaningless. In addition, the distributed information should indicate its effective date to ensure that data received is not stale.

□ *Transparent*

The people/sources providing and/or distributing the data and their role in a particular product/market should be transparent and known to be reliable. In addition, it needs to be clear to the people who provide the data that market participants use this information to price/verify transactions.

□ *Verifiable*

The data should be verifiable. Further, there should be evidence that users are, in fact, regularly verifying the data. For example, people who are independent of a particular reporting entity should be able to contact the third-party data provider directly in order to verify the data that is obtained and used. It also should be possible for people to verify the data by comparing it with data that is obtained from other reliable sources.

□ *Reliable*

The data should reflect actual market parameters and be subject to certain levels of periodic testing and monitoring. These controls should exist at the entity providing the data, and at the

entity using the data. Reporting entities should test and review the reliability of a source's data on an ongoing basis before actually using that source as a basis for determining or disclosing a fair value measurement and its level within the fair value hierarchy.

□ *Based on consensus*

The data or inputs that are provided by multiple sources should be comparable within a reasonably narrow range before a reporting entity can regard the information as demonstrating a market consensus. If particular sources produce price outliers, the reporting entity should understand them and how they impact the data. Due diligence should be performed to confirm that the consensus was derived from different sources.

□ *Provided by sources actively involved in the relevant market*

The data should originate from a source that is an active participant with respect to the relevant product and within the relevant market. Further, the reporting entity that is using the data should periodically demonstrate that the source of the data provides reliable information on a consistent basis. Although there are instances in which market forces could help ensure that a data source provides reliable information, such assurance may need to be supplemented with other evidence, such as the results of back-testing applied to verify the consistency and reliability of a particular source's data.

4.5.3.1 Assessing market activity to determine if inputs are observable

The level of activity in the asset or liability's principal market will contribute to the determination of whether an input is observable or unobservable. Level 1 and Level 2 measurements are based on observable inputs while Level 3 measurements are unobservable.

The ASC Master Glossary defines an active market as "a market in which transactions for the asset or liability take place with sufficient frequency and volume to provide pricing information on an ongoing basis." An observable input that may otherwise be a Level 1 input will be rendered Level 2 if the information relates to a market that is not active.

To determine the level of the inputs within the hierarchy, the reporting entity should consider recent activity supporting the quote and trading volume trends. For example, in assessing market inputs, consider a security for which aggregate broker data is published on occasion, and for which trading does not occur on a regular basis. In this case, the price is quoted only occasionally and the security is not regularly traded. Consequently, the quote is no longer a Level 1 input, and would be Level 2 or 3.

Although observability could have an indirect relationship with liquidity, only the observability of significant inputs serves to distinguish between Levels 2 and 3. Liquidity is not a differentiating factor. For example, a reporting entity may be able to sell a structured security in one day; however, for valuation purposes, they are only able to obtain indicative broker quotes that cannot be corroborated by market observable inputs.

Additionally, there can be a wide spectrum of liquidity associated with instruments in Levels 2 and 3. For example, a residential mortgage-backed security is likely significantly more liquid than an abandoned warehouse and land in tertiary markets, while both may accurately be determined to be Level 3 valuations.

In addition, a US dollar fixed-for-floating interest rate swap is likely to be determined to be a Level 2 instrument by most market participants based upon the observability of the market inputs used to value it. However, it is not easy and likely time consuming, to novate an interest rate swap to another party. By definition, this derivative is less “liquid” than many fixed income securities that are determined to be Level 3. This is another example of why Level 2 versus Level 3 is not a representation of liquidity.

ASC 820-10-35-36A provides examples of markets in which inputs might be observable for some assets and liabilities. Reporting entities should consider the specific facts and circumstances of each input in each market in assessing whether an input in a particular market is observable.

Excerpt from ASC 820-10-35-36A

Examples of markets in which inputs **might** be observable for some assets and liabilities (for example, financial instruments) include exchange markets, dealer markets, brokered markets, and principal-to-principal markets. [Emphasis added.]

The ASC 820 Glossary provides additional clarification on each market:

□ *Exchange market*

In an active exchange market (e.g., NYSE, London Stock Exchange), closing prices are both readily available and representative of fair value.

□ *Dealer market*

In a dealer market, dealers stand ready to trade at an executable bid or ask price for their own account, thereby providing market liquidity by using their capital to hold an inventory of the items for which they make a market. Over-the-counter markets are dealer markets. Assets and liabilities, other than securities, also exist in dealer markets, such as financial instruments, commodities, and physical assets.

□ *Brokered market*

In a brokered market, brokers attempt to match buyers with sellers; they may not stand ready to trade. Instead, they typically provide indicative valuations for their own account, and do not use their own capital to hold an inventory of the items for which they make a market.

For a broker quote to be observable, a reporting entity may not need transparency into the market data used to develop the quote, but would need knowledge of how the quote is created and whether the broker stands ready to execute. Broker quotes can be derived from models or based on market observable transactions. In many cases, transparency into the specific technique used is not available. However, a reporting entity may be able to determine the implied inputs used (e.g., discount rate/yield). From this analysis, a reporting entity may be able to connect such implied inputs to market observable information (e.g., trade information).

□ *Principal-to-principal market*

Principal-to-principal transactions (both originations and resales) are negotiated independently, with no intermediary. Often, very little information about these transactions is publicly available, and as such, the markets are generally not considered observable.

4.5.3.2 Pricing services, broker quotes, and dealer quotes

Ultimately, it is management's responsibility to determine the appropriateness of its fair value measurements and their classification in the fair value hierarchy, including measurements for which pricing services (such as Bloomberg, Interactive Data Corporation, Thomson Reuters, Markit, Standard and Poor's), broker pricing information, and similar sources are used.

ASC 820-10-35-54K indicates that the use of quoted prices provided by third parties, such as pricing services or brokers, is permitted if the reporting entity has determined that the quoted prices provided by those parties are developed in accordance with the fair value standard. Therefore, reporting entities that use pricing services need to understand how the pricing information is developed and obtain sufficient information to determine where instruments fall within the fair value hierarchy.

For example, a pricing service could provide quoted prices for an actively traded equity security which, if corroborated by the reporting entity, would be considered Level 1 inputs. The same pricing service may also provide a corporate bond price based on matrix pricing, which may constitute a Level 2 or Level 3 input, depending on the information used in the model. The information provided by these sources could result in a financial instrument falling into any level in the fair value hierarchy, depending on the inputs and methods used for a particular financial instrument.

Dealer quotes are observable only if the dealer stands ready and willing to transact at that price. Brokers, on the other hand, report what they see in the market but usually are not ready and willing to transact at that price. In order for broker quotes to be observable, they need to be corroborated by other market events or data.

A broker quote may be a Level 2 input if observable market information exists for comparable assets and/or the dealer is willing and able to transact in the security at that price. In many cases, a single broker quote may be indicative of a Level 3 measure if there are no comparables and the quote is provided with no commitment to actually transact at that price.

A reporting entity should have some higher-level (i.e., observable) data to support classification of an input as Level 2. A broker quote for which the broker does not stand ready to transact cannot be corroborated with an internal model populated with Level 3 information to support a Level 2 classification. Multiple indicative broker quotes or vendor prices based on Level 3 inputs do not raise the categorization of that instrument to Level 2. However, there may be other instances in which pricing information can be corroborated by market evidence, resulting in a Level 2 input.

In some cases, reporting entities may rely on pricing services or published prices that represent a consensus reporting of multiple brokers or "evaluated prices." It may not be clear if the reporting entity can transact at the prices provided or if observable market data was used to develop the indicative price. To support an assertion that a broker quote or information obtained from a pricing service represents a Level 2 input, the reporting entity should perform further review procedures to understand how the price was developed, including understanding the nature and observability of the inputs used to determine that price. As market activity often ebbs and flows, pricing techniques often

do as well. Because of this, reporting entities should perform review procedures on an ongoing basis for financial reporting purposes versus at a singular point in time. Additional corroboration could include the following:

- Use of liquidity or transparency information and metrics provided by the vendor which may include the liquidity score and depth of the quotes informing the price
- Review of vendor valuation methodology documentation
- Discussions with pricing services, dealers, or other companies to obtain additional prices of identical or similar assets to corroborate the price
- Back-testing of prices to determine historical accuracy against actual transactions. While this analysis provides more evidence on the accuracy/reliability of historical prices provided, it may also provide an initial indication of whether pricing uses observable data inputs. It is likely that additional corroboration would be necessary to determine the use of observable market data.
- Comparisons to other external or internal valuation model outputs and their corroboration with observable market data

The level of investigation necessary is highly dependent on the facts and circumstances, such as the type and complexity of the asset or liability being measured, and its observability and the level of activity in the marketplace. Generally, the more specialized the asset or liability being measured and the less actively traded it is, the more review procedures will be necessary to corroborate the price to support classification as a Level 2 input.

When performing additional procedures, reporting entities should clearly document the assessment and conclusion. Without additional supporting information, we believe prices obtained from a single or multiple broker sources or a pricing service are indicative values or proxy quotes that generally represent Level 3 inputs.

In another example, a reporting entity may obtain a price from a broker or pricing service for a municipal security. The reporting entity may be fully aware of the depth and activity of the security's trading in the marketplace based on its historical trading experience. In addition, the pricing methodology for the security may be common and well-understood (e.g., matrix pricing) and the reporting entity may be able to perform less due diligence. However, this conclusion may not be appropriate for a reporting entity that obtains a price from a broker or pricing service for a collateralized debt obligation that is not frequently traded and may not be as easily subject to common, well-understood pricing methodologies (e.g., matrix pricing), for example. Therefore, the reporting entity may need to perform more due diligence.

4.5.3.3 Valuation models

Reporting entities commonly use proprietary models to calculate certain fair value measurements (e.g., some long-term derivative contracts, impairments of financial instruments, and illiquid investments such as real estate). However, they determine the level within the fair value hierarchy based on the inputs to the valuation, not on the methodology or complexity of the model. However, certain valuations may require the use of complex models to develop forward curves and other inputs; therefore, the models and inputs are frequently inextricably linked.

The use of a valuation model does not automatically result in a Level 3 fair value measurement. A standard valuation model that uses all observable inputs may result in a measurement classified as Level 2. For example, consider the measurement of a financial asset that is not actively traded. The reporting entity performs the valuation using a proprietary model incorporating inputs provided by brokers. While the financial asset is not actively traded, the entity assumes the broker providing the inputs is standing ready to transact at the quoted price and/or the reporting entity obtains sufficient corroborating data. Provided the model does not include management assumptions used to make adjustments to the data, it may be reasonable to conclude that the inputs are observable, and thus the measurement would be classified as Level 2.

However, if adjustments or interpolations are made to Level 2 inputs in an otherwise standard model, the measurement may fall into Level 3, depending on whether the adjusted inputs are significant to the measurement. Further, if a reporting entity uses a valuation model that is proprietary and relies on significant unobservable inputs, the resulting fair value measurement will be categorized as Level 3.

For example, when Level 2 inputs are not available and the reporting entity is required to develop a forward price curve because the duration of the contract exceeds the length of time that observable inputs are available, or is otherwise required to make adjustments to observable data, the valuation is relying on Level 3 inputs and would be classified as a Level 3 fair value measurement if those inputs are significant to the overall fair value measurement.

4.5.4 **Step 4: determine level in the hierarchy of the significant input (or all significant inputs)**

The evaluation of the significant inputs determines the classification of the asset or liability in the fair value hierarchy. Some of the key characteristics of each level are included in Figure FV 4-3.

Figure FV 4-3

Characteristics of each level in the fair value hierarchy

Level	Characteristics
1	Observable Quoted prices for identical assets or liabilities in active markets (unadjusted)
2	Quoted prices for similar items in active markets Quoted prices for identical/similar items, no active market Liabilities traded as assets in inactive markets
3	Unobservable inputs (e.g., a reporting entity's or other entity's own data) Market participant (not entity-specific) perspective is still required

A common misconception is that securities that are “less risky” should be categorized in Level 1. For instance, many might perceive US Treasury securities as essentially risk-free, and, therefore, should be considered Level 1 in the fair value hierarchy. However, certain Treasury securities are more appropriately categorized in Level 2 because they do not trade in an active market.

4.5.4.1 *Level 1 inputs*

Level 1 inputs are quoted prices (unadjusted) for identical assets or liabilities in active markets. A quoted price for an identical asset or liability in an active market (e.g., an equity security traded on a major exchange) provides the most reliable fair value measurement and, if available, should be used to measure fair value in that particular market.

In practical terms, the list of instruments that likely qualify as Level 1 fair value measurements is fairly narrow. It includes:

- Listed equity securities traded in active, deep markets (e.g., NYSE, NASDAQ)
- London Metal Exchange futures contract prices
- On-the-run Treasury bills, notes, and bonds¹
- Exchange-traded futures and options
- Open-ended mutual funds with published daily NAV at which investors can freely subscribe to or redeem from the fund

These are investments that do not use NAV as a practical expedient and, therefore, are still required to be leveled in the fair value hierarchy — unlike funds that use NAV as a practical expedient, as discussed in FSP 20.5.

- Closed-ended registered mutual funds (e.g., exchange-traded funds) traded on active markets (the exchange price may represent a Level 1 input)
- Many government-backed to-be-announced securities (TBAs)

Cleared transactions

Certain derivative transactions, such as interest rate and credit default swaps, are executed through clearinghouses.

Each day, the clearinghouse provides a “value mark” that dictates the amount owed by/to the counterparty. Because this value mark is not a value at which a reporting entity could open or close the trade at that particular point in time, the value mark is not a Level 1 fair value input.

Question FV 4-6

Can a single price source or quote be considered a Level 1 valuation?

PwC response

Maybe. Absent the source being transactions on an exchange, in general, a single source would not be a Level 1 input since a single market maker would almost, by definition, suggest an inactive market. However, in some rare cases, a single market maker dominates the market for a particular security

¹ On-the-run Treasury bonds and notes are the most recently issued of a given maturity. They are the most frequently traded, and therefore, the most liquid.

such that trading in that security is active but all trades flow through that market maker. In those limited circumstances, a reporting entity may be able to support a determination that the input is Level 1.

Other than in this fact pattern, the reporting entity should determine if the single broker quote represents a Level 2 or Level 3 input. See key considerations in making this assessment in FV 4.5.3.

Question FV 4-7

Should a reporting entity that invests in a fund that invests primarily in exchange-traded equity securities look through the fund to determine the level of the fund in the fair value hierarchy?

PwC response

No. The reporting entity should first determine the appropriate unit of account (i.e., what is being measured). The unit of account is determined based on other applicable US GAAP or IFRS.

We would expect the unit of account for interests in mutual or alternative fund investments to be the interest in the fund itself, rather than the individual assets and liabilities held by the fund. Thus, the reporting entity should assess the categorization within the fair value hierarchy based on the investment in the fund itself and not the securities within the fund.

An investor cannot simply “look through” an interest in an alternative investment to the underlying assets and liabilities to estimate fair value or to determine the classification of the fair value measurement in the fair value hierarchy. Rather, the reporting entity should consider the inputs used to establish fair value of the fund and whether they were observable or unobservable.

The investment could be classified as Level 1 if the fair value measurement of the interest in the fund (not the underlying investments) was based on observable inputs that reflect quoted prices (unadjusted) for identical assets in active markets (i.e., the fund is exchange-traded).

Large number of similar assets and liabilities

ASC 820-10-35-41C(a) provides a practical expedient for the fair value measurement of a large number of similar assets or liabilities (e.g., debt securities) for which quoted prices in active markets are available, but not readily accessible. In accordance with this guidance, a reporting entity may measure fair value by using an alternative pricing method (e.g., matrix pricing) instead of obtaining quoted prices for each individual security, provided that the reporting entity demonstrates that the method replicates actual prices. If an alternative pricing method is used as a practical expedient, the resulting fair value measurement will be Level 2, not Level 1 as it would have been had the quoted prices been used.

Post-market close events

As discussed in ASC 820-10-35-41C(b), in some situations, significant events (e.g., principal-to-principal transactions, brokered trades, or announcements) may occur after the close of a market but before the end of the measurement date. When that is the case, a quoted market price may not be representative of fair value on the measurement date. Reporting entities should establish and consistently apply a policy for identifying and incorporating events that may affect fair value

measurements. In addition, if a reporting entity adjusts the quoted price, the resulting measurement will not be classified in Level 1, but will be a lower-level measurement.

In general, the measurement date, as specified in each accounting standard requiring or permitting fair value measurements, is the “effective” valuation date. Accordingly, a valuation should reflect only facts and circumstances that exist on the specified measurement date (these include events occurring before the measurement date or that were reasonably foreseeable on that date) so that the valuation is appropriate for a transaction that would occur on that date.

4.5.4.2 Level 2 inputs

The categorization of an asset/liability as Level 1 requires that it is traded in an active market. If an instrument is not traded in an active market, it may fall to Level 2. Level 2 inputs are inputs that are observable, either directly or indirectly, but do not qualify as Level 1.

Level 2 inputs typically include:

- A dealer quote for a non-liquid security, provided the dealer is standing ready and able to transact
- Posted or published clearing prices, if corroborated with market transactions
- Vendor or broker provided indicative prices, if due diligence by the reporting entity indicates such prices were developed using observable market data

Examples of instruments that are typically Level 2 measurements include:

- Most US public debt
- Short-term cash instruments
- Certain derivative products
- Off-the-run Treasury bills, bonds and notes²
- Mortgage-backed securities when valued by adjusting the quoted prices of TBAs)

Adjustments to Level 2 inputs

Adjustments to Level 2 inputs should include factors such as the condition and/or location of the asset/liability on the measurement date. An adjustment that is significant to the fair value measurement may place the measurement in Level 3 in the fair value hierarchy.

Extrapolating and interpolating data

ASC 820-10-35-48 indicate that a Level 2 input needs to be observable for substantially the full term of an asset or liability that has a contractual term. However, certain inputs derived through extrapolation

² Off-the-run Treasury bills, bonds, and notes are those that were issued before the most recent issue and are still outstanding.

or interpolation may be corroborated by observable market data (e.g., interpolating three-year yields using observable one- and five-year interest rate yields) and would be considered a Level 2 input.

For example, assume that the interest rate yield curve for index A has historically been correlated to the interest rate yield curve for index B, and market participants believe the indexes will continue to be correlated. Also, assume that the interest rate yield curve for index A is observable for three years, but the interest rate yield curve for index B is only observable for two years. A reporting entity could extrapolate the third year of the interest rate yield curve for index B based on years one and two and the correlation of the third year of interest rate yield curve for index A. In this example, the interest rate yield for index B for year three would be considered a Level 2 input.

However, extrapolating short-term data to measure longer-term inputs may require assumptions and judgments that cannot be corroborated by observable market data and, therefore, represent a Level 3 input. Then, the reporting entity would need to evaluate the significance of the input to determine if the resulting fair value measurement in its entirety is a Level 3 measurement.

Question FV 4-8

How would the fair value measurement of a foreign exchange (FX) contract that is based on interpolated information be classified in the fair value hierarchy?

PwC response

Generally, a fair value measurement that can be interpolated using observable market data (i.e., externally-quoted sources) would be a Level 2 valuation.

Assume there are quoted forward prices available for 30-day and 60-day FX contracts, and the reporting entity is valuing a 50-day contract. If the price can be derived through simple interpolation, the resulting measurement is a Level 2 valuation.

However, if the contract length is three years, FX rates are only quoted for the next two years, and there is no other observable market information to corroborate the rates in the third year, the input for year 3 would be a Level 3 input. If it is considered a significant input, the resulting fair value measurement would be Level 3.

4.5.4.3 Level 3 inputs

Reporting entities may use unobservable inputs to measure fair value if relevant observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date. These unobservable inputs are considered Level 3.

Even when Level 3 inputs are used, the fair value measurement objective remains the same—that is, to reflect an exit price at the measurement date from the perspective of a market participant that holds the asset or owes the liability. Therefore, unobservable inputs should reflect the assumptions that market participants would use when pricing the asset or liability (including assumptions about risk).

Level 3 inputs may include information derived through extrapolation or interpolation that cannot be directly corroborated by observable market data. In developing Level 3 inputs, a reporting entity need not undertake exhaustive efforts to obtain information about market participant assumptions; however, it should take into account all information that is reasonably available. Therefore, if a

reporting entity uses its own data to develop Level 3 inputs, it should adjust that data if information is reasonably available that indicates market participants would use different assumptions.

Inputs that are typically unobservable and considered Level 3 include:

- Inputs obtained from broker quotes that are indicative (i.e., not firm and able to be transacted upon) or not corroborated with market transactions
- Management assumptions that cannot be corroborated with observable market data
- Vendor-provided prices, not corroborated by market transactions

Examples of instruments that are typically Level 3 measurements include:

- Complex instruments, such as longer-dated interest rate and currency swaps and structured derivatives
- Fixed income asset-backed securities, depending on the specific asset owned (i.e., the specific tranche), the nature of the valuation model used, and whether the inputs are observable
- Impairment testing of goodwill or indefinite-lived intangible assets
- Contingent consideration

4.5.5 Step 5: Assess disclosure required by the fair value standard

The disclosure requirements of the fair value standard can be divided into two areas: those explaining (1) the fair value of the entire asset or liability, and (2) the significant input(s) to the fair value measurement.

4.5.6 Step 6: Reassess

The categorization of a particular instrument in the fair value hierarchy may change over time. As markets evolve, certain ones may become more or less liquid, inputs may become more or less observable, and therefore, the level in the fair value hierarchy could change. Therefore, it is important to evaluate the continued appropriateness of the levels in which fair value measurements are categorized at each reporting date.

4.6 Fair value measurements and inactive markets

ASC 820-10-35-54C through ASC 820-10-35-54H addresses valuations in markets that were previously active, but are inactive in the current reporting period.

ASC 820 provides additional factors to consider in measuring fair value when there has been a significant decrease in market activity for an asset or a liability and quoted prices are associated with transactions that are not orderly. For those measurements, pricing inputs for referenced transactions may be less relevant. A reporting entity should determine if a pricing input for an inactive security was “orderly” and representative of fair value by assessing if it has the information to determine that the transaction is not forced or distressed. If it cannot make that determination, the input needs to be

considered; however, the input may be less relevant to the measurement than other transactions which are known to be orderly.

4.6.1 *Evaluating whether there has been a significant decrease in volume or level of activity*

ASC 820-10-35-54C provides a list of factors to consider in determining whether there has been a significant decrease in the volume or level of activity in relation to normal market activity. The factors that an entity should evaluate include (but are not limited to):

- There is a significant decline in the activity of, or there is an absence of a market for new issues (that is, a primary market) for that asset or liability or similar assets or liabilities
- There are few recent transactions
- Price quotations are not developed using current information
- Price quotations vary substantially either over time or among market makers (for example, some brokered markets)
- Indices that previously were highly correlated with the fair values of the asset or liability are demonstrably uncorrelated with recent indications of fair value for that asset or liability
- There is a significant increase in implied liquidity risk premiums, yields, or performance indicators (such as delinquency rates or loss severities) for observed transactions or quoted prices when compared with the reporting entity's estimate of expected cash flows, taking into account all available market data about credit and other nonperformance risk for the asset or liability
- There is a wide bid-ask spread or significant increases in the bid-ask spread
- Little information is publicly available (for example, a principal-to-principal market)

If a reporting entity concludes that there has been a significant decrease in the volume or level of activity in the market for an asset or liability, the reporting entity should perform further analysis of the transactions or quoted prices observed in that market. A significant decrease in activity on its own is not indicative that the market is not orderly. Further analysis is required because the transactions or quoted prices may not be determinative of fair value and significant adjustments may be necessary when using the information in estimating fair value.

4.6.2 *Adjusting observable inputs*

ASC 820 does not prescribe a methodology for making significant adjustments to transactions or quoted prices when estimating fair value. Instead of applying a prescriptive approach, reporting entities should weight indications of fair value.

If there has been a significant decrease in the volume and level of activity for the asset or liability, it may be appropriate for the reporting entity to change its valuation technique or to apply multiple valuation techniques. For example, a reporting entity may use indications of fair value developed from both a market approach and a present value technique in its estimate of fair value. When using multiple indications of fair value, the reporting entity should consider the reasonableness of the range

of fair value indications. The objective is to determine the point within that range that is most representative of fair value under current market conditions.

One approach to selecting a point within a range of indications of fair value would be to weight the multiple indications. Reporting entities are required to consider the reasonableness of the range, as noted in ASC 820-10-35-54F. A wide range of fair value measurements might indicate that further analysis is required in order to achieve the fair value measurement objective. Importantly, the fair value measurement objective remains the same regardless of the valuation techniques used, even when circumstances indicate that there has been a significant decrease in the volume and level of activity for the asset or liability.

When there has been a significant decrease in the volume or level of activity for the asset or liability, a reporting entity will need to perform additional work to evaluate observable inputs, such as quoted prices or broker quotes, to determine whether observable inputs reflect orderly transactions or whether a valuation technique reflects market participant assumptions. A reporting entity must consider price quotes when markets are not active, including those obtained from pricing services and broker quotes, provided it determines that those prices reflect orderly transactions. Further, a reporting entity is not precluded from concluding that the inputs are Level 2 in the fair value hierarchy even though a market is not active.

The reporting entity's intention to hold an asset is not relevant in estimating fair value at the measurement date. Rather, the fair value measurement should be based on a hypothetical transaction to sell the asset or transfer the liability at the measurement date, considered from the perspective of willing market participants.

Reporting entities may make adjustments to observed prices to address the decrease in activity. It may be challenging to develop appropriate inputs to be used in the valuation techniques and to reconcile fair value measures when a significant difference exists between the use of a valuation technique and an observable price.

4.6.3 Identifying transactions that are not orderly

ASC 820-10-35-54I states that even when an entity determines that there has been a significant decrease in the volume and level of activity for an asset or liability in relation to normal market activity for the asset or liability (or similar assets or liabilities), it is not appropriate to conclude that all transactions in the market for the asset or liability are not orderly. Rather, a determination as to whether a transaction is orderly, and thus a relevant input into the valuation requires analysis. Refer to FV 4.6.1 for further details.

ASC 820-10-35-54I provides a list of circumstances that may indicate that a transaction is not orderly, including (but not limited to):

- There was not adequate exposure to the market for a period before the measurement date to allow for marketing activities that are usual and customary for transactions involving such an asset or liability.
- There was a usual and customary marketing period, but the seller marketed the asset or liability to a single market participant.
- The seller is in or near bankruptcy or receivership (i.e., distressed) or the seller was required to sell to meet regulatory or legal requirements (i.e., if the seller was forced). Though, not all

requirements to divest result in a forced sale, as many requirements to divest are made in circumstances which allow sufficient time and marketing effort to result in an orderly disposal.

- The transaction price is an outlier when compared with other recent transactions for the same (or a similar) asset or liability.

Although ASC 820 provides a list of factors to consider that may indicate a transaction is not orderly, we believe there is an implicit rebuttable presumption that observable transactions between unrelated parties are orderly. In our experience, such transactions are considered to be orderly in almost all instances. Therefore, the evidence necessary to conclude an observable transaction between unrelated parties is not orderly should be incontrovertible.

4.6.4 Evaluating observable transaction prices

The determination of whether a transaction is (or is not) orderly is more difficult if there has been a significant decrease in the volume and level of activity for the asset or liability. However, ASC 820 provides guidance once the determination has been made. Specifically, ASC 820-10-35-54J provides guidance to be considered in evaluating observable transaction prices under different circumstances:

- *Transaction is not orderly*—If the evidence indicates the transaction is not orderly, a reporting entity is required to place little, if any, weight (compared with other indications of fair value) on that observable transaction price when estimating fair value.
- *Transaction is orderly*—If the evidence indicates the transaction is orderly, a reporting entity is required to consider that transaction price when estimating fair value. The amount of weight placed on that transaction price (when compared with other indications of fair value) will depend on the facts and circumstances of the transactions and the nature and quality of other available inputs.

If a reporting entity does not have sufficient information to conclude whether an observed transaction is orderly (or is not orderly), it is required to consider that transaction price when estimating fair value or implied market risk premiums. In those circumstances, that transaction price may not be determinative (i.e., the sole or primary basis) for estimating fair value. There may be circumstances in which less weight should be placed on transactions in which a reporting entity has insufficient information to conclude whether the transaction is orderly when compared with other transactions that are known to be orderly.

4.7 Premiums and discounts

ASC 820 includes restrictions on the application of premiums and discounts related to the size of a position of financial instruments held when measuring fair value. ASC 820-10-35-36B distinguishes between premiums or discounts related to the size of the reporting entity's holding (such as a blockage factor for an equity investment), which are prohibited unless using the portfolio exception, as opposed to those related to a characteristic of the asset or liability (for example, a control premium on a subsidiary), which is permitted under certain circumstances.

4.7.1 Level 1 measurements

ASC 820-10-35-36B states that there should be no adjustment to Level 1 inputs. In accordance with ASC 820-10-35-44, the fair value of a position for an investment in a financial instrument in an active market should be calculated as the product of the quoted price for the individual instrument times the

quantity held (commonly referred to as “P times Q”). Refer to FV 4.5 for further detail on the fair value hierarchy.

Excerpt from ASC 820-10-35-36B

In all cases, if there is a quoted price in an active market (that is, a Level 1 input) for an asset or liability, a reporting entity shall use that quoted price without adjustment when measuring fair value...

ASC 820-10-35-40 through ASC 820-10-35-46 discuss other considerations when using Level 1 inputs.

4.7.1.1 Blockage factors

A blockage factor is a discount applied to reflect the inability to trade a block of the security because the market for the security, although an active one, cannot absorb the entire block at one time without adversely affecting the quoted market price. When measuring the fair value of a financial instrument that trades in an active market, ASC 820-10-35-36B prohibits the use of a blockage factor. However, when using the portfolio exception, because the unit of measurement is the net position of the portfolio, size is an attribute of the portfolio being valued, and consequently, a premium or discount based on size is appropriate if incorporated by market participants.

4.7.1.2 Control premiums

A control premium is an amount a buyer is willing to pay over the current market price of a publicly traded company to acquire a controlling interest in that company. ASC 820-10-35-36B indicates that control premiums are also not permitted as adjustments to Level 1 measurements.

4.7.1.3 Level 2 and Level 3 measurements

Certain premiums or discounts are permitted for instruments that are not classified as Level 1. When determining whether it is appropriate to include a premium or discount in a Level 2 or Level 3 fair value measurement, reporting entities should consider the following:

- Market participant assumptions
- The unit of account as defined by other guidance for the asset or liability being measured
- The unit of measurement
- Whether the premium or discount is related to the size of the entity’s holding of the asset or liability or reflective of a characteristic of the asset or liability itself
- Whether the impact of the premium or discount is already contemplated in the valuation

While the determination of fair value, including the application of premiums and discounts, is rooted in market participant assumptions, such application cannot contradict the unit of account prescribed in other guidance for the asset or liability being measured.

4.8 *Restricted assets – after adoption of ASU 2022-03—added September 2022*

If a reporting entity holds an asset that has restrictions on its sale, transferability, or use (i.e., a restricted asset), the impact of the restriction on fair value depends on whether the restriction is a characteristic of the asset, which, in turn, depends on the source of the restriction and its connection to the underlying security. The assessment of whether a restriction is a characteristic of the asset, and as such a part of the unit of account, can be judgmental.

In June 2022, the FASB issued ASU 2022-03, *Fair Value Measurements of Equity Securities Subject to Contractual Sale Restrictions*. ASU 2022-03 amended Example 6, Case A in ASC 820 and further clarified within ASC 820 that a contractual restriction on the sale of an equity security (for example, an underwriter lock-up agreement) is not considered part of the unit of account of an equity security. As a result, such restriction is not considered in measuring the fair value of the equity security.

Example 6, Case A: *Restriction on the Sale of an Equity Security* in ASC 820 (ASC 820-10-55-52 through ASC 820-10-55-52A) illustrates two examples of equity securities with a restriction on sale, one where the restriction is part of the unit of account of the asset and thus considered when measuring the fair value, and another example where the restriction is not part of the unit of account of the asset and thus not taken into account when measuring fair value (a contractual restriction). The example where a restriction is considered when measuring fair value relates to Class A shares that were issued through a private placement and that are legally restricted from being sold until such shares are registered (or an exemption from registration has been obtained). In that example, the restriction on Class A shares is part of the unit of account of the Class A shares and thus a market participant would consider the inability to resell the security in the fair value measurement of the security. The impact on the fair value measurement as a result of the restriction will vary depending on:

- the nature and remaining duration of the restriction;
- the extent to which buyers are limited by the restriction (for example, there might be a large number of qualifying investors); and
- qualitative and quantitative factors specific to both the instrument and the issuer.

In the second example within Example 6, Case A, a reporting entity holds Class A shares that are eligible for sale on a national securities exchange or an over-the-counter market. In that example, the reporting entity enters into a contractual arrangement to refrain from selling the Class A shares for a specified time period. In practice, such contractual arrangements are usually as a result of lock-up or market standoff agreements. In this case, because the restriction arose from a contractual arrangement that is not part of the unit of account of Class A shares, and therefore not a characteristic of the asset, there is no impact to the fair value measurement for the inability to sell the Class A shares.

In terms of transition, there is a notable distinction between investment companies, as defined in ASC 946, and non-investment companies. For non-investment companies, ASU 2022-03 is applied prospectively with adjustments resulting from the initial adoption recognized in earnings and disclosed. For investment companies, ASU 2022-03 is applied prospectively to any contractual sale restriction that is executed or modified *on or after* the date of adoption. An investment company that holds an equity security subject to a contractual sale restriction that was executed prior to adoption

would continue to account for the equity security using its existing accounting policy, until the contractual restriction expires or is modified.

ASU 2022-03 is effective for public business entities for fiscal years beginning after December 15, 2023, and interim periods within those fiscal years. For all other entities, the guidance is effective for fiscal years beginning after December 15, 2024, and interim periods within those fiscal years. Early adoption is permitted for both interim and annual financial statements that have not yet been issued or made available for issuance.

Refer to FSP 20.3.1.3 for the disclosure requirements for restricted equity securities as a result of ASU 2022-03.

4.8A Restricted assets – before adoption of ASU 2022-03— updated September 2022

If a reporting entity holds an asset that has restrictions on its sale, transferability, or use (i.e., a restricted asset), the fair value measurement should be adjusted to reflect the discount, if any, a market participant would apply as a result of the restriction. The impact of a restriction on the sale or use of an asset depends on whether the restriction is part of the instrument itself, and therefore, would be considered by market participants in pricing the asset.

Example 6, Case A: *Restriction on the Sale of an Equity Instrument* of ASC 820 (ASC 820-10-55-52 through ASC 820-10-55-53) illustrates a situation in which a reporting entity holds an equity instrument (a financial asset) for which sale is legally or contractually restricted for a specified period. For example, such a restriction could limit sale to only qualifying investors. The restriction is a characteristic of the instrument and, therefore, would be transferred to market participants. In that case, the fair value of the instrument would be measured on the basis of the quoted price for an otherwise identical unrestricted equity instrument of the same issuer that trades in a public market, adjusted to reflect the effect of the restriction. The adjustment would reflect the amount market participants would demand because of the risk relating to the inability to access a public market for the instrument for the specified period. The adjustment will vary depending on all of the following:

- the nature and duration of the restriction;
- the extent to which buyers are limited by the restriction (for example, there might be a large number of qualifying investors); and
- qualitative and quantitative factors specific to both the instrument and the issuer.

Example 6, Case A will be replaced with a new example as part of the adoption of ASU 2022-03. Refer to FV 4.8 for further details.

Also, Case B: *Restrictions on the Use of an Asset* in ASC 820 (ASC 820-10-55-54 through ASC 820-10-55-55) illustrates the impact of two different restrictions on the use of donated land to a not-for-profit organization. In those examples, the not-for-profit organization is perpetually restricted to use the donated land as a playground while owned by the not-for-profit organization; however, the organization is not restricted from selling the land. The donated land is also subject to an easement that gives a utility company the legal right to run power lines across it. In the instance of a perpetual restriction on the use of the property, it determines that the contractual restriction exists through an

agreement (donor agreement) that is separate and distinct from the asset itself. The restriction would not legally be transferred to market participants if the land were to be sold as it is not part of the deed or legal description of the property. Therefore, this asset restriction is specific to the not-for-profit organization and another owner could use the land for other purposes. In this case, the restriction is not considered in the fair value measurement of the land since the restriction is not an attribute of the asset itself and thus not a relevant input for market participants when determining the fair value of the land (that is, the not-for-profit organization would be required to measure fair value assuming the highest and best use for the land even if that use is not as a playground). In contrast, the easement for the utility lines is specific to the land and would transfer to a market participant. Therefore, the fair value measurement of the land would take into account the effect of the easement regardless of what the highest and best use of the land is.

***Chapter 5:
The fair value option—
updated March 2022***

5.1 *The fair value option: chapter overview*

Even when not required to be reported at fair value, US GAAP provides reporting entities with an option to measure many financial instruments and other items in the balance sheet at fair value. This chapter discusses the fair value option (FVO), which considerably expands the ability of a reporting entity to select the basis of measurement for certain assets and liabilities.

This chapter discusses overall concepts regarding election of the fair value option. In addition, see FV 7 for discussions on the application of the FVO to specific areas. Presentation and disclosure related to the FVO under US GAAP are addressed in FSP 20.6.

5.2 *The fair value option: relevant guidance*

Under US GAAP, the key standards that have a FVO include the following:

- ASC 815-15, *Derivatives and Hedging—Embedded Derivatives*, which provides a FVO for certain hybrid financial instruments that contain an embedded derivative that would otherwise require separation
- ASC 860-50, *Transfers and Servicing—Servicing Assets and Liabilities*, which permits a reporting entity to choose between the amortization method and the fair value measurement method for each class of separately recognized servicing assets and servicing liabilities
- ASC 825-10, *Financial Instruments—Overall*, which provides a measurement basis election for most financial instruments (i.e., a choice to use either historical cost or fair value), including equity method investments, allowing reporting entities to mitigate potential mismatches that arise under the current mixed measurement attribute model

In accordance with the requirements of the guidance, once the FVO election for a specific instrument is made, it is irrevocable for that instrument. Because the FVO is not a requirement, its election may result in reduced comparability of financial reporting, both among similar reporting entities and within a single entity, because similar assets or liabilities could be reported under different measurement attributes (i.e., some at historical cost and some at fair value). However, the disclosure provisions in the referenced topics are intended to mitigate this by requiring: (1) identification of instruments for which the option is elected and (2) extensive information about the effects on the financial statements.

5.3 *FVO Scope*

When determining eligibility for the fair value option, it is important to consider whether the item is within the scope of ASC 825.

ASC 825-10-15-4

All entities may elect the fair value option for any of the following eligible items:

- a. A recognized financial asset and financial liability, except any listed in the following paragraph

- b. A firm commitment that would otherwise not be recognized at inception and that involves only financial instruments (for example, a forward purchase contract for a loan that is not readily convertible to cash—that commitment involves only financial instruments—a loan and cash—and would not otherwise be recognized because it is not a derivative instrument)
- c. A written loan commitment
- d. The rights and obligations under an insurance contract that has both of the following characteristics:
 - 1. The insurance contract is not a financial instrument (because it requires or permits the insurer to provide goods or services rather than a cash settlement).
 - 2. The insurance contract's terms permit the insurer to settle by paying a third party to provide those goods or services.
- e. The rights and obligations under a warranty that has both of the following characteristics:
 - 1. The warranty is not a financial instrument (because it requires or permits the warrantor to provide goods or services rather than a cash settlement).
 - 2. The warranty's terms permit the warrantor to settle by paying a third party to provide those goods or services.
- f. A host financial instrument resulting from the separation of an embedded nonfinancial derivative instrument from a nonfinancial hybrid instrument under paragraph 815-15-25-1, subject to the scope exceptions in the following paragraph (for example, an instrument in which the value of the bifurcated embedded derivative is payable in cash, services, or merchandise but the debt host is payable only in cash).

ASC 825 also provides examples when entities are precluded from electing the fair value option. These examples include the financial assets and liabilities in ASC 825-10-15-5.

ASC 825-10-15-5

- a. An investment in a subsidiary that the entity is required to consolidate.
- b. An interest in a variable interest entity (VIE) that the entity is required to consolidate.
- c. Employers' and plans' obligations (or assets representing net overfunded positions) for pension benefits, other postretirement benefits (including health care and life insurance benefits), postemployment benefits, employee stock option and stock purchase plans, and other forms of deferred compensation arrangements, as defined in Topics 420; 710; 712; 715; 718; and 960.
- d. Financial assets and financial liabilities recognized under leases, as defined in Subtopic 840-10. (This exception does not apply to a guarantee of a third-party lease obligation or a contingent obligation arising from a cancelled lease.)
- e. Deposit liabilities, withdrawable on demand, of banks, savings and loan associations, credit unions, and other similar depository institutions.

- f. Financial instruments that are, in whole or in part, classified by the issuer as a component of shareholder's equity (including temporary equity) (for example a convertible debt security with the scope of the Cash Conversion Subsections of Subtopic 470-20 or a convertible debt security with a non-contingent beneficial conversion feature).

The FVO can generally not be elected for the above items because the accounting for these items is already addressed by specific accounting pronouncements, and the FASB concluded that the appropriate time for debating the measurement attribute for such items is during any reconsideration of those pronouncements. However, some insurance and investment contracts include features that permit the insured (or the investor) to withdraw (i.e., "demand") amounts specified in the contract; therefore, a question arises as to whether such contracts are subject to the exclusion applicable to demand deposit liabilities as discussed above. We believe the investor is eligible to elect the FVO for these contracts because the scope exception is limited to demand-deposit liabilities of specified financial institutions. However, the valuation of such insurance contracts would need to reflect the impact of the right of the insured/investor to withdraw.

5.3.1 Service contracts

The fair value option is not available for service contracts. In some cases, an item otherwise eligible for the fair value option may contain a significant service component. A general partnership interest, which is a financial instrument, may not be eligible for the fair value option if there is a significant service component. We believe this should be applied to any financial instrument that is otherwise eligible for the fair value option. Therefore, an entity should evaluate whether the service component embedded within an otherwise eligible asset or liability is significant to determine whether the item is eligible for the fair value option.

The determination of what constitutes a significant service component must be made in light of the particular instrument in question. Many financial instruments include implicit or explicit servicing components that are an inherent part of the instrument, but would typically not be considered significant. For example, a bank may initiate a loan and charge an 8% interest rate, 1% of which implicitly covers the cost to service the loan. Similarly, an insurance company may issue a variable annuity contract with an explicit fee that in part is meant to cover the costs incurred by the insurer to manage the investments purchased with the policyholder's deposit premium. If these fees are not significant at inception, are not expected to be significant in the future in comparison to the fair value of the instrument, and are comparable to a typical fee charged for such an instrument, election of the fair value option would not be precluded.

5.3.2 Hybrid financial instruments that are equity or contain an equity feature

As noted in FV 5.2, fair value option guidance is included in both ASC 815 and ASC 825.

ASC 815-15-25-4 allows a company that is required to separate a derivative from a hybrid financial instrument (e.g., convertible debt) to make an irrevocable election at the beginning of the contract to fair value the entire instrument with changes in fair value recognized in earnings. However, ASC 825-10-15-5(f) states that the fair value option cannot be elected for a financial instrument that is in whole or in part classified by the issuer as a component of shareholders' equity. The example provided in ASC 825 is that of a convertible debt security with a non-contingent beneficial conversion feature although it should be noted that the beneficial conversion feature model for convertible debt will be eliminated

upon the adoption of ASU 2020-06.¹ However, the substantial premium model will remain for convertible debt, which would still cause the hybrid instrument to be ineligible for the fair value option since a portion of the instrument will be recorded in shareholders' equity.

Derecognition and partial sales of nonfinancial assets

Therefore, hybrid financial instruments must be evaluated to determine if any component of the instrument will be recorded in shareholders' equity before determining if the instrument is eligible for the fair value option. Only hybrid instruments for which no component is recorded in shareholders' equity would be eligible to elect the fair value option.

5.3.3 *Derecognition and partial sales of nonfinancial assets*

ASC 610-20 addresses the derecognition of nonfinancial assets, including partial sales transactions in which the seller retains a noncontrolling equity interest in the entity that is transferred or has an equity interest in the buyer. An entity must recognize a full gain or loss on contributions to joint ventures of nonfinancial assets within the scope. Furthermore, entities have the opportunity to elect the FVO as a new basis (fair value) for equity ownership created when contributing nonfinancial assets to a joint venture.

5.4 *Application of the FVO*

US GAAP provides guidance regarding the application of the fair value option, including accounting for its election, timing, and presentation.

5.4.1 *Accounting election*

The financial instruments guidance in ASC 825-10 permits reporting entities to apply the FVO on an instrument-by-instrument basis. Therefore, a reporting entity can elect the FVO for certain instruments but not others within a group of similar instruments (e.g., for a portion of identical bonds issued by the same issuer). However, if the FVO is not elected for all eligible instruments within a group of similar instruments, the reporting entity is required to disclose the reasons for its partial election. In addition, the reporting entity must disclose the amounts to which it applied the FVO and the amounts to which it did not apply the FVO within that group.

ASC 825-10-25-7

The fair value option may be elected for a single eligible item without electing it for other identical items with the following four exceptions:

- a. If multiple advances are made to one borrower pursuant to a single contract (such as a line of credit or construction loan) and the individual advances lose their identity and become part of a

¹ ASU 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40)—Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*, is effective for public business entities, excluding smaller reporting companies as defined by the SEC, for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. For all other entities, the amendments are effective for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted.

larger loan balance, the fair value option shall be applied only to the larger balance and not to each advance individually.

- b. If the fair value option is applied to an investment that would otherwise be accounted for under the equity method of accounting, it shall be applied to all of the investor's eligible financial interests in the same entity (equity and debt, including guarantees) that are eligible items.
- c. If the fair value option is applied to an eligible insurance or reinsurance contract, it shall be applied to all claims and obligations under the contract.
- d. If the fair value option is elected for an insurance contract (base contract) for which integrated or nonintegrated contract features or coverages (some of which are called riders) are issued either concurrently or subsequently, the fair value option also must be applied to those features or coverages. The fair value option cannot be elected for only the nonintegrated contract features or coverages, even though those features or coverages are accounted for separately under Subtopic 944-30. Paragraph 944-30-35-30 defines a nonintegrated contract feature in an insurance contract. For purposes of applying this Subtopic, neither an integrated contract feature or coverage nor a nonintegrated contract feature or coverage qualifies as a separate instrument.

A single contract that is deemed to be a financial instrument may not be further separated for purposes of electing the FVO. One exception is a loan syndication arrangement that results in multiple loans issued to the same borrower. Under ASC 825-10, each of those loans is considered a separate instrument, and the FVO may be elected for some loans but not others.

In the US, many financial institutions have elected the fair value option for their mortgage loans held in the pipeline awaiting sale or securitization. This election obviates the need to meet the requirements to achieve hedge accounting as it allows for consistent fair value treatment of the loans and the related derivatives used to economically hedge the risks of holding the loans.

Some reporting entities may be precluded from engaging in security trading activities by law or regulation; these restrictions do not preclude election of the FVO.

Question FV 5-1

Does the fair value option, if elected by a reporting entity, have to be applied on an entity-wide basis? For example, is a subsidiary required to elect the fair value option for a particular financial instrument in its separate reporting if the parent company has elected the fair value option for the instrument for consolidated reporting?

PwC response

No. We believe that a parent and subsidiary may apply a different treatment because the fair value election under ASC 825-10-25 is not based on management's intent, as is the case with other areas of accounting (such as ASC 820).

The FASB considered requiring the FVO election to be made on an entity-wide basis. However, the FASB rejected this approach because it could limit the number of reporting entities that would elect the FVO. Accordingly, subsidiaries and parent companies may make different elections with respect to a particular financial asset or liability.

5.4.2 *Timing*

A reporting entity may elect the FVO only in certain circumstances, as described in ASC 825-10-25-4.

ASC 825-10-25-4

An entity may choose to elect the fair value option for an eligible item only on the date that one of the following occurs:

- a. The entity first recognizes the eligible item.
- b. The entity enters into an eligible firm commitment.
- c. Financial assets that have been reported at fair value with unrealized gains and losses included in earnings because of specialized accounting principles, but which subsequently cease to qualify for that specialized accounting. For example, a transfer of assets from a subsidiary subject to the Investment Companies guidance under Subtopic 946-10 to another entity within the consolidated reporting entity not subject to that Subtopic.
- d. The accounting treatment for an investment in another entity changes because the investment becomes subject to the equity method of accounting.
- e. An event that requires an eligible item to be measured at fair value at the time of the event but does not require fair value measurement at each reporting date after that, excluding the recognition of impairment under lower-of-cost-or-market accounting or other-than-temporary impairment or accounting for equity securities in accordance with Topic 321.

ASC 825 also discusses when remeasurement should occur. ASC 825-10 requires reporting entities to make a separate decision about whether to elect the FVO for each eligible item as its election date occurs. Entities may also elect the fair value option based on a pre-existing policy for specified types of eligible items. We believe that the level of documentation of such a policy may vary among reporting entities but that such documentation should be sufficiently clear so that it is easily understood which items are subject to the FVO election.

ASC 825-10-25-5

Some of the events that require remeasurement of eligible items at fair value, initial recognition of eligible items, or both, and thereby create an election date for the fair value option as discussed in ASC 825-10-25-4(e) are:

- a. Business combinations, as defined in ASC 805-10
- b. Consolidation or deconsolidation of a subsidiary or VIE
- c. Significant modifications of debt, as defined in ASC 470-50.

Question FV 5-2

Under US GAAP, the FVO may be elected when a previously-recognized financial instrument is subject to a remeasurement (new basis) event. What qualifies as a “remeasurement event”?

PwC response

The ASC Master Glossary defines a remeasurement (new basis) event.

Partial definition from the ASC Master Glossary

A remeasurement event is an event identified in other authoritative accounting literature, other than the recognition of an other-than-temporary impairment, that requires a financial instrument to be remeasured to its fair value at the time of the event but does not require that financial instrument to be reported at fair value continually with the change in fair value recognized in earnings.

For example, business combinations and significant modifications of debt under ASC 470-50 and ASC 310 are remeasurement events. Other examples of remeasurement events include the preparation of liquidation basis financial statements and fresh-start reporting for companies emerging from bankruptcy.

5.4.3 Collateralized financing entities

ASC 810-30 provides a measurement alternative that clarifies how to account for the difference between the fair values of the financial assets and liabilities of consolidated collateralized financing entities that elect the fair value option. Refer to FV 6.2.7.1 for further details.

5.4.4 Other considerations

ASC 825 requires immediate recognition of upfront costs and fees related to items for which the FVO is elected. For example, if the FVO is elected for an insurance contract, a reporting entity should not recognize any deferred acquisition costs related to that contract. Similarly, if the FVO is elected for a loan receivable, the reporting entity should not recognize any deferred loan-origination fees or costs related to that loan.

Immediate recognition of income and expense items that would be deferred absent election of the FVO might significantly change both the recognition pattern and the presentation of income or expense in the income statement. For example, for originated loans that are not measured using the FVO, deferred fees and costs are capitalized as a net basis adjustment and either amortized to interest income or recognized as part of the gain/loss on the sale of the loan. However, if an originated loan is measured using the FVO, the costs and fees are recognized in current earnings in the applicable expense or revenue accounts (e.g., salaries, legal fees, fee revenue).

5.5 *Credit risk in individual financial liabilities under the FVO*

When the entity's credit deteriorates, the interest rate used to discount the cash flows increases, causing the fair value of the liability to decrease, which results in an accounting gain. When the entity's credit improves, the interest rate decreases, the fair value of the liability increases, and the result is an accounting loss.

To address the counterintuitive impact on profit or loss arising as a result of a reporting entity's choice to measure its own liabilities at fair value, the FASB included guidance to record the effect of changes in own credit risk in other comprehensive income (OCI) in ASC 825.

5.5.1 *Scope: instrument-specific credit risk*

Under ASC 825, when the fair value option is elected for financial liabilities, changes in fair value due to changes in instrument-specific credit risk will be recognized separately in OCI. This provision does not apply to financial liabilities that are required to be measured at fair value with changes in fair value recognized in current earnings (e.g., derivative instruments).

The guidance also applies to hybrid financial liabilities that an entity has elected to account for at fair value in accordance with ASC 815, *Derivatives and Hedging*. An example of a hybrid financial liability is a debt obligation that is indexed to the price of gold and requires cash settlement. If the feature indexed to the price of gold is considered an embedded derivative, it would require separate accounting. Rather than separately accounting for the embedded derivative, an entity may irrevocably elect to initially and subsequently measure the hybrid financial liability in its entirety at fair value with changes in fair value reported in earnings. When doing so, an entity should still present separately in other comprehensive income the portion of the total change in fair value that results from a change in instrument-specific credit risk.

The accumulated gains and losses due to changes in instrument-specific credit risk are recycled from accumulated other comprehensive income and recognized in earnings over the life of the liability, or upon settlement if it is settled before maturity.

Measurement of the instrument-specific credit risk ASC 825-10-45-5 allows, but does not require, preparers to measure the change in instrument-specific credit risk as the portion of the periodic change in fair value that is not due to changes in a base market rate, such as a risk-free interest rate (the "base rate method"). An alternative method, however, may be used if it is considered to faithfully represent the portion of the total change in fair value resulting from a change in instrument-specific credit risk. The selected methodology is a policy election and will need to be disclosed and consistently applied to each financial liability from period to period.

The SEC staff has stated that the base rate method would not be appropriate when it does not appropriately isolate the portion of the total change in fair value resulting from instrument-specific credit risk.

An example when reporting entities would not be able to use the base rate method is a hybrid financial liability that consists of a debt obligation that is indexed to the price of a commodity, such as gold. This is because the fair value of that hybrid financial liability will be impacted, in part, by the price of the

commodity. As a result, reporting entities would need to perform an alternative calculation to isolate the instrument-specific credit risk.

The FASB did not intend to change how entities were identifying and measuring changes in instrument-specific credit risk from what had been previously disclosed under US GAAP. While no guidance was formally included in the codification, we understand that the FASB believes that entities could continue their practices in this area both with respect to disclosure and measurement of what is included in OCI.

See FSP 20.6.3.1 for the disclosure requirements related to changes in instrument-specific credit risk on liabilities for which the fair value option has been elected.

5.5.2 Accounting mismatch

During its deliberations on ASU 2016-01, the FASB also discussed instances when preparers elected the fair value option on non-recourse liabilities to avoid a mismatch in recognition from the assets that support them, such as in collateralized financing entities (see FV 6.2.7). They noted that some entities do not disclose changes in instrument-specific credit risk for nonrecourse liabilities. We understand that for these liabilities, entities can continue their current practice under the new guidance (i.e., if no amount is disclosed as instrument-specific credit risk, then no amount should be presented in OCI).

5.5.3 Changes in foreign currency rates

Questions have arisen regarding the interaction between the guidance in ASC 825 on instrument-specific credit risk and ASC 830, *Foreign Currency Matters*, when the fair value option is applied to financial liabilities denominated in foreign currency. Specifically, the questions relate to how an entity should account for changes due to a combination of changes in instrument-specific credit risk and foreign currency exchange rates.

We believe that changes in foreign exchange rates should impact both current earnings and OCI. Further, we believe that the amount reflected in AOCI is the portion of the change in fair value due to changes in instrument-specific credit risk in the currency in which the instrument is denominated, remeasured at period-end spot foreign exchange rates. Using other methods for measurement would result in balance sheet amounts that are translated at different rates, which is generally not acceptable.

Example FV 5-1 illustrates the calculation of the instrument-specific credit risk for inclusion in OCI.

EXAMPLE FV 5-1

Measurement of changes in instrument-specific credit risk on a foreign denominated liability

FV Company, an entity with US dollar functional currency, issues a liability denominated in euros on January 1, 20X1 and elects to measure it at fair value through profit or loss under the FVO. The fair value of the liability at issuance is €100. The principal and all accrued interest will be paid four years from inception.

At December 31, 20X1, the fair value of the liability is €110 (ignoring accrued interest). FV Company determines that €2 of the change in fair value is due to the change in the instrument-specific credit risk of the liability.

At December 31, 20X2, the fair value of the liability is still €110. There was no change in instrument-specific credit risk of the liability during the year.

Exchange rates (\$ for €1):

January 1, 20X1:	1
December 31, 20X1:	2
December 31, 20X2	2.5

How should FV Company reflect the change in the instrument-specific credit risk in OCI?

Analysis

FV Company should measure the amount to be recognized in OCI in its functional currency. It should remeasure the €2 (the portion of the total change in value that was due to changes in instrument-specific credit risk) based on period end spot rates ($€2 \times 2 = \$4$).

The fair value of the liability measured in the functional currency is \$220 ($€110 \times 2$), so the journal entry would be:

Dr. Loss	\$116 ^A	
Dr. OCI	\$4 ^B	
Cr. Debt liability		\$120 ^C

^A Change in fair value related to factors other than change in instrument-specific credit risk ($\$120 - \4)

^B The change in fair value due to instrument-specific credit risk x the spot rate on 12/31/X1 ($€2 \times 2$)

^C Fair value at 12/31/X1 ($\$220$) less fair value at issuance ($\$100$)

In 20X2, FV Company would perform a similar computation, on a cumulative basis. First, it would measure the €2 (the portion of the total change in value that was due to changes in instrument-specific credit risk) based on period end spot rates ($€2 \times 2.5 = \$5$).

The amount recognized in OCI on a cumulative basis would be the changes in instrument-specific credit risk since inception, remeasured at period end spot rate. The journal entry for the period would take into account what was recognized in prior periods.

The fair value of the liability measured in the functional currency is \$275 ($€110 \times 2.5$), an increase of \$55 since the prior year end, so the journal entry would be:

Dr. Loss	\$54 ^A	
Dr. OCI	\$1 ^B	
Cr. Debt liability		\$55 ^C

^A Change in fair value related to factors other than change in instrument-specific credit risk ($\$55 - \1)

^B The cumulative change in instrument-specific credit risk ($\$5$) less the amount previously recognized ($\$4$)

^C Fair value at 12/31/X2 ($\$275$) less fair value at 12/31/X1 ($\$220$)

The cumulative amount recognized in AOCI (in this case, \$5), equals the cumulative change in instrument-specific credit risk since inception (€2) translated at the period-end spot rate (2.5 dollars/euro).

5.6 Fair value option and hedge accounting

ASC 825 provides reporting entities with the option to report long-term debt at fair value instead of on an amortized cost basis. A reporting entity may elect to report its long-term debt at fair value for a number of reasons, including a desire to achieve a natural hedge without having to apply the hedging requirements of ASC 815.

In evaluating the use of the fair value option for long-term debt instead of application of hedge accounting, reporting entities should consider the potential impact on the financial statements as follows:

□ *Debt issuance costs*

When electing the fair value option, all debt issue costs must be expensed immediately, instead of amortized as part of the effective interest rate over the life of the debt.

□ *A full offset of fair value may not occur*

When electing the fair value option on the debt, the entire fair value of the debt must be recorded. In contrast, in the case of a fair value hedge under ASC 815, only that portion of the long-term debt attributable to the risk being hedged (e.g., interest rate risk) must be recorded at fair value. For example, under ASC 815, the changes in fair value attributable to the reporting entity's changes in credit would be ignored when determining the fair value of the debt to be recorded when the designated risk is the benchmark interest rate. However, if the reporting entity elects the fair value option, it will be required to reflect the impact of all changes in fair value of its debt in the income statement, except for changes in own credit risk, which must be presented in OCI.

□ *Income statement presentation*

Under ASC 815, all changes in the fair value of the derivative, including changes from interest accruals or net interest cash flows, should be presented in a single line item in the income statement. For qualifying ASC 815 hedging relationships, reporting entities should record the change in fair value of the derivative and present the interest accrual component in the same line item as the hedged item. Only when the hedged item is reported in multiple income statement line items should the income from the derivative be reported in different income statement line items to match the hedged item.

Other FVO considerations

A reporting entity should consider other implications of applying the FVO to its long-term debt, which requires full mark-to-market as discussed above. For example, recognizing changes in the debt's fair value in current earnings might adversely impact the entity's compliance with debt covenants and/or its regulatory and capital requirements. Similarly, debt issuance costs, which are often significant, are expensed immediately under the FVO. Further, under the FVO, reporting entities are required to independently estimate the change in fair value of the debt in accordance with the fair value guidance. Changes in the fair value of the derivative are not a proxy for the change in fair value of the debt.

***Chapter 6:
Application to financial assets
and financial liabilities—
updated March 2022***

6.1 *Financial assets and liabilities - chapter overview — updated September 2022*

This chapter discusses the application of ASC 820 to fair value measurements of financial assets and financial liabilities. It should be read in connection with the overall framework in FV 3, the key concepts in FV 4, and nonperformance risk in FV 8. This chapter assumed adoption of ASU 2016-13, *Measurement of Credit Losses on Financial Instruments*.

Recent standard setting

In June 2022, the FASB issued ASU 2022-03, *Fair Value Measurements of Equity Securities Subject to Contractual Sale Restrictions*. ASU 2022-03 amended Example 6, Case A in ASC 820 and further clarified within ASC 820 that a contractual restriction on the sale of an equity security (for example, an underwriter lock-up agreement) is not considered part of the unit of account of an equity security. As a result, such restriction is not considered in measuring fair value of the equity security. ASU 2022-03 is effective for public business entities for fiscal years beginning after December 15, 2023, and interim periods within those fiscal years. For all other entities, the guidance is effective for fiscal years beginning after December 15, 2024, and interim periods within those fiscal years. Early adoption is permitted for both interim and annual financial statements that have not yet been issued or made available for issuance. Refer to FV 6.2.4 for further details.

ASU 2016-13, *Measurement of Credit Losses on Financial Instruments* was effective for public business entities that are SEC filers for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years. For all other public business entities, ASU 2016-13 was effective for fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. For all other entities, including not-for-profit entities and employee benefit plans within the scope of ASC 960 through ASC 965 on plan accounting, the amendments are effective for fiscal years beginning after December 15, 2020, and interim periods within fiscal years beginning after December 15, 2021.

6.2 *Nonderivative financial assets*

Nonderivative financial assets, such as loans, may be recorded on the balance sheet based on a number of different models under US GAAP. If they are reported or disclosed at fair value, ASC 820 applies.

Key concepts to consider when applying ASC 820 to nonderivative financial assets include:

- *Unit of account*

The unit of account is generally the individual instrument (e.g., a share of stock).

- *Principal or most advantageous market*

The principal market is the market with the greatest volume of activity for the asset to which the reporting entity has access. In the absence of a principal market, the reporting entity should determine the most advantageous market.

- *Valuation approach*

An income or market valuation approach should be used as appropriate. The cost method is generally not appropriate for financial assets.

- *Market participant assumptions*

The valuation should include market participant, not entity-specific, assumptions. Accordingly, no adjustment for blockage factors is permitted (see FV 4.7.1.1).

- *Bid-ask spread*

The price within the bid-ask spread that is most representative of fair value in the circumstances should be used, but there are certain practical expedients (see FV 4.2.4.3).

- *Transaction costs*

Costs to sell are generally not included in determining fair value.

Other considerations for specific nonderivative assets and liabilities are addressed in the sections that follow.

6.2.1 Loans

Fair value is used in the measurement of loans in various circumstances. The classification of a loan under US GAAP generally depends on whether the loan meets the definition of a debt security under ASC 320 (see LI 3.2.2). In addition, US GAAP provides industry-specific guidance for mortgage banking entities.

A creditor holding loans that are not debt securities will use one of three models to report the loans on its balance sheet:

- Lower of amortized cost or fair value for loans held for sale
- Amortized cost less an allowance for credit losses for loans held for investment
- Fair value for loans for which the fair value option under ASC 825-10 is elected (discussed in FV 5)

A loan held for investment for which the fair value option has not been elected is recorded at amortized cost, and assessed for a credit allowance under the guidance in ASC 326. While the initial measurement of the loan and its basis after an allowance are not fair value measurements, a practical expedient in ASC 326-20-35-5 allows the allowance for a collateral dependent asset to be estimated using the fair value of the underlying collateral less costs to sell, if the borrower is experiencing financial difficulty and repayment is expected to be provided substantially through the sale or operation of the collateral. In this case, ASC 820 would apply.

6.2.1.1 Mortgage loans

ASC 948 provides industry-specific guidance for mortgage banking entities.

Mortgage loans held for sale represent a mortgage banker's "inventory" of products. ASC 948-310-35-1 states that mortgage loans held for sale should be reported at the lower of amortized cost or fair value.

When measuring the fair value of mortgage loans, there are a number of challenges in applying ASC 820-10-35-5 in determining the principal or most advantageous market. The principal market, or, in its absence, the most advantageous market, may be represented by either the loan market or, in some cases, by reference to the securitization markets. If a market exists for the item the reporting entity holds (i.e., the loan), that market should be used as the basis for the valuation.

If a market does not exist for the asset or liability being measured, but a market does exist for the securitized loan, the market for the securitized loan can be used to determine the fair value of the asset or liability, adjusted, as appropriate, for transformation costs and margins (or profit) to reflect the fair value of the asset or liability held by the reporting entity. Thus, a reporting entity may work backwards from the reference market for the securitized loan to derive a fair value for the asset in the state in which it exists at the measurement date. This is not the same as using the value of the securitized loan as a substitute for the value of the loan. Measurement under ASC 820 should focus on the asset or liability that is being valued (i.e., loans) and not on what the asset or liability may become (i.e., securitized loans). Accordingly, the adjustment to the fair value in the market for the securitized loan is a necessary step to arrive at the value of the individual loan.

6.2.1.2 *Measuring pools of loans*

Financial institutions typically manage their loan assets on a portfolio basis. ASC 820 requires reporting entities to measure fair value using assumptions that market participants would use, assuming they act in their economic best interest. The market participant in the context of mortgage loans typically would be another bank or insurance company that also has a portfolio of similar loans. The market participant purchasing a mortgage loan will act in its economic best interest by considering how the loan will fit into its overall portfolio when determining a price to pay for it. As a result, it is likely that a market participant will value the mortgage loan based on portfolio-level inputs, as opposed to valuing it solely as an individual loan.

However, ASC 820 requires financial institutions to consider the unit of account that is specified in other guidance. For loans held for sale, ASC 948-310-35-3 changes the unit of measurement by specifically allowing aggregation by type of loan to determine fair value. At a minimum, a reporting entity should make separate determinations of fair value for residential and commercial mortgage loans. Either the aggregate or individual loan basis may be used to determine the lower of amortized cost or fair value for each type of loan. The analysis should be consistent with the way the underlying loans are valued and ultimately sold by the reporting entity. The same policy will establish the unit of account to be used in the measurement of fair value under ASC 820.

Because allowances may be calculated at the portfolio level, we believe reporting entities may measure the fair value of loans held for sale using portfolio-level assumptions. This conclusion would also apply to determining the fair value of loans not held for sale. In those situations, market participants are generally banks or insurance companies that have portfolios of similar instruments and generally purchase a single loan because it fits into one of their existing portfolios. While the loans not held for sale are recorded at the individual loan or contract level, allowances may be calculated at the portfolio level.

6.2.1.3 *Loan commitments*

SAB 109 provides guidance on the measurement of written loan commitments recorded at fair value. SAB 109 expresses the SEC staff's view that, consistent with the guidance for transfers and servicing in ASC 860-50 and for financial instruments in ASC 825-10, the expected net future cash flows related to the associated servicing of the loan should be included in the measurement of all written loan commitments that are measured at fair value through earnings.

6.2.1.4 *Fair value in loan impairment calculations*

The measurement framework of ASC 820 applies when fair value is used to determine the carrying amount of held for sale loans. Additionally, allowances for certain loans supported by collateral may use practical expedients to simplify the estimate of credit losses. These practical expedients relate to certain collateral-dependent assets and certain assets with collateral maintenance provisions, and the allowance for impairment in these cases can be measured based on the difference between the fair value of the collateral and the amortized cost basis of the asset (adjusted, in certain cases, for the costs to sell the collateral). The measurement framework of ASC 820 applies when fair value is used to measure the allowance.

6.2.2 *Investments in equity and debt securities – updated June 2022*

Equity interests with readily determinable fair values are carried at fair value with changes in value recorded in earnings. ASC 321 provides a definition of readily determinable fair value. Equity interests without readily determinable fair values are initially measured at cost and subsequently remeasured to fair value if determined to be impaired or upon an observable, orderly transaction of the same or similar security from the same issuer. Outside ASC 321, there are other instances when securities without a readily determinable fair value are carried at fair value.

ASC 320 provides three models for the initial recording and subsequent adjustment of debt securities: trading, available-for-sale, and held to maturity. Debt securities may be recorded at fair value as either trading or available-for-sale. Under certain conditions, ASC 320 also permits a third option, held-to-maturity, under which debt securities may be recorded at amortized cost.

Equity securities recorded at fair value and debt securities treated as either trading or available-for-sale are subject to the measurement and disclosure requirements of ASC 820. Debt securities reported as held-to-maturity and carried at amortized cost are subject to the fair value disclosure requirements of ASC 825 (for financial instruments not measured at fair value) and ASC 820's disclosure requirements. In those cases, the fair values of held-to-maturity debt securities are required to be measured consistent with the provisions of ASC 820 when preparing the disclosures required by ASC 320 and ASC 825. Fair value disclosures are addressed in FSP 20. For more information on accounting for equity and debt securities, refer to LI 2.3 and LI 3.4, respectively.

For available-for-sale debt securities and equity interests measured using the measurement alternative, fair value may be relevant when recording an impairment. For available for sale debt securities, if a security is expected to be sold or it is more likely than not that a reporting entity will be required to sell the security before it recovers its amortized cost basis, and the fair value of the security is less than the amortized cost basis, the security should be impaired to its current fair value. For equity interests measured using the measurement alternative, the interest must be impaired to fair value if based on a qualitative assessment there are indications that the fair value is less than the carrying value. Upon these events, the measurement requirements of ASC 820 apply.

New guidance

In June 2022, the FASB issued ASU 2022-03, *Fair Value Measurements of Equity Securities Subject to Contractual Sale Restrictions*. ASU 2022-03 amended Example 6, Case A in ASC 820 and further clarified within ASC 820 that a contractual restriction on the sale of an equity security (for example, an underwriter lock-up agreement) is not considered part of the unit of account of an equity security. As a result, such restriction is not considered in measuring the fair value of the equity security. Refer to FV 6.2.4 for restricted security considerations as a result of ASU 2022-03.

The FASB issued ASU 2020-01 in January 2020 to clarify the interaction among the accounting standards for equity securities, equity method investments, and certain derivatives. The amendments are intended to address issues around (1) accounting for certain equity securities upon the application or discontinuation of the equity method of accounting, and (2) scope considerations for forward contracts and purchased options on certain securities. For public entities, the update was effective for fiscal years beginning after December 15, 2020 and for interim periods therein. All other entities have an effective date for fiscal years beginning after December 15, 2021 and interim periods therein. Early adoption is permitted, including adoption in an interim period.

ASU 2020-01 clarifies that a forward or option to purchase shares that will be accounted for as an equity method investment should be accounted for under ASC 321. A forward or an option with no intrinsic value at acquisition should be measured at fair value at exercise or settlement even if the measurement alternative is elected based on the guidance in ASC 815-10-35-6. While the scope of ASC 815-10-15-141 and ASC 815-10-15-141A does not include options with intrinsic value at acquisition, we generally believe the guidance should also be applied to options with intrinsic value. Subsequent to the adoption of ASU 2020-01, ASC 815-10-15-141A provides guidance on applying ASC 815-10-15-141 to forward contracts and purchased options of equity securities that will be within the scope of ASC 323 upon purchase. See LI 2.3.2.3 for a discussion of options or forwards accounted for under ASC 321. See PwC's *Equity method investments and joint ventures* guide for additional information on the application of ASU 2020-01.

6.2.3 *Investments in convertible securities*

In determining the fair value of an investment in a convertible security, the question arises as to whether the instrument should be evaluated in its current form as convertible debt or using the “if converted” value.

We believe the investor generally should evaluate the security in its current “all-in” form as convertible debt and not use the “if converted” value. It would be highly unusual for the “if converted” value to reflect the price a market participant would pay for the convertible instrument. That is because the holder generally would not exercise the option prior to its expiration, as it would then forfeit the remaining time value. Instead, the holder would sell the entire convertible security to another investor. One exception to this might occur when the conversion option is so deep in-the-money that it behaves as a forward; i.e., when the time value of the option is very small compared to the intrinsic value.

6.2.4 *Restricted securities – after adoption of ASU 2022-03 – added September 2022*

In June 2022, the FASB issued ASU 2022-03, *Fair Value Measurements of Equity Securities Subject to Contractual Sale Restrictions*. As noted in FV 4.8, ASU 2022-03 amended Example 6, Case A in ASC 820 and further clarified within ASC 820 that a contractual restriction on the sale of an equity security (for example, an underwriter lock-up agreement) is not considered part of the unit of account

of an equity security. As a result, such restriction is not considered in measuring the fair value of the equity security.

The impact on fair value of a restriction on the sale, transferability, or use of an asset depends on whether the restriction is a characteristic of the asset, which, in turn, depends on the source of the restriction and its connection to the underlying security. For a restriction to be considered an attribute of the security, the restriction should be specific to the security, not to the reporting entity holding the security. The key factor is whether the security itself carries the restriction (meaning, it is part of the unit of account of the security), or if the restriction exists due to the nature of the business of the reporting entity holding the security, or by any means other than restriction on transfer of the security itself.

Refer to FV 4.8 for further details on ASU 2022-03, including details of effective dates and transition considerations, which vary between investment companies, as defined in ASC 946, and non-investment companies. Further, ASU 2022-03 added new disclosure requirements for such contractually restricted equity securities, which are noted in FSP 20.3.1.3.

6.2.4A *Restricted securities – before adoption of ASU 2022-03 – updated September 2022*

As noted in FV 4.8, the impact on fair value of a restriction on the sale, transferability, or use of an asset depends on whether the restriction is a characteristic of the asset, which, in turn, depends on the source of the restriction and its connection to the underlying security.

Example 6, Case A: *Restriction on the Sale of an Equity Instrument* in ASC 820 (ASC 820-10-55-52) illustrates the impact of a legal restriction on the sale of an equity instrument. It notes that the “restriction is a characteristic of the instrument and, therefore, would be transferred to market participants.” Accordingly, the restriction should be considered in the valuation of the security as, presumably, it would be considered by market participants when determining the fair value of the security. However, if the restriction arises outside of the security, it would not be included in the valuation. This may occur as a result of side agreements or compliance with statutory requirements imposed on the holder of the security that are not a direct attribute of the security.

For a restriction to be considered an attribute of the security, the restriction should be specific to the security, not to the reporting entity holding the security. For example, a reporting entity holding a block of stock in another entity may also hold a board seat on the investee. Through the board seat, the reporting entity obtains material nonpublic information and, as a result, cannot sell the security until such information becomes public. Because the board seat is not a specific attribute of the security held, the restriction should not be considered in the valuation of the security. However, if it is the security itself that provides the right to a board seat, it might be considered in the valuation.

The key factor is whether the security itself carries the legal restriction, or if the restriction exists due to the nature of the business of the reporting entity holding the security, or by any means other than restriction on transfer of the security itself.

6.2.5 *Investments held by not-for-profit entities*

ASC 958 is the applicable guidance for not-for-profit reporting entities; its requirements for recording the value of investments are similar to ASC 320 and ASC 321. The key difference from ASC 320 and ASC 321 is that all equity securities with readily determinable fair values (as defined by ASC 958) and all debt securities are recorded at fair value on a recurring basis. Unlike ASC 320, there is no option to

record certain investments in debt securities at amortized cost. Fair value under ASC 958 is consistent with the definition in ASC 820.

6.2.6 Fund investments using NAV as a practical expedient

The NAV of an open-end fund, whether a registered investment company such as a mutual fund or an alternative investment such as a hedge fund, serves as the basis for subscription and redemption transactions for investors in the entity. If the investment is required to be measured at fair value under ASC 820, and does not have a readily determinable fair value, as discussed in LI 2.3.2, it may qualify for a practical expedient to determine the fair value of investments in certain funds (e.g., hedge funds, private equity funds, real estate funds, venture capital funds, commodity funds, funds of funds) using NAV, without adjustment, in certain defined circumstances. This practical expedient can be applied on an investment-by-investment basis, but should be applied consistently to the entire investment in that entity. Further, it is an accounting policy election and should be applied consistently from period to period, unless a change is preferable.

Using NAV as a practical expedient is permissible in the following circumstances:

- there is no readily determinable fair value for the investment, and
- the investment is in an entity that has all of the characteristics of an investment company specified in ASC 946, or
- if one or more of those criteria are missing, the investment is in an entity for which it is industry practice to issue financial statements using guidance consistent with ASC 946.

6.2.6.1 NAV of investments in structures similar to mutual funds

NAV as a practical expedient is allowed only if there is no readily determinable fair value for the investment. The definition of readily determinable fair value includes a reference to structures that are similar to mutual funds. The ASC Master Glossary does not define the term “mutual fund.” It is a popular name for an investment company, and therefore, in considering if an investment is in a structure similar to a mutual fund, a reporting entity should consider if the structure is similar to an investment company, as defined in ASC 946, *Financial Services—Investment Companies*.

Mutual funds registered with the SEC under the Investment Company Act of 1940 (the 1940 Act) are a common form of investment company. There are other investment funds that may be structured similar to a registered mutual fund that are not registered under the 1940 Act. Examples of such funds may include (but are not limited to) separate accounts, common collective or commingled trusts, hedge funds, and private equity funds.

6.2.6.2 Published NAV and the basis for current transactions

The readily determinable fair value definition in ASC 321-10-20 requires that to be readily determinable (and therefore ineligible for NAV as a practical expedient), an equity security’s fair value must be based on a fair value per share (unit) that is “published” and is the “basis for current transactions.” However, the literature provides no guidance on what it means for fair value per share (unit) to be published or how to consider whether it is the basis for current transactions. Thus, the evaluation of those terms requires judgment. Reporting entities need to develop definitions that are reasonable under the concepts in the guidance and apply them consistently.

If a fund's NAV is not considered to be published and the basis for current transactions, it does not have a readily determinable fair value. The reporting entity would consider other guidance for equity interests in ASC 325, or choose to elect the fair value option (discussed in FV 5) for the investment.

If the reporting entity is required to report the investment at fair value per ASC 820 for another reason (e.g., it is an investment company), it would need to evaluate whether the NAV qualifies under the guidance for NAV as a practical expedient.

Published

Funds generally report NAV per share (unit). Access to NAV per share information varies. Some information is widely accessible (e.g., NAV of a registered investment company that is published publicly), and would generally be considered published per the definition. However, in other instances, there is limited access to the NAV per share information (e.g., an alternative investment fund in which the NAV is only known to investors in the fund) In this case, the NAV may not be considered published, depending on the reporting entity's definition.

Basis for current transactions

A published NAV will only be considered fair value (and thus a necessary part of the readily determinable fair value definition) if it is the basis for current transactions. Reporting entities need to determine if they have the ability to redeem at NAV in the near term (i.e., they should consider both the contractual and practical ability to redeem).

Investors typically purchase mutual fund shares from the fund itself (or through a broker for the fund), not in a secondary market such as the NYSE or NASDAQ. In open-end funds, the price that investors pay for the mutual fund shares is the fund's per-share NAV. Open-end mutual fund shares are redeemable; investors sell the shares back to the fund at their approximate NAV, less applicable fees, with normal settlement provisions, which may indicate that NAV is a basis for current transactions.

Some closed-end funds trade on exchanges and may be traded at prices different than NAV, which may indicate that NAV is not the basis for current transactions.

Other fund structures, like limited partnerships or venture capital entities, may have restrictions on how frequently investors can redeem from the fund, which would impact the determination of whether the NAV is the basis for current transactions.

6.2.6.3 *Determining whether NAV is calculated consistent with ASC 946*

A reporting entity's management is responsible for the valuation assertions in its financial statements. Determining that a reported NAV is calculated consistent with ASC 946, including the measurement of all or substantially all of the underlying investments of the investee in accordance with ASC 820, requires a reporting entity to independently evaluate the fair value measurement process utilized by the investee fund manager to calculate the NAV. Such an evaluation is a matter of professional judgment and includes determining that the investee fund manager has an effective process and related internal controls in place to estimate the fair value of its investments that are included in the calculation of NAV. The reporting entity should have adequate controls to evaluate the process of the investee fund manager, which may include initial due diligence procedures, ongoing monitoring procedures, and financial reporting controls.

If the measurement of NAV is not calculated consistent with ASC 946, an adjustment to the NAV may be necessary. A reporting entity would need to consider and understand the reasons why the NAV is not based on fair value, whether an NAV that is based on fair value can be obtained from the investee management, and whether the specific data needed to adjust the reporting NAV can be obtained and properly utilized to estimate fair value based on NAV.

Before concluding that the reported NAV is calculated in a manner consistent with the measurement principles of ASC 946, the reporting entity might evaluate the evidence gathered via the initial due diligence and ongoing monitoring of the investee fund. Only after considering all relevant factors can the reporting entity reach a conclusion about whether the reported NAV is calculated in a manner consistent with the measurement principles of ASC 946.

6.2.6.4 *Calculating NAV at other than the measurement date*

NAV should be calculated as of the reporting entity's measurement date. If the measurement of NAV is not as of the reporting entity's measurement date, the reporting entity may either request that the investee fund manager provide a supplemental NAV calculation consistent with the measurement principles of ASC 946 or adjust the most recent measure of NAV to reflect significant events between the measurement dates. That is, the reporting entity may roll forward or roll back the reported NAV for factors that might cause it to differ from the NAV at the measurement date. These factors could include additional investments (capital contributions), distributions received or partial redemptions, and market changes or other economic conditions affecting the value of the investee's portfolio.

6.2.6.5 *Calculating NAV is not practical or a sale at other than NAV is probable*

It should be probable that the investment will not be sold at an amount other than NAV. If a reporting entity finds that it is not practical to calculate an adjusted NAV, or if it deems that a sale at other than NAV is probable (based on criteria in ASC 820-10-35-62), then the practical expedient is not available. The reporting entity may also elect not to utilize the practical expedient. In those instances, the reporting entity should instead apply the general measurement principles of ASC 820 to estimate fair value.

6.2.7 *Collateralized financing entities*

A collateralized financing entity, or CFE, is defined in the ASC Master Glossary.

Definition from the ASC Master Glossary

Collateralized Financing Entity: A variable interest entity that holds financial assets, issues beneficial interests, and has no more than nominal equity. The beneficial interests have contractual recourse only to the related assets of the collateralized financing entity and are classified as financial liabilities. A collateralized financing entity may hold nonfinancial assets temporarily as a result of default by the debtor on the underlying debt instruments held as assets by the collateralized financing entity or in an effort to restructure the debt instruments held as assets by the collateralized financing entity. A collateralized financing entity also may hold other financial assets and financial liabilities that are incidental to the operations of the collateralized financing entity and have carrying values that approximate fair value (for example, cash, broker receivables, or broker payables).

Collateralized loan obligations and other securitization vehicles are example of CFE's.

Consolidators of CFE's often elect the fair value option for the financial assets and liabilities to avoid accounting mismatches caused by financial asset impairments. Because the fair value of the CFE's financial assets and financial liabilities are measured independently, the periodic remeasurement can produce net gains (losses) each period not attributable to the beneficial interests held by the primary beneficiary. Although the recourse for a holder of a CFE's financial liabilities (beneficial interest holder) may be limited to the financial assets within the CFE, and the financial assets of the CFE may only be used to settle its financial liabilities, the methodologies and inputs used to separately fair value the financial assets and financial liabilities may produce different values for each.

The change was driven by concerns expressed by stakeholders that the income statement volatility arising from the different measurements of financial assets and liabilities did not provide decision-useful information, as it did not reflect the actual economic risks to which the reporting entity was exposed.

6.2.7.1 Measurement alternative

ASC 810-30-10 through ASC 810-30-16 provides a measurement alternative to address the potential measurement asymmetry. The measurement alternative permits entities to measure both the financial assets and financial liabilities owned by third parties of the CFE at the same value—using either the fair value of the financial assets or the fair value of the financial liabilities, whichever is more observable. This approach minimizes the parent's earnings impact resulting from the remeasurement of a consolidated CFE's financial assets and financial liabilities owned by third parties.

Reporting entities that consolidate a CFE that meets the scope requirements may choose to:

- measure the CFE's financial assets and financial liabilities in accordance with applicable GAAP,
- measure the CFE's financial assets and financial liabilities at fair value (through the fair value option), or
- follow the measurement alternative.

Under any of these elections, beneficial interests held by the parent and/or received as compensation for services provided to the CFE will continue to impact the income statement.

However, if a reporting entity elects the measurement alternative, the net gains (losses) reflected in its consolidated earnings will be limited to changes in the fair value of the beneficial interests it holds, as well as compensation for services provided, which is measured under other applicable guidance.

The fundamental premise behind the measurement alternative is that a CFE's financial assets and financial liabilities are inextricably linked (i.e., the CFE's financial assets can be used solely to settle its financial liabilities, and the CFE's financial liabilities can be settled only with its financial assets).

Eligibility

To be eligible for the measurement alternative, a CFE must meet the following two scope requirements:

- All of the CFE's financial assets and financial liabilities are required to be measured at fair value. If a CFE has financial assets or financial liabilities that are incidental to its operations (e.g., cash and

payables due to/from brokers) that are not measured at fair value, the parent would not be prohibited from applying the measurement alternative if the book value of the incidental financial assets and financial liabilities approximates their fair value.

- Changes in the fair value of those financial assets and financial liabilities are reflected in earnings.

CFE's may also hold nonfinancial assets and liabilities in certain circumstances (for example, assets acquired upon foreclosure). A CFE's ownership of nonfinancial assets would not prohibit its parent from electing the measurement alternative if the nonfinancial assets will be held temporarily.

The measurement alternative is designed to address the concerns about volatility related to consolidated securitization vehicles and asset-backed entities. However, any entity that consolidates a variable interest entity that meets the definition of a CFE would be eligible for the election.

A CFE's parent that has guaranteed all or a portion of the CFE's beneficial interests would not be eligible to elect the measurement alternative because the CFE's financial liabilities could potentially be settled with assets outside the CFE. Standard representations and warranties by the transferor of the CFE's collateral would not in and of itself preclude the CFE's parent from electing the measurement alternative.

Entities may have various economic interests in a CFE; e.g., direct ownership of beneficial interests and rights to compensation for services provided to the CFE. In the application of this measurement alternative, changes in the fair value of direct beneficial ownership interests retained by the entity should be reflected in consolidated earnings. The carrying value of beneficial interests that represent compensation for services, such as management fees or servicing fees, should be calculated under other applicable GAAP.

Calculation

When a reporting entity that elects the measurement alternative determines that the fair value of a CFE's financial assets is more observable, the CFE's financial liabilities (that are not eliminated in consolidation) are measured as:

The sum of:

- the fair value of the CFE's financial assets
- the carrying value of the CFE's nonfinancial assets
- the carrying value of any incidental financial assets

Less the sum of:

- the fair value of the CFE's beneficial interests held by the reporting entity, which are not eligible for the measurement alternative
- the reporting entity's carrying value of the CFE's beneficial interests held by the reporting entity that represent compensation for services (i.e., management or servicing fees)

When a reporting entity that elects the measurement alternative determines that the fair value of a CFE's financial liabilities is more observable, the CFE's financial assets are measured as:

The sum of:

- the fair value of the CFE's financial liabilities, excluding beneficial interests held by the reporting entity
- the fair value of beneficial interests held by the reporting entity other than beneficial interests received as compensation for services provided to the CFE
- the reporting entity's carrying value of beneficial interests held by the reporting entity that represent compensation for services (e.g., management fees or servicing fees)
- the carrying value of any incidental financial liabilities

Less:

- the carrying value of the nonfinancial assets held temporarily by the CFE

The result of either calculation should be allocated to individual financial assets (if the liabilities are more observable) or individual liabilities (if the assets are more observable) using a reasonable and consistent methodology.

6.2.7.2 Subsequent measurement

Upon the initial consolidation of a CFE, gains or losses resulting from the remeasurement of the CFE's financial assets and third-party financial liabilities should be recognized through earnings and attributed to the parent. This difference may not be allocated to noncontrolling interest or appropriated retained earnings; it should be reflected in the reporting entity's earnings and earnings per share.

If the measurement alternative is elected upon initial consolidation, subsequent remeasurement gains and losses will be limited to the CFE's economic interests that are held by the reporting entity (parent). This remeasurement includes the change in the fair value of the beneficial interests held by the reporting entity, as well as changes in the reporting entity's carrying value of beneficial interests received that represent compensation for services provided.

Once a reporting entity adopts the measurement alternative, it is required to consistently apply it for each subsequent reporting period as long as the consolidated CFE continues to meet the necessary conditions to apply it.

If a reporting entity that consolidates a CFE elects the measurement alternative, and that CFE fails to meet the scope requirements to apply the measurement alternative at a later date, application of the measurement alternative must be permanently discontinued and ASC 820 should be applied prospectively to remeasure that CFE's financial assets and financial liabilities. Any subsequent remeasurement gains or losses related to the CFE's financial assets and third-party financial liabilities should be included in the reporting entity's earnings and attributed to the reporting entity.

If a reporting entity that consolidates a CFE elects the measurement alternative and subsequently transfers financial assets into the CFE that are not accounted for at fair value through earnings, it would be prohibited from continuing to apply the measurement alternative in future periods. For example, a primary beneficiary of a consolidated CFE may transfer loans into the CFE that must be accounted for at amortized cost. In that scenario, the CFE would no longer meet the necessary conditions to apply the measurement alternative, thus requiring the primary beneficiary to remeasure both the CFE's financial assets and financial liabilities that existed prior to the loan transfer at fair value under the fair value option in future periods. Subsequent remeasurement of the CFE's financial assets at fair value would exclude the transferred loans that disqualified the CFE from continuing to apply the measurement alternative, which must follow an amortized cost model. Even if the financial assets that prevented the CFE from qualifying for the measurement alternative are sold in subsequent periods, the parent may not resume application of the measurement alternative. In other words, the measurement alternative may only be elected on the date a CFE is initially consolidated.

If the measurement alternative is elected, a reporting entity is implicitly electing the fair value option for the CFE's financial assets and financial liabilities. Because that election is irrevocable, the parent should "continue" application of the fair value option for the CFE's financial assets and financial liabilities if it is subsequently disqualified from applying the measurement alternative. Separately measuring the individual financial assets and financial liabilities of the CFE could give rise to measurement differences. In that scenario, any remeasurement differences must be attributed to the parent for purposes of calculating earnings per share.

6.3 Long-term debt

Long-term debt may be reported at amortized cost or at fair value in accordance with ASC 820. It is measured at fair value (1) when the reporting entity elects the fair value option provided by ASC 825, or (2) at the time it is assumed in a business combination.

ASC 820-10-35-16 makes clear that the fair value of debt—like all liabilities, which are addressed in FV 4.2.6—should not be based on a settlement or extinguishment value (e.g., amortized cost, adjusted for the deferred transaction costs, prepayment penalties, and premiums/discounts). Instead, measurement under ASC 820-10-35 assumes the debt will be transferred to a market counterparty with similar credit standing.

A valuation approach/technique could be one that uses the quoted price of the identical liability when traded as an asset. However, in the absence of an observable market for the transfer of a liability, which is generally the case, the fair value measurement is evaluated from the perspective of a market participant that holds the identical item as an asset at the measurement date.

If the liability isn't traded as an asset in the same market, the reporting entity would use another approach that is consistent with the principles of ASC 820-10-35-16BB. The other valuation approaches would be an income approach or a market approach with a measurement objective based on the amount at the measurement date that the reporting entity would pay to transfer or receive to enter into an identical liability.

Further, the reporting entity is required to assess nonperformance risk and any credit enhancements (e.g., guarantees). This is further discussed in FV 8.

6.3.1 *Actively-traded debt*

For most actively-traded debt, there is a rebuttable presumption that material differences do not exist between a purchase in an open market and a transfer-based fair value measurement. Market participants similar to the issuing entity should be indifferent to assuming the issuer's liability or issuing identical debt.

6.3.2 *Private debt*

The effort required to measure fair value will often be greater with private debt (e.g., private placement or borrowing arrangements entered into directly with a bank) than actively traded debt.

Nonperformance risk (including credit risk) of the reporting entity is required to be incorporated into the fair value measurement. When measuring the fair value of private debt, a reporting entity may use prices available for its own existing public debt (or public debt of other similar reporting entities with the same credit standing), with the same key terms, as a starting point. However, it may be necessary to make adjustments for market participant assumptions about nonperformance or other risks (such as model risk).

ASC 820-10-05-1C indicate that when a price in an active market for an identical liability is not available, a reporting entity should measure fair value using a valuation technique that maximizes the use of relevant observable inputs and minimizes the use of unobservable inputs.

Because pricing inputs for nonpublic debt may not be observable, nonpublic debt may often be classified as a Level 3 fair value measurement in the fair value hierarchy. For discussion of the fair value hierarchy, see FV 4.5.

6.3.3 *Acquired debt*

Debt assumed in a business combination is initially measured at fair value and then subsequently measured at amortized cost.

When a reporting entity with listed debt is acquired, the traded price of the debt often changes to reflect the credit enhancement expected to be provided by the acquirer (i.e., the trading price will reflect the market's assumption that the debt will become a liability of the new group).

The credit standing of the combined entity in a business combination will often be used in determining the fair value of the acquired debt. For example, if acquired debt is expected to be credit-enhanced because the debt holders are expected to become general creditors of the combined entity, the valuation of the acquired debt would reflect the characteristics of the acquirer's post-combination credit rating.

If the acquirer is not expected to legally add any credit enhancement to the debt or in some other way guarantee the debt (i.e., the debt will continue to be secured only by the net assets of the acquired entity), the fair value of the debt may not change.

The ASC 805 business combinations standard requires the fair value of debt to be determined as of the acquisition date. If the acquiree has public debt, the quoted price should be used. If the acquiree has both public and nonpublic debt, the price of the public debt should also be considered as one of the inputs used to value the nonpublic debt.

6.4 *Servicing assets and servicing liabilities*

Servicing assets and liabilities are contracts to service financial assets. They are either assets or liabilities, depending on whether the fees paid to the servicer are expected to be more or less than adequate compensation for the servicing. They are not financial assets and financial liabilities. However, the valuation of servicing assets and liabilities is similar to how financial instruments are valued, and therefore they are included in this chapter.

Servicing rights are recognized when a reporting entity transfers a financial asset in a transfer that qualifies for derecognition in its entirety but retains the right to service the financial asset for a fee. Such rights are recognized even if the fee is zero or if the right to service is obtained from a third party. ASC 860-50 requires the reporting entity to recognize either a servicing asset or a servicing liability for a servicing contract as follows:

- If the fee to be received is expected to be more than adequate compensation for the servicing, recognize a servicing asset for the servicing right.
- If the fee to be received is not expected to compensate the reporting entity adequately for performing the servicing, recognize a servicing liability for the servicing obligation at its fair value.

Servicing rights do not meet the definition of a financial instrument because they represent a commitment to supply a service and can only be settled by delivery of the service. However, since servicing rights are essentially an expected stream of cash flows that result from a contractual agreement, they are similar to financial instruments and should be recognized and initially measured on the same basis as financial assets and liabilities. Therefore, servicing assets and liabilities are subject to the measurement requirements of ASC 820 when initially recognized at fair value.

US GAAP allows a fair value option for servicing assets and liabilities, which aligns their measurement with that of derivatives, which are measured at fair value.

6.5 *Derivative assets and derivative liabilities*

Derivative assets and liabilities within the scope of ASC 815 are required to be recorded at fair value at inception and on an ongoing basis. Applying ASC 820 to derivatives may be complex, depending on the terms of the instruments and the source of valuation information. Derivatives may be financial assets and liabilities (e.g., interest rate swaps) or nonfinancial assets and liabilities (e.g., commodity contracts). This chapter discusses all derivatives, as the process to determine a valuation is generally the same whether a derivative is a financial or nonfinancial instrument.

Application of ASC 820 to derivative assets and liabilities requires consideration of the following:

- *Unit of account*
As defined by ASC 815 the unit of account is generally the contract, unless the portfolio exception discussed in FV 6.6 can be elected.
- *Principal or most advantageous market*
The principal market is the market with the greatest volume of activity for the instrument to which the reporting entity has access. ASC 820-10-55-46 through ASC 820-10-55-49 (Example 5)

illustrates a situation in which different swap counterparties, a swap dealer and a retail counterparty, execute a swap in the retail market, but have different principal markets.

The dealer's principal market for the swap is the dealer market. The example notes that if the dealer were to sell the swap, it would be to another dealer. Thus, it is in the dealer-to-dealer market.

For the retail counterparty, the principal market is the retail market because the retail counterparty cannot access the dealer market. However, the example indicates that if it were selling the swap, the sale would be to a dealer in the retail market, not to another retail counterparty. Thus, it is in the retail-to-dealer market.

In the absence of a principal market, the reporting entity must determine the most advantageous market.

For general information on determining principal or most advantageous market, see FV 4.2.2.

□ *Hypothetical market*

If the reporting entity is not able to access an actual market, it should determine a hypothetical market and the characteristics of relevant market participants.

□ *Measurement of fair value*

Quoted market prices in active markets are the best evidence of fair value and are to be used if available. However, many derivatives are not exchange-traded; therefore, it is likely that a valuation technique will have to be applied to measure fair value.

□ *Valuation approaches/valuation techniques*

The income and market approaches will generally be used when measuring the fair value of derivative instruments. For plain-vanilla swaps, a market approach would include obtaining accommodation quotes from dealers (with testing by the reporting entity). The income approach would involve a discounted cash-flow analysis based on available forward yield curves for plain-vanilla swaps of the same type.

Regardless of the technique, the reporting entity should incorporate market participant assumptions, including model adjustments for risk if market participants would do so.

For general information on valuation approaches and techniques, see FV 4.4.

□ *Nonperformance risk*

ASC 820-10-35-17 requires incorporation of nonperformance risk (including credit risk of both the reporting entity and the counterparty) into the valuation of both assets and liabilities, including those arising from derivative contracts, if such nonperformance risk would affect the price received to sell the derivative in an asset position or paid to transfer the derivative in a liability position in an orderly transaction with market participants.

As with other elements of fair value measurement, nonperformance risk should be measured from the perspective of external market participants. Some of the factors that would reduce nonperformance risk for derivatives include: master netting agreements that are effective upon default, collateral arrangements, and termination provisions. See further discussion of considerations for measuring counterparty credit risk in FV 8.

- “Day one” gains and losses

Under US GAAP, “day one” gain or loss is recognized if the transaction price and exit price are different at inception, even if based on unobservable inputs, assuming appropriate application of the models and valuation adjustments.

6.5.1 Cleared derivative contracts

Derivative contracts such as credit default swaps and interest rate swaps may be cleared through one of various clearing houses. Each clearing house may have a different method for calculating the daily variation margin. More specifically, the clearing house provides a “value mark” used to determine the amount of variation margin required to be moved. This value mark is generally not a “price” for the instrument as it is not a value at which a reporting entity could execute the trade at that particular point in time. As a result, this value mark is not considered an exit price or a Level 1 fair value input. However, the value mark is one data point that an end-user may consider in determining fair value.

The value provided by the clearing house and clearing member may not be solely attributed to changes in the valuation of the derivative. Reporting entities should keep this in mind when measuring their derivatives’ fair values in accordance with ASC 820.

Reporting entities should evaluate the specific facts and circumstances related to their portfolios, and assess clearing house values in a manner similar to vendor or counterparty prices.

Refer to FV 8.1.1.1 for further considerations related to the valuation of a financial derivative contract cleared through a clearing house.

6.6 Measuring portfolios of financial instruments

ASC 820-10-35-18D includes an exception to the general unit of valuation principles when the reporting entity does both of the following:

- Manages the group of financial assets and liabilities on the basis of the reporting entity’s net exposure to a particular market risk (or risks), or to the credit risk of a particular counterparty
- Reports information to management about the group of financial assets and financial liabilities on a net basis

The “portfolio exception” applies to portfolios managed based on credit risk if the mitigation of credit risk across the portfolio of assets and liabilities held by a particular counterparty is legally enforceable.

The portfolio exception allows fair value to be measured based on the portfolio’s net position for the risks being managed (i.e., the price that would be received to sell a net long position or transfer a net short position for a particular market or credit risk exposure). This represents an exception to how financial assets and financial liabilities are measured under ASC 820, which otherwise requires each financial asset or liability within a portfolio to be considered a separate unit of account and measured on a gross basis.

When the unit of account is the individual financial instrument, aggregation or offsetting of instruments to determine fair value would not be permitted. In addition, the ability to apply premiums

and discounts in the measurement of each financial instrument would be more restrictive than absent use of the portfolio exception.

However, when a reporting entity elects the portfolio exception, the unit of measurement becomes the net position of the portfolio. In applying the portfolio exception, the valuation should be performed based on the price a market participant would pay (or be paid) to acquire the entire portfolio in a single transaction. In essence, this valuation would reflect the “net open risk” of the portfolio. Because the unit of measurement is the net position of the portfolio, size is an attribute of the portfolio being valued, and consequently, a premium or discount based on size is appropriate if incorporated by market participants.

The portfolio exception is available for financial assets and liabilities that can (pursuant to the fair value option) or must be measured at fair value on a recurring basis in the balance sheet. It does not apply to assets and liabilities for which fair value is only disclosed, or for which fair value is not measured on a recurring basis.

The portfolio exception pertains to fair value measurement, not to financial statement presentation. Whether the instruments in the portfolio or group can or must be presented on a net or gross basis in the financial statements depends on other guidance. Therefore, while the fair value of financial instruments managed within a group may be determined based on the net position when using the portfolio exception, the reporting entity should still allocate the resulting fair value based on the unit of account required by other guidance for those instruments. ASC 820-10-35-18F does not prescribe any allocation methodology; rather, the allocation should be performed in a reasonable and consistent manner that is appropriate in the circumstances. See FV 8.2.4.1 for further discussion of allocation methods.

6.6.1 *Electing the portfolio exception*

A reporting entity that elects use of the portfolio exception is required to support the assertion that the portfolio is managed based on the net exposure to market or credit risk. Examples of such support could include robust documentation of the reporting entity’s risk management or investment policies and strategies, risk committee meeting minutes, and internal management reporting information. In addition, management may want to consider the types and composition of portfolios the reporting entity has historically managed.

The portfolio exception is an accounting policy election and should be applied consistently from period to period. Management should support that it continues to manage risk exposures on a net basis in order to continue to qualify for the exception.

Since significant changes in risk management strategies are rare, changes in a reporting entity’s use of the portfolio exception are likewise expected to be infrequent.

6.6.2 *Net exposure of market risks*

Market risks refer to interest rate risk, currency risk, or other price risk.

The portfolio exception requirement relating to managing net exposure to market risk is limited to those risks that are substantially the same in nature and duration. Therefore, in applying the portfolio exception, it would be inappropriate to net a portfolio of unrelated risks, such as interest rate risk, currency risk, or other price risk.

Basis risk arises from a combination of two or more risks; it represents the risk that the underlying risks in the transaction or portfolio will not fluctuate in perfect correlation. We believe the portfolio exception can be applied to basis risk, provided that it is taken into account in the fair value measurement. As a result, provided a reporting entity meets the criteria for applying the portfolio exception, it would be appropriate to measure the fair value of financial instruments with different interest rate bases (e.g., LIBOR and treasury rates) on a net basis.

6.6.2.1 Degree of offset

When considering whether the portfolio exception is available for a group of financial assets and/or liabilities for a particular market risk, the reporting entity should consider the degree of exposure (or offset) of market risk to arrive at a net long or net short position. ASC 820-10-35 does not prescribe how much of a long or short position is permitted to qualify for the portfolio exception. For example, there is no requirement that assets in a portfolio with a certain risk be nearly 100% offset by liabilities. Rather, a reporting entity should assess the appropriateness of electing the portfolio exception based on the nature of the portfolio being managed in the context of its risk or investment management strategy. Broad risk management strategies, such as managing on the basis of value-at-risk (VAR), may not be sufficient alone for a group to be eligible for the portfolio exception because managing based on VAR is not necessarily the same as managing a business or portfolio to a net position.

We do not believe that there are bright lines or target percentages to determine whether there is sufficient offset of risk positions in a group or portfolio. However, we also believe it would be inappropriate to apply the portfolio exception to a portfolio with an aggregated position without offset or hedging (e.g., an aggregated block of equity shares). Such a position may relate to a trading strategy that is not managed on a net basis.

Furthermore, if the positions in a portfolio do not offset at the measurement date in accordance with expectations, the reporting entity may continue to use the portfolio exception at that measurement date, provided the lack of offset is temporary and due to unanticipated market events or operating conditions.

Finally, the portfolio exception should be applied based on the substance of the portfolio and how it is managed. For example, it would be inappropriate to enter into a non-substantive offsetting position in an attempt to qualify for the portfolio exception solely to be eligible to apply a blockage adjustment.

6.6.2.2 Mismatches in the portfolio

In applying the portfolio guidance, valuation of the net open risk position is required. Market participants may value a portfolio with basis risk differently than one that was perfectly hedged. The following are some examples of mismatches in the portfolio that affect the measurement of fair value.

Basis differences

Portfolios with basis differences may qualify for the portfolio exception. If there is any basis difference for dissimilar risks, the reporting entity should reflect that basis risk in the fair value of the net position. For example, a reporting entity may include financial instruments with different (but highly correlated) interest rate bases in one portfolio, provided the reporting entity manages its interest rate risk on a net basis. However, reporting entities should consider any difference in the interest rate bases (e.g., LIBOR vs. Treasury) in the fair value measurement.

Duration differences

Similar to basis differences, portfolios containing offsetting positions with different maturities may qualify for the portfolio exception. Reporting entities should adjust the fair value of the portfolio's net position for such duration mismatches. Therefore, unmatched (or unhedged) portions of the terms to maturity of the financial assets and liabilities that form part of the portfolio could result in an adjustment to the net position. For example, in a portfolio of interest rate swaps with long (asset) positions of 30 years to maturity offset with short (liability) positions of 25 years to maturity, the reporting entity could avail itself of the portfolio exception for the net position for interest rate risk. However, the reporting entity would measure the five years of unhedged long position as part of the net position.

Question FV 6-1 addresses whether a company can apply the portfolio exception for offsetting market price risk in common shares of an entity.

Question FV 6-1

FV Company owns one million common shares of Entity X and enters into a forward sale agreement for 500,000 additional shares of Entity X. FV Company accounts for the shares at fair value using the fair value option. FV Company documents and manages the long position of shares and the forward sale agreement together as a net position according to its investment strategy.

Can FV Company apply the portfolio exception for offsetting market price risk? Specifically, could FV Company value the net position based on the price that is most representative within the bid-ask spread, by incorporating a discount to the net position if this is how market participants would price the net risk exposure?

PwC response

Maybe. The portfolio exception changes the unit of measurement to the net position (rather than each individual share). Management should consider whether the degree of offset in the position is meaningful and determine whether the particular strategy is consistent with its overall investment policies and strategies.

Question FV 6-2 illustrates whether a company can apply the portfolio exception for offsetting interest rate risk positions with identical duration.

Question FV 6-2

FV Company has \$500 million in 10-year pay 3-month LIBOR, receive fixed rate interest rate swaps (liability position) and \$200 million in 10-year receive 3-month LIBOR, pay fixed rate interest rate swaps (asset position) that FV Company manages together and documents as a \$300 million net liability position for purposes of managing interest rate risk.

Can FV Company elect the portfolio exception?

PwC response

Yes. When elected, the portfolio exception allows a reporting entity to measure the fair value of those financial assets and financial liabilities based on the net positions of the portfolio. Assuming the

reporting entity has met the requirements for electing the portfolio exception, the exception permits FV Company to determine fair value based on how market participants would price the net risk exposure within the bid-ask spread. FV Company would adjust the bid-ask spread of the \$500 million short position and the \$200 million long position to a new bid-ask spread for the net short \$300 million position based upon how market participants would price the net risk exposure at the measurement date.

In this example, the interest rate risk exposure on the long and short positions (three-month LIBOR) and the terms to maturity (10 years) are identical so there is no need to adjust for basis or duration mismatches. However, FV Company should consider any need for a counterparty credit risk adjustment.

Question FV 6-3 discusses the ability to apply the portfolio method when positions have different durations. Question FV 6-3 illustrates the application of the portfolio exception when the offsetting asset and liability have different durations.

Question FV 6-3

FV Company has \$500 million in 10-year pay 3-month LIBOR, receive fixed rate interest rate swaps (liability position) and \$200 million in 10-year receive 3-month LIBOR, pay fixed rate interest rate swaps (asset position) that FV Company manages together and documents as a \$300 million net liability position for purposes of managing interest rate risk.

Assume that the long position (i.e., the \$200 million swap asset) has a term to maturity of 12 years instead of 10 years. FV Company documents its holding as a \$300 million net liability position for purposes of managing interest risk.

Can FV Company elect the portfolio exception?

PwC response

Yes, but FV Company would be required to adjust the fair value on the 10-year net position for the additional two years of net open risk. The fair value for the remaining two-year period on the 12-year swap would impact the valuation of the net position.

6.6.3 Exposure to counterparty credit risk

When applying the portfolio exception to a portfolio in which a specific counterparty's credit risk is managed on a net basis, the reporting entity should consider market participants' expectations about whether any arrangements in place to mitigate credit risk exposure are legally enforceable in the event of default (for example, through a master netting arrangement). In a portfolio of financial assets and liabilities within a master netting arrangement, the adjustment for credit risk could be applied to the net exposure to the counterparty, rather than to each of the financial assets and liabilities separately. The adjustment will be applied to the net position based on the individual counterparty's credit risk in the case of a net asset position or the reporting entity's own credit risk in the case of a liability position. The portfolio exception does not change the requirement to incorporate a credit valuation adjustment (CVA) or debit valuation adjustment (DVA) on a net open asset or liability position, respectively.

6.6.4 *Portfolios of financial instruments and nonfinancial instruments*

As originally written in ASC 820-10-35-18D, derivatives that do not meet the definition of a financial instrument did not qualify for the portfolio exception. This includes, for example, physically-settled commodity derivative contracts or combinations of cash-settled and physically-settled commodity derivative contracts.

ASU 2018-09 revised the language in the guidance (ASC 820-10-35-18D through 820-10-35-18F and ASC 820-10-35-18H through ASC 820-10-35-18L) to include not only financial assets and liabilities (as previously written), but also financial and nonfinancial derivatives subject to ASC 815. The correction allows reporting entities to measure fair value on a net basis for those portfolios containing financial assets and liabilities and nonfinancial derivatives. The update was effective upon issuance of ASU 2018-09.

6.7 *Changes in market participant assumptions*

Market participant assumptions related to the valuation of financial instruments continue to evolve, even for “plain vanilla” products. Some changes result from the market’s response to dislocations observed during the credit crisis. Others result from the natural evolution in markets or valuation theory and practice.

Examples of recent evolutions in valuing financial instruments include the use of overnight index swap (OIS) discounting and funding valuation adjustments (FVA).

6.7.1 *OIS discounting – US GAAP*

Derivative dealers and many end users have utilized collateral for many years to mitigate the risk of default by a party to the transaction. For bilateral transactions (i.e., those entered into between two parties and not cleared through a clearing house), the collateral posting has commonly been governed by a Credit Support Annex (CSA) to the International Swap Dealers Association, Inc. Master Agreement or similar agreements between the parties.

The terms of a CSA typically address:

- the nature of the collateral permitted to be posted (e.g., US dollar cash or Treasuries),
- how the amount of that collateral will be calculated,
- what interest rate is required to be paid on collateral amounts deposited with the other party (often based on the Fed Funds rate for cash posted in US dollars), and
- whether the parties to the derivative transaction have the right to use the amount posted as collateral for other business purposes (rehypothecation rights) or if it must be held in segregated accounts.

During the financial crisis, market participants observed that collateral previously considered to principally mitigate credit risk could also provide a significant funding benefit. Cash deposits received under CSAs typically require interest payments at a low rate (such as the Fed Funds rate), and the collateral balances essentially represented a low cost source of funding if amounts posted were available for use and acceptable as collateral. As a result, the economic benefit of these collateral terms

began to be incorporated in transaction pricing by derivative dealers. The benefits are typically incorporated by discounting the cash flows on transactions using a rate that approximates the collateral funding rate (such as the OIS rate for collateral on which interest was paid at the Fed Funds rate) rather than a rate such as the London InterBank Offered Rate (LIBOR).

Cash collateral may be posted in other major currencies, such as sterling, euro, and yen, resulting in pricing based on discounting using the corresponding OIS-equivalent rate (Sterling OverNight Index Average, Euro OverNight Index Average, or Yen OIS, respectively). Similarly, when acceptable securities are posted as collateral, the economic benefits may be realized by placing such securities on deposit with central banks, or by entering into collateralized repurchase agreements.

Discounting at OIS by dealers and their customers to incorporate this funding benefit on collateralized transactions has evolved in the past several years, and has been more consistently applied over that time. This can be seen in the bilateral market in trading activity, which is increasingly based on OIS discounting, and in the financial statement disclosures of leading financial services firms.

Others have also noted that pricing is evolving to incorporate consideration of the funding benefit. In 2013, the FASB permitted the Fed Funds Effective Swap Rate (or OIS) to be a benchmark interest rate for purposes of applying the hedge accounting guidance. At the time, the FASB noted in the basis for conclusions that the exposure to OIS had increased as a result of the financial crisis. The FASB further noted that the use of OIS as a discount rate to value collateralized derivatives had increased because that rate reflects the lower cost of financing a collateralized instrument.

6.7.1.1 OIS discounting – an illustration

The Fed Funds rate is the interest rate at which depository institutions actively lend balances held at the Federal Reserve to each other, usually on overnight terms. Institutions with surplus balances in their accounts lend those balances to institutions in need of larger balances. The weighted average of this rate across all such transactions on any given day is the daily Fed Funds effective rate. The related Fed Funds Effective Swap Rate, or OIS, is the fixed rate on an interest rate swap that has its variable-rate leg referenced to the Fed Funds effective rate. That fixed rate is the derived rate that would result in the swap having a zero fair value at inception because the present value of fixed cash flows, based on that rate, equates to the present value of the variable cash flows.

To price a derivative instrument, such as an interest rate swap, valuation models typically estimate the future contractual cash flows the counterparties agree to exchange periodically over the life of the contract. Historically, entities have approximated the mid-market value of the transaction by discounting those cash flows based on the LIBOR discount rate.

As a result of the evolution in the market for collateralized transactions, most major derivative dealers discount the cash flows on certain derivative transactions at a rate appropriate to the terms of the collateral (for bilateral derivatives) or variation margin (for cleared agreements).

A common example is a derivative transaction executed with a CSA, which requires that:

- US dollar cash collateral must be posted daily to offset the full mid-market value of the swap (i.e., zero threshold)
- the party receiving collateral must pay interest on the collateral amounts deposited at the Fed Funds rate

- the party receiving the collateral has rehypothecation rights to use the cash collateral for other business activities (“fully cash collateralized”)

For an instrument such as a USD fixed-float interest rate swap under these CSA terms, market participants would be expected to value the swap by discounting the cash flows at the OIS rate.

In valuing certain collateralized derivatives, entities should assess whether OIS discounting is appropriate. Some of the questions to consider include:

- What is the principal market?
- What are the implications to end users?
- What are the implications beyond collateralized derivatives?
- Which transactions should be valued using OIS discount rate, considering different collateral terms across different credit support annexes?
- How the determination of discount rate should be documented?
- What modifications to systems and processes may be necessary over time?

6.7.1.2 *Principal market for derivatives*

Because fair value is based on the exit price, not the transaction price, entry price, or settlement price, the fair value of a derivative is the price at which a novation transaction (i.e., when a derivative is transferred to a new counterparty that “steps into the shoes” and assumes the contract) would occur. In markets in which transfers of derivative instruments are uncommon, transaction price, entry price, prices used in margin calls, or settlement prices are sometimes used as data points in estimating an exit price. A reporting entity should take into account the characteristics of the asset or liability that market participants consider when pricing the asset or liability at the measurement date.

To assess exit price, a reporting entity should determine the principal market, the market with the greatest volume and level of activity for the asset or liability to which the reporting entity has access. Generally the principal market is the one where the reporting entity normally would enter into a transaction to sell the asset or to transfer the liability, but it may not always be the case. If that is not the case, the determination of fair value may require consideration of the pricing methodology used in another market. For further discussion of using data from markets other than the principal market, see FV 4.2.3.1.

6.7.1.3 *End users*

Discounting derivative cash flows using OIS may represent a change in practice for non-dealer end users. Many valuation systems used by end users continue to use LIBOR-based discounting in their derivative valuation models as a default setting. However, many systems and service providers are now supporting OIS discounting.

Based on the guidance in ASC 820, which requires the consideration of market participant behavior in the principal market when determining fair value, valuations derived using LIBOR-based discounting for certain products transacted under certain terms may no longer be representative of fair value.

Also, there may be diversity in practice in the valuations that major derivatives dealers provide to their customers. While many are still based on LIBOR discounting, some may be based on OIS. We suggest that end users evaluate what they receive.

6.7.1.4 Implications beyond collateralized derivatives

The changes to market conventions may have broader implications than discounting. Because of the increased acceptance of OIS discounting for many collateralized transactions, market conventions on how certain reference instruments are quoted in the market have changed. For example, at-the-money (ATM) US dollar interest rate swaps (those with a mid-market price of zero since the present value of the LIBOR floating leg is equal and opposite to the present value of the fixed leg) are now typically quoted with an underlying assumption that the positions are collateralized. As a result, mathematical methods, such as bootstrapping, used to derive expectations of forward LIBOR rates from these instruments should be adjusted/refined to recognize the fact that the par swap rates are quoted assuming LIBOR floating cash flows and OIS discounting of the fixed and floating legs.

These refinements will affect the projected cash flows on all transactions indexed to LIBOR, and the discount rate to be applied to those instruments for which LIBOR is considered to be the appropriate discount rate. They also affect the way that market participants derive other market inputs, for example, swaption volatilities or tenor-basis curves, from market instruments.

6.7.1.5 Transactions to discount using the OIS rate

The migration from discounting based on LIBOR, or a similar rate, to a rate such as OIS that is more reflective of the funding benefits obtained from the collateral posted has been, and continues to be, an evolutionary process. The degree of market acceptance and, thus, inclusion of OIS discounting within pricing may vary across asset classes. For example, typically the adoption of OIS discounting for interest rate products has been more pervasive, whereas for other asset classes the adoption of OIS discounting is occurring at a slower pace.

In addition, the appropriate valuation basis may be different depending on the currency underlying the transaction and the currency of the collateral eligible to be posted. The most liquid currencies (e.g., US dollar or euro) may have observable market data for the OIS rate over the remaining life of the derivative portfolio. Other currencies may have observable OIS rates for short dated exposures, and some emerging market currencies may not have a similar reference market input. In some cases, the availability of reliable data has impacted market participants' behavior with respect to pricing. The lack of consistent data is a reason the pace of adoption of OIS discounting is slower for certain products and in some markets.

As a result, reporting entities should assess the appropriate valuation basis for their derivative transactions for each class of transactions separately. Class of transactions refers to:

- the type of derivative contract,
- the underlying risk,
- the tenor of the contract, and
- the nature of the collateral and the terms under which it is posted.

Different collateral terms across different Credit Support Annexes

In the example of a fully cash collateralized interest rate swap, it may be appropriate to apply OIS discounting. However, CSA terms may vary across companies and counterparties and will require further evaluation.

Examples of CSA terms that may require evaluation include the existence of thresholds below which collateral posting is not required, the ability to post collateral in different currencies, the ability to post collateral that may not be readily rehypothecated (such as certain corporate or asset backed securities for example), or contractual features that prohibit the rehypothecation of collateral.

Reporting entities should evaluate the collateral terms and assess how those features would impact the valuation approach. Such assessments require judgment about the substance of the collateral terms. For example, in principle, the valuation of the uncollateralized portion of transactions subject to collateral thresholds should be considered differently than the collateralized portion. In practice, when pricing transactions, market participants may make operational approximations in pricing models to treat trades as fully collateralized or fully uncollateralized. The classification of transactions may consider positions with collateral thresholds that are set at a relatively low level compared to the derivative exposures to be in-substance collateralized. Thresholds that are set at a level such that the likelihood of either party having to post collateral is remote may mean that a market participant considers the position to be in substance uncollateralized.

6.7.1.6 *Documentation*

Reporting entities should document their assessments of the appropriate valuation basis to be applied to each class of derivative transaction. In some cases, the prevalence of OIS is clear; in others, reporting entities will need to exercise judgment as to which discount rate is appropriate. Documentation should include the evidence and rationale supporting the conclusions made.

Given the continuing level of change in the market related to derivative pricing, reporting entities should implement appropriate procedures and controls so that their valuation approach and the related documentation and disclosures are periodically updated and remain consistent with current market practice.

6.7.1.7 *Modifications to valuation systems and processes*

Though vendors have been enhancing derivative valuation systems, not all systems may be able to differentiate between collateralized and uncollateralized derivatives or portions of derivatives. There may be a need to “bucket” derivative transactions with different characteristics in valuation systems to use different inputs for valuation. In addition, systems may need to be designed to apply different discount curves within the same currency (e.g., LIBOR for uncollateralized US dollar swaps and OIS for collateralized US dollar swaps) or apply one curve to project cash flows and a different curve to discount those same cash flows (as would be required in a LIBOR-based collateralized swap discounted using an OIS curve).

Also, systems and processes may need to change with respect to how data is derived from reference instruments that may have changed as a result of the migration to OIS discounting, and how transactions and associated CSA terms are considered in the valuation process.

In addition, the complexity of the product may affect the timing of when system capabilities may be available to support OIS discounting. For example, it may be possible to value interest rate swaps on an OIS discounted basis once the system has the ability to derive and apply LIBOR and OIS curves. The pricing of options on an OIS discounted basis may require the development of additional functionality to support the derivation of other inputs, such as volatility surfaces, in a manner consistent with the OIS discounting assumptions.

6.7.2 *Funding valuation adjustment*

While most major dealers agree that discounting based on the CSA is generally appropriate for collateralized derivatives, the consensus regarding the appropriate funding (and therefore discount) curves to be used in the valuation of uncollateralized derivatives or portions of derivatives subject to CSAs (e.g., those with non-zero posting thresholds that leave some part of the position uncollateralized) is at a less developed stage. There are a number of market participants considering if and how to incorporate a funding valuation adjustment (FVA). An FVA is an adjustment to fair value representing an institution's cost of funding when it trades and hedges derivatives, whether positive or negative.

Risk magazine described FVA in 2011; we believe their explanation is still one of the more helpful.

***Risk* magazine February 2011, pages 18–22**

When a dealer is in-the-money on the client trade, it would have to post collateral to its hedge counterparty, and would therefore need to borrow money from its internal treasury, which is a funding cost. ... On the flipside, if the dealer is out-of-the-money on the client trade, it receives collateral from its hedge counterparty, and if the collateral is assumed to be rehypothecable, the dealer should be able to lend that collateral to its treasury, which is a funding benefit.

6.7.3 *Accounting for changes in market participant assumptions*

Valuation approaches and techniques should be applied consistently. Changes in valuation techniques or assumptions are appropriate if the result is equally or more representative of current fair value. Revised fair value measurements resulting from a change in valuation technique or its application are accounted for as a change in accounting estimate.

6.7.4 *Summary — changes in market participant assumptions*

OIS and FVA illustrate that even when the market participants in a given market haven't changed, pricing methods continue to evolve. Assumptions should be monitored and potentially updated in determining fair value. As such, preparers should have a process for re-evaluating the assumptions used in their own valuations. Further, they should robustly document their conclusions as to what assumptions market participants would use, the observability of those inputs, and their level in the fair value hierarchy.

Reporting entities should closely monitor this topic for current developments.

LIBOR and reference rate reform

Regulators and industry bodies have proposed and agreed on new interest rate benchmarks to replace LIBOR rates that are anticipated to no longer be published or supported for certain rates past the end of 2021 and for all others after June 30, 2023. These new Risk Free Rates will be broad reaching across all industries that use or invest in interest rate linked products, and affect a comprehensive set of financial instruments including fixed income securities, loans and derivatives. The discontinuation of LIBOR may affect the functioning, liquidity, and value of these investments. For instance, contracts that do not contain fallback language may become less liquid and/or change in value as the discontinuance date approaches. The decrease in liquidity could affect the valuation and levelling of these investments within the fair value hierarchy. Please see PwC's *Reference Rate Reform* guide for further information.

6.8 Hedge accounting considerations

The change in fair value of derivatives in qualifying hedging relationships under US GAAP impacts the assessment of effectiveness in hedging relationships.

6.8.1 Fair value hedges

ASC 820 applies to assets and liabilities designated as the hedged item in a fair value hedge of the overall change in fair value.

ASC 815 requires that the change in fair value of the hedged item attributable to the risk being hedged be measured over the hedge period and reported as an adjustment of the hedged item's carrying value. The risk being hedged may be the overall change in fair value or only the change in value attributable to a specific risk. In those latter situations, change in fair value is measured based on the hedged risk and not on the asset or liability designated as the hedged item in a fair value hedge. The hedged item may be an item that is reported at fair value with changes in fair value reported in other comprehensive income or it may be reported based on some other measurement basis (e.g., a debt instrument reported at amortized cost). However, it is the change in the fair value due to the hedged risk that is measured.

We believe the change in fair value of the hedged item in a fair value hedge of the overall change in fair value should be measured at exit value based on the fair value measurement framework. When measuring the basis adjustment for a hedged item that is being hedged for changes in value specific to a particular risk, the change in value should be measured consistent with the way it would be calculated in the overall measurement of the hedged item—at exit value under ASC 820.

6.8.2 How nonperformance risk impacts hedge effectiveness

See DH 9.13.2.

6.9 Employee benefits – employer and plan accounting

ASC 715, *Compensation–Retirement Benefits*, provides guidance on employers' accounting and reporting for pension and other postretirement benefits; and ASC 960, *Plan Accounting–Defined Benefit Pension Plans*; ASC 962, *Plan Accounting–Defined Contribution Pension Plans*; and ASC 965,

Plan Accounting—Health and Welfare Benefit Plans, provide guidance for accounting and reporting in the separate plan financial statements.

In accordance with plan guidance, plan investments—including equity and debt securities, real estate, and other investments—should be measured at fair value using the principles in ASC 820. ASC 820 does not apply to the measurement of pension and other postretirement benefit obligations because the liabilities for those obligations are not measured at fair value.

In evaluating the impact of ASC 820 on plan assets, an employer or plan should consider the following guidance.

Publicly-traded equity and debt securities

Bid-ask spread: As noted in FV 4.2.4.3, a reporting entity should have a consistent policy for measuring the fair value of plan assets when there is a bid-ask spread.

Blockage factor: ASC 820-10-35-36B precludes the application of blockage factors. See FV 4.7.1.1.

Restricted securities: Restrictions on the sale or transferability (i.e., a restricted security) of a security only impact the fair value if the restriction is not considered entity-specific. The fair value measurement should be adjusted to reflect the discount a market participant would require as a result of the restriction, regardless of the duration of the restriction. See FV 6.2.4 for further discussion.

Investments reported at NAV

Certain investments may be held in fund investment structures that are reported at NAV. As noted in FV 6.2.6, a practical expedient to measure fair value at NAV, without adjustment, is available to investments that meet certain criteria. These may include fund investments, open-ended mutual funds, alternative investment funds, and private equity funds.

When the practical expedient is not utilized, some employers/plans may need to reconsider their estimates of fair value when illiquid investments, such as real estate, are a significant component of fund assets. See discussion of unobservable inputs in FV 4.5.

There are certain investment arrangements common to plans such as investments in master trusts or separate (not pooled) accounts which may appear to operate as a fund vehicle, but the plan's trust actually owns the underlying investments of the vehicle. For such arrangements, the fair value of the underlying investments would be the appropriate starting point when determining the fair value measurement. In these investments, employers and plan management need to consider the terms of the investment arrangement to understand whether they have an interest in the underlying assets or in a pooled fund vehicle.

Transaction costs

ASC 820 states that the fair value of an asset or liability generally should not be adjusted for transaction costs; however, ASC 820 also states that transaction costs should be accounted for in accordance with the provisions of other accounting pronouncements. ASC 715-30-35-50 specifies that the fair value of plan assets should be reduced by brokerage commissions and other costs normally incurred in a sale, if those costs are significant. Therefore, employers should reduce the fair value of plan assets by such “selling costs” if those costs are significant.

Third-party pricing

Many US employers and plans use information provided by third parties as part of their process for developing fair value estimates. Because employers and plan management are ultimately responsible for the valuations (even in a limited-scope ERISA audit), they should develop an understanding of the valuation methodology and practices by those third parties. Employers and plan management should also understand their third-party information providers' approach for generating the information required to meet the disclosures, including their methodology for determining the appropriate classification within the fair value hierarchy. The AICPA Employee Benefit Plans Audit Quality Center Advisory, *Valuing and Reporting Plan Investments*, provides guidance regarding plan management responsibilities of valuation and reporting of investments.

Investments in insurance contracts

ASC 715 provides guidance for employers as to which specific types of insurance contracts should be measured at fair value and when other values, such as cash surrender value, which is typically calculated by insurance companies, or conversion value, are appropriate.

The following excerpt provides guidance for employer's accounting of insurance contracts in pension plans.

ASC 715-30-35-60

Insurance contracts that are in substance equivalent to the purchase of annuities shall be accounted for as such. Other contracts with insurance entities shall be accounted for as investments and measured at fair value. For some contracts, the best available evidence of fair value may be contract value. If a contract has a determinable cash surrender value or conversion value, that is presumed to be its fair value.

Similar guidance exists for other postretirement benefit plans in ASC 715-60.

ASC 715-60-35-120

Other contracts with insurance entities may not meet the definition of an insurance contract because the insurance entity does not unconditionally undertake a legal obligation to provide specified benefits to specified individuals. Those contracts shall be accounted for as investments and measured at fair value. If a contract has a determinable cash surrender value or conversion value, that is presumed to be its fair value. For some contracts, the best available estimate of fair value may be contract value.

The fair value of such contracts as determined for ASC 715 purposes will not necessarily be the same as fair value of such contracts determined under ASC 960, ASC 962, or ASC 965 for the plan's financial statements. Hence, there will often be a lack of symmetry between employer accounting and plan accounting for these contracts.

Practical expedient – employers

Employers with fiscal year-ends that do not fall on a month-end may measure the fair value of the defined benefit plan assets and obligations as of the month-end that is closest to the entity's fiscal year-end and to follow that measurement date methodology consistently from year to year.

If a contribution to plan assets is made or other significant event (as defined in ASC 715-30-35-66) occurs between the date used to measure plan assets and benefit obligations and a reporting entity's fiscal year-end, the entity would adjust the funded status recognized on the balance sheet to reflect the contribution as an addition to plan assets (for contributions made after the measurement date but before fiscal year-end) or as a deduction from plan assets (for contributions made after fiscal year-end but before the measurement date). Also, the reporting entity would not adjust the classes of plan assets and the fair value hierarchy for the effects of the contribution. Instead, an employer would present the amount of the contribution separate from the classes of plan assets and the fair value hierarchy to permit reconciliation to the ending balance of the fair value of plan assets.

The practical expedient is also available for interim remeasurements of significant events.

Practical expedient – plans

Employee benefit plans may apply the same measurement date practical expedient established for plan sponsors. This enables the employee benefit plans to measure their plan assets on the nearest month-end date to the fiscal year-end. If the measurement date practical expedient is elected, disclosure for significant events between the fiscal year end and measurement date, including contributions and distributions is required.

6.9.1 *Postemployment benefits*

We believe employers who provide postemployment benefits accounted for under ASC 712 and have set aside assets to fund the ASC 712 liability should apply ASC 820's fair value measurement principles if those assets are required to be measured at fair value under other applicable GAAP. This would be the case if the assets are subject to the fair value measurement requirements of ASC 320, or if the employer follows the guidance in ASC 715 when applying ASC 712 and therefore treats the assets as plan assets that are required to be reported at fair value under those standards.

***Chapter 7: Nonfinancial
assets and liabilities, and
business combinations—
updated March 2022***

7.1 *Nonfinancial assets and liabilities overview*

This chapter highlights key considerations in applying ASC 820 to develop the fair value measurements of nonfinancial assets and nonfinancial liabilities. It also addresses the considerations applicable to determining the fair value measurements often used to record business combinations and in impairment assessments.

Reporting entities should read this guidance in connection with FV 4, PwC's *Business combinations and noncontrolling interests* guide and PwC's *Property, plant, equipment and other assets* guide.

7.2 *Fair value principles for nonfinancial assets and liabilities*

When determining the fair value of nonfinancial assets and liabilities, it is important to consider the guidance in US GAAP. In addition, the valuation standards from the International Valuation Standards Council, updated in August 2021, can serve as a helpful resource. The valuation standards include chapters on valuation approaches and methods (IVS 105), intangible assets (IVS 210), non-financial liabilities (IVS 220), inventory (IVS 230), and several other key areas.

ASC 820-10-35 includes the following fair value concepts:

- Selecting the appropriate market
- Identifying market participants
- Using market participant assumptions
- Determining the highest and best use
- Applying appropriate valuation approaches and techniques

Each of these topics is addressed in FV 4 and discussed in this section in the context of nonfinancial assets and liabilities.

7.2.1 *Selecting the appropriate market*

An important step in the valuation of nonfinancial assets and nonfinancial liabilities is the determination of the appropriate market. If there are no known markets or if the reporting entity does not have access to any markets, it should identify potential market participants and develop a hypothetical market.

In selecting a market for a specific asset or liability, a reporting entity should evaluate how the asset could be sold or the liability transferred. In making this evaluation, a reporting entity should research existing markets to determine the types of markets that exist for the asset or liability, or similar assets or liabilities if no direct inputs are available. The initial evaluation may be performed without regard to whether the reporting entity has access to a specific market. Although an inaccessible market cannot be used as a principal or most advantageous market, information related to such markets may be considered in developing the inputs that would be used in a hypothetical market. For example, assume the existence of a market for buying and selling internet domain names. Although this may not be a

principal or most advantageous market for a reporting entity, it provides a reference point for the valuation of domain names.

In addition, reporting entities may consider information about markets for similar assets or liabilities or markets for assets with similar economic characteristics with which it has more experience. Assumptions about markets and market participants will involve judgment, and management will need to consider all reasonably available information when developing inputs for measures with few or no reference points.

7.2.2 *Identifying market participants*

The first step in developing market participant assumptions is identifying potential market participants. Market participants are those who would be interested in and could benefit from ownership of a specific asset or liability.

ASC 820-10-35-9 describes how a specific market participant does not need to be identified in order to develop market participant assumptions:

Excerpt from ASC 820-10-35-9

...a reporting entity need not identify specific market participants. Rather, the reporting entity shall identify characteristics that distinguish market participants generally, considering factors specific to all of the following:

- a. The asset or liability
- b. The principal (or most advantageous) market for the asset or liability
- c. Market participants with whom the reporting entity would enter into a transaction in that market.

In identifying market participants for purposes of measuring the fair value of nonfinancial assets and liabilities, the reporting entity should determine the most likely buyer(s). Market participants could be strategic buyers, financial buyers, or both.

- Strategic buyers: Strategic buyers could include the acquirer's peers or competitors, or an entity seeking to diversify its operations. Typically, strategic buyers will have synergies specific to their existing operations, and may have the ability and willingness to transact for the same assets and liabilities.
- Financial buyers: Other buyers, including those who have no ownership interests in businesses or operations similar to that of the acquirer, may also be considered market participants in certain situations. These market participants, commonly referred to as financial buyers, may include individual investors, private equity and venture capital investors, and financial institutional investors.

Assumptions regarding an asset's use may be different depending on whether the market participant is a strategic or financial buyer. For example, when measuring the fair value of internally developed software used in a financial reporting system, the value to a strategic buyer may be much less, given that a strategic buyer would likely continue to use its existing system. On the other hand, a financial

buyer may not have a similar system in place and, therefore, would place a higher value on the software, since it would be necessary to operate the business on an ongoing basis.

A reporting entity should also consider whether strategic buyers would be interested in the asset or liability, or whether financial buyers looking to arbitrage or trade on the asset or liability would be the most likely market participants. In some cases, both types of market participants could be interested and the reporting entity will need to conclude which group is the appropriate market participant.

Identifying market participant characteristics when measuring fair value in a business combination is subjective and dependent on facts and circumstances. Helpful sources of information may include press releases, prior bid attempts, board of director presentations, due diligence documents, deal models, a list of all known bidders in the transaction and those who did not participate in the bidding process (if the transaction was subject to competitive bids), and a list of comparable companies. Reporting entities can also look to the other bidders in a bidding process in assessing whether they themselves are representative of a market participant. In the absence of this type of transparency, a reporting entity will need to determine the characteristics or profile of potential market participants as discussed above.

In a business combination, the transaction price may be a starting point in the analysis of fair value. For example, for recently acquired assets and liabilities, a starting point for determining market participant assumptions may be the acquirer. Since the acquirer successfully purchased the target company, it could look to itself to determine if it possesses unique characteristics, or whether such characteristics are similar to its competitors (strategic buyers) or financial buyers.

See further discussion regarding the determination of market participants in FV 4.2.3.

7.2.3 *Using market participant assumptions*

ASC 820 emphasizes that fair value is a market-based measurement, not an entity-specific measurement. The fair value of an asset or liability should be determined based on an exit price, as if a transaction involving the asset or liability had occurred on the measurement date, considered from the perspective of a market participant.

Identifying potential market participants and developing market participant assumptions are two critical components in developing fair value measurements of nonfinancial items. Certain assets measured at fair value, such as real estate and many biological assets, have established markets. In the absence of such markets, a hypothetical market and market participants must be considered. While many times an identical asset does not exist, there are often similar assets whose transactions should be considered in developing market participant assumptions. Significant judgment is required to develop the assumptions to be used in a hypothetical exit transaction. For example, there may be no apparent exit market for customer relationship intangible assets. In this case, management may consider whether there are strategic buyers in the marketplace that would benefit from the customer relationships being valued. Most entities seek to build up their customer base as they grow their businesses. As a result, participants in the industry seeking additional growth may serve as a basis for a hypothetical group of market participants.

7.2.3.1 *Market participant versus entity-specific assumptions*

An entity's intended use is not considered relevant for purposes of measuring fair value because the definition of fair value is market based. ASC 805, *Business Combinations*, explicitly prohibits an acquirer from considering its intended use of an asset.

ASC 805-20-30-6

To protect its competitive position, or other reasons, the acquirer may intend not to use an acquired nonfinancial asset actively, or it may not intend to use the asset according to its highest and best use. For example, that might be the case for an acquired research and development intangible asset that the acquirer plans to use defensively by preventing others from using it. Nevertheless, the acquirer shall measure the fair value of the nonfinancial asset in accordance with Subtopic 820-10 assuming its highest and best use by market participants in accordance with the appropriate valuation premise, both initially and for purposes of subsequent impairment testing.

Key considerations in developing market participant assumptions include the specific location, condition, and other characteristics of the asset or liability (such as assumed growth rates, whether certain synergies are available to all market participants, and risk premium assumptions). Developing market participant assumptions for these assets and liabilities requires judgment. In such circumstances, entities often start with their own assumptions and perform procedures to assess if evidence exists that market participants would make different assumptions. In cases where an acquirer intends not to use an acquired asset for competitive reasons, different assumptions that a market participant would make would be required.

Measuring assets based on the expected use by a market participant can present a number of accounting challenges, including the assessment of useful life and residual value. In accordance with ASC 350-30-35-3(a), the useful life assessment of an asset is based on entity-specific assumptions regarding the asset's use, while the fair value of the asset is based on market participant assumptions. The residual value of an intangible asset is assumed to be zero unless certain conditions are met (see BCG 8 for these conditions). Entities will need to apply judgment to determine the fair value and useful life of assets that an entity does not intend to use or intends to use differently than a market participant.

7.2.3.2 *Market participant synergies*

When determining fair value measurements in connection with a business combination, the identification and analysis of market participant synergies is a significant component of developing market participant assumptions.

Market participant synergies are synergies that are available to more than one market participant. They are considered as part of measuring the fair value of the assets that will benefit from the realization of those synergies. Buyer-specific synergies are synergies that are available only to a specific acquirer. Such synergies should not impact the determination of fair value because other potential acquirers (i.e., market participants) do not have the ability to achieve the same synergies. Instead, to the extent that the purchase price considered the value of the buyer-specific synergies, it would impact the residual ascribed to goodwill.

Market participant synergies can vary depending on the characteristics of the market participants. Strategic buyers are more likely to realize synergies because they are more likely to have overlapping functions with that of the acquired entity. Conversely, a financial buyer may be unable to combine the target with another company or business and is more likely to focus on improving efficiencies of the target as a standalone business.

Some synergies in a business combination may be easily identified and quantified, but there may be other synergies whose characteristics will require significant judgment in determining whether they are market participant or buyer-specific. Examples of synergies that strategic buyers may be able to generate include cost savings from reducing staff, consolidating distribution, closing facilities, and eliminating duplicate departments (e.g., human resources, finance and accounting, sales, and engineering). Financial buyers often also achieve cost reductions, although they may be less likely to have duplicate key functions. Other types of synergies may consist of revenue enhancements resulting from the buyer being able to sell the target's products to its customers and vice versa.

Transaction documents may provide a useful starting point when identifying synergies. Most transaction materials discuss synergies, but do not necessarily attribute them to market participant and entity-specific categories. A robust process should be used to categorize synergies when developing market participant assumptions for fair value measurements. Transaction documents may include analyses of the following:

- Current industry trends (e.g., consolidation) and whether the specific transaction aligns with those trends
- Motivations of key competitors, both those that participated in a bidding process and those that did not participate (including the reasons that they did not participate)
- The acquired entity's growth and profitability prospects on a standalone basis and in conjunction with the operations and perspectives of the potential market participants (i.e., the actual and potential bidders). This analysis should take into account the acquired entity's expected performance within the context of key competitors' performance, industry performance, and the overall economy
- Strategic intent of the acquirer versus the intent of the potential market participants to determine the rationale for the transaction

7.2.4 *Determining the highest and best use*

The highest and best use is the use by market participants that maximizes the value of the asset or group of assets and liabilities. The concept refers to both the different ways of utilizing the individual asset (e.g., a factory or residential site) as well as whether the maximum value is on a standalone basis or in combination with other assets. ASC 820-10-35-10C indicates that the highest and best use does not consider management's intended use.

Ways of utilizing the individual asset

The determination of highest and best use may have a significant impact on the fair value measurement. ASC 820, Example 1, Case B (ASC 820-10-55-30 through ASC 820-10-55-31) illustrates the application of this concept to land acquired in a business combination. In the example, the land is currently used for a factory, but could be developed as a residential site. The highest and best use is

determined by the greater of (1) the value of the land in continued use for a factory (in combination with other assets) or (2) the value of the land as a vacant site for residential development (taking into account the cost to demolish the factory and including uncertainty about whether the reporting entity can convert the asset to the alternative use).

Example FV 7-1 discusses the highest and best use of an investment property when redevelopment yields a higher market value.

EXAMPLE FV 7-1

Investment property – highest and best use

An entity owns an investment property, which comprises land with an old warehouse on it. It has been determined that the land could be redeveloped into a leisure park. The land's market value would be higher if redeveloped than the market value under its current use. For simplicity, assume the warehouse and property are not a business.

Should the fair value be based on the investment property's current use or the land's potential market value if the leisure park redevelopment occurred?

Analysis

The property's fair value should be based on the land's market value for its potential use. The highest and best use valuation assumes the site's redevelopment. This will involve demolishing the current warehouse and constructing a leisure park in its place. The market value of the current building is based on the property's highest and best use (as a leisure park). Therefore, none of the market value should be allocated to the building. The cost to demolish the warehouse and redevelop the land should be included in determining the fair value of the land. The building's current carrying amount should be written down to zero.

Standalone or in combination

If the highest and best use of an asset is that it should be combined with other assets, one combined fair value may need to be determined. That combined fair value must then be allocated to the individual components based on the unit of account of each.

ASC 820-10-35-11A

The fair value measurement of a nonfinancial asset assumes that the asset is sold consistent with the unit of account specified in other Topics (which may be an individual asset). That is the case even when that fair value measurement assumes that the highest and best use of the asset is to use it in combination with other assets or with other assets and liabilities because a fair value measurement assumes that the market participant already holds the complementary assets and associated liabilities.

If an entity uses an asset under circumstances that are not the highest and best use for that asset, it must disclose that fact. See FSP 20.

Example FV 7-2 evaluates the highest and best use of an asset group when redevelopment yields a higher value than the sum of each asset's standalone selling price.

EXAMPLE FV 7-2**Valuing assets on a standalone basis or in a group — land**

Three adjacent lots of land are acquired as part of a business combination. Each lot could be sold separately for \$5 million. As a group, buildings could be raised on the end lots, each of which could share a parking lot (constructed on the third lot). In this area, parking is scarce and buildings with parking sell for more than buildings without parking. With the parking lot, each building would sell for a higher price; the three lots together can be sold for \$20 million.

What is the highest and best use of the three adjacent lots of land?

Analysis

The highest and best use of these lots is to develop them as buildings with a parking lot. A market participant would take the center lot and use it as a parking lot to maximize the value of the lots.

This fact pattern is different from the portfolio scenario (discussed in FV 7.5.2.1) as the assets in the example work together in use. This does not happen in a portfolio. In a portfolio, you can replace an asset with a similar one without impacting the value of the rest of the portfolio. In an in use scenario there is presumably no other piece of property that could be acquired that could replace one of the three in the example and generate a similar or higher combined value. If such a scenario existed, then that would be the highest and best use.

Example FV 7-3 demonstrates the highest and best use and resulting fair value of two assets that are more valuable when consumed together.

EXAMPLE FV 7-3**Valuing assets on a standalone basis or in a group — other assets**

A pharmaceutical company acquires a company with two drugs. Drug A is a cholesterol lowering drug. By itself, Drug A is moderately effective. Drug B is another moderately effective cholesterol lowering drug. When taken together, Drug A and Drug B are highly effective at lowering cholesterol levels.

On a standalone basis, Drug A has a fair value of \$100 million and Drug B has a fair value of \$150 million. When the drugs are valued together, Drug A and Drug B have a combined fair value of \$650 million.

What is the highest and best use, and resulting fair value of these drugs?

Analysis

The highest and best use of these drugs is to sell the products together. As a result, the total fair value of Drug A and Drug B should equal \$650 million. The value should be allocated to Drug A and Drug B (units of account) in a systematic and rational way reflecting the contributions of each drug.

Example FV 7-4 illustrates the highest and best use of a group of assets when market participants are strategic and financial buyers.

EXAMPLE FV 7-4

Application of the highest and best use concept

A strategic buyer acquires a group of assets (Assets A, B, and C) in a business combination. Asset C is a billing software system developed by the acquired entity for use with Assets A and B. The acquirer determines that each asset would provide maximum value to market participants principally through its use in combination with the other assets in a group; therefore, the highest and best use is in a group rather than standalone valuation premise. The unit of valuation is the asset group, which consists of Assets A, B, and C. In determining the highest and best use, the acquirer determines that market participants for Assets A, B, and C would represent both strategic and financial buyers. Strategic and financial buyers each possess different characteristics related to the use of the individual assets. The strategic buyer group has related assets that would enhance the value of the asset group. Specifically, strategic buyers have substitute assets for Asset C (the billing software). Asset C would be used only for a transitional period. The indicated fair values of individual Assets A, B, and C within the strategic buyer group were determined to be \$360 million, \$260 million, and \$30 million, respectively. The indicated fair value for the assets collectively within the strategic buyer group is \$650 million.

The financial buyer group does not have substitute assets that would enhance the value of the asset group (i.e., Asset C). Therefore, financial buyers would use Asset C for its full remaining economic life and the indicated fair values for individual Assets A, B, and C within the financial buyer group were determined to be \$300 million, \$200 million, and \$100 million, respectively. The indicated fair value for the assets collectively within the financial buyer group is \$600 million.

Which fair value should be used to determine the highest and best use of the asset group?

Analysis

The fair values of Assets A, B, and C would be determined based on the use of the assets within the strategic buyer group, because the fair value of the asset group of \$650 million is higher than the asset group for the financial buyer (\$600 million). The use of the assets in a group does not maximize the fair value of the assets individually; it maximizes the fair value of the asset group. Thus, even though Asset C would be worth \$100 million to the financial buyers, its fair value for financial reporting purposes is \$30 million.

7.2.5 Appropriate valuation approaches and techniques/methods

As described in FV 4.4, ASC 820 requires consideration of three broad valuation approaches: market approach, cost approach, and income approach, and the techniques (or methods) consistent with each. ASC 820 uses the term “technique” while valuation professionals use the term “method” to refer to the same thing.

ASC 820 does not prescribe which valuation approaches or techniques should be used when measuring fair value and do not prioritize among the techniques. Instead, ASC 820-10-35-24 states that reporting entities should measure fair value using the valuation approaches and techniques that are appropriate in the circumstances and for which sufficient data are available.

The application of the various approaches and techniques may indicate different estimates of fair value. These estimates may not be equally representative of fair value due to factors such as assumptions made in the valuation or the quality of inputs used. Using multiple valuation approaches

and/or techniques can act as a check on these assumptions and inputs. The reporting entity may need to apply additional diligence in the valuation if the range of values is wide. Fair value will be based on the most representative point within the range in the specific circumstances.

7.2.5.1 Income approach

ASC 820-10-55-3F defines the income approach as follows:

ASC 820-10-55-3F

The income approach converts future amounts (for example, cash flows or income and expenses) to a single current (that is, discounted) amount. When the income approach is used, the fair value measurement reflects current market expectations about those future amounts.

The income approach is applied using the discounted cash flow (DCF) method, which requires (1) estimating future cash flows for a certain discrete projection period; (2) estimating the terminal value,¹ if appropriate; and (3) discounting those amounts to present value at a rate of return that considers the relative risk of the cash flows. The income approach is frequently used as a primary valuation approach for the individual assets acquired, particularly intangible assets, and liabilities assumed in a business combination other than for financial assets and real property.

7.2.5.2 Market approach

The market approach is often used as a primary valuation approach for financial assets and liabilities when observable inputs of identical or comparable assets are available (e.g., real estate). It can also be used to value a business or elements of equity (e.g., NCI). The market approach may also be used as a secondary approach to evaluate and support the conclusions derived using an income approach. The market approach is not frequently used as a primary valuation approach for the individual assets acquired and liabilities assumed in a business combination other than for financial assets and real property. Individual assets and liabilities, particularly intangible assets, are seldom traded in active markets or only change hands in transactions with little information publicly disclosed.

7.2.5.3 Cost approach

The cost approach is typically used to value assets that can be easily replaced. The cost approach is rarely used as a primary valuation approach to measure the fair value of a business enterprise because it does not capture the going concern value of a business. The sum of the replacement values of a collection of assets and liabilities generally has less value than an integrated business with established operations because the cost approach would not reflect the synergistic value of the assets and liabilities operating together. The cost approach is seldom used as a valuation approach to measure the fair value of an intangible asset that is a primary intangible asset of the business because it does not capture the opportunity cost of owning the asset or the cost of unsuccessful ideas that were attempted in the process of creating the intangible asset.

¹ Represents the present value at the end of the discrete projection period of all subsequent cash flows to the end of the life of the asset or into perpetuity if the asset has an indefinite life.

7.3 *Business combinations*

With limited exceptions, ASC 805 requires the measurement of assets acquired and liabilities assumed to be recognized at their acquisition-date fair values. ASC 805 incorporates the definition of fair value in ASC 820; therefore, fair value must be measured based on the price that would be received to sell an asset or paid to transfer a liability.

ASC 820 precludes the use of entity-specific assumptions and requires measurement of fair value based on assumptions from the perspective of market participants. Therefore, an acquirer must determine the fair value of assets acquired and liabilities assumed without considering the acquirer's intended use (if that use is different from that of market participants). As a result, the acquirer may be required to develop hypothetical markets and to consider multiple valuation approaches/techniques. Application of the ASC 820 framework to determine acquisition-date fair values, including the requirement to incorporate a market participant—not entity-specific—perspective, may require a significant amount of time and effort on the part of reporting entities. Furthermore, completion of the purchase accounting process may require additional valuation resources and other specialists in developing appropriate valuation approaches and fair value measurements.

7.3.1 *Fair value considerations in business combinations*

Understanding the interaction between corporate finance, valuation, and accounting concepts is important when estimating fair value measurements for business combinations. The valuation approaches/techniques in ASC 820 are used individually or in combination to:

- Perform a business enterprise valuation (BEV) analysis of the acquiree as part of analyzing prospective financial information (PFI), including the measurements of the fair value of certain assets and liabilities for post-acquisition accounting purposes (see FV 7.3.2)
- Measure the fair value of consideration transferred, including contingent consideration (see BCG 2 and FV 7.3.3.5)
- Measure the fair value of the identifiable tangible and intangible assets acquired and liabilities assumed in a business combination (see FV 7.3.3)
- Measure the fair value of any NCI in the acquiree and the acquirer's previously held equity interest (PHEI) in the acquiree for business combinations achieved in stages (see FV 7.3.5.2 and FV 7.3.5.3)
- Test goodwill for impairment in each reporting unit (RU) (see FV 7.4 and BCG 9)

7.3.2 *Business enterprise valuation*

Typically, the initial step in measuring the fair value of assets acquired and liabilities assumed in a business combination is to perform a BEV analysis and related internal rate of return (IRR) analysis using market participant assumptions and the consideration transferred. The BEV analysis is a key valuation tool, which supports many of the valuation assumptions (discount rate, projected cash flows, synergies, etc.) used in measuring the fair value of the identified assets and liabilities of the entity.

The BEV is often referred to as the “market value of invested capital,” “total invested capital,” or “enterprise value,” and represents the fair value of an entity's interest-bearing debt and shareholders'

equity. The BEV analysis assists in evaluating the PFI, which serves as the basis for the underlying cash flows used to measure the fair value of certain acquired assets. The cash flows used to support the consideration transferred (adjusted as necessary to reflect market participant assumptions) should be reconcilable to the cash flows used to measure the fair value of the assets acquired. When there is no measurable consideration transferred (e.g., when control is gained through contractual rights and not a purchase), the fair value of the entity is still required to be measured based on market participant assumptions.

Generally, the BEV is performed using one or both of the following methods:

- The income approach (e.g., discounted cash flow method)
- The guideline public company or the guideline transaction methods of the market approach

Market approach techniques may not require the entity's projected cash flows as inputs and are generally easier to perform. The market approach may be used as a secondary approach to evaluate and support the conclusions derived using an income approach. Although the market approach techniques are easier to apply, they rely on availability of external data.

7.3.2.1 *Income approach in the business enterprise value analysis*

The BEV represents the present value of the "free cash flows" available to the entity's debt and equity holders. The two significant components are free cash flows and the discount rate, both of which need to be reasonable. The source of free cash flows is the PFI.

Evaluating prospective financial information through the business enterprise value and related internal rate of return analyses

Free cash flows of the acquiree is typically measured as:

- Projected debt-free net income, plus
- Depreciation and amortization expenses (to the extent they are reflected in the computation of taxable income), adjusted for
- Changes in debt-free working capital and capital expenditures.

The PFI is a key input in the valuation process and it is important to understand the underlying assumptions. The PFI, adjusted to reflect market participant assumptions, serves as the source for the cash flows used to value the assets acquired and liabilities assumed. The PFI should only include those synergies that would be available to other market participants. That is, the PFI should be adjusted to remove entity-specific synergies.

Conforming the PFI to market participant assumptions usually starts with analyzing the financial model used to price the transaction, and adjusting it to reflect market participant expected cash flows. If the transaction pricing was not based on a cash flow analysis, a similar concept should be applied in preparing the cash flow forecast required to value the acquired assets and liabilities. When differentiating between entity-specific synergies and market participant synergies, entities should consider the following:

- The acquirer's rationale for the transaction, particularly as communicated in press releases, board minutes, and investment bankers' analyses
- The competitive nature of the bidding process; in a highly competitive bidding environment, an acquirer may pay for entity specific synergies, while if no other bidders are present, an acquirer may not have to pay for the value of all market participant synergies
- The basis for the projections used to price the transaction, to gain an understanding of the synergies considered in determining the consideration transferred
- Whether alternative PFI scenarios used to measure the purchase price might be available to assist in assessing the relative risk of the PFI
- Whether market participants would consider and could achieve similar synergies
- Whether the highest and best use for the asset(s) may differ between the acquirer's intended use and use by market participants
- Whether industry trends (i.e., consolidation, diversification) provide insights into market participant synergies

IRR is the implied rate of return derived from the consideration transferred and the PFI. The calculated IRR should be compared to industry discount rates derived from market data when evaluating and selecting discount rates related to the overall transaction and identifiable tangible and intangible assets.

The appropriate IRR in determining the fair value of the acquiree is the discount rate that equates the market participant PFI to the consideration transferred (assuming the consideration transferred represents fair value and entity-specific synergies were not paid for). Entity-specific synergies, to the extent paid for, will be reflected in goodwill and not reflected in the cash flows used to measure the fair value of specific assets or liabilities. The process of reconciling the PFI to the consideration transferred should also separately consider any nonoperating assets or liabilities (see FV 7.5) that may have been included in the business combination, as such nonoperating assets would not have been included in the PFI.

Conceptually, when the PFI reflects only market participant synergies and the consideration transferred is adjusted for any entity-specific synergies that were paid for, the IRR should be consistent with the industry-weighted average cost of capital (WACC), which is the industry-weighted average rate of return on debt and equity as required by market participants (i.e., investors). Expressed another way, the IRR represents the discount rate implicit in the economics of the business combination, driven by both the PFI and the consideration transferred.

If the IRR differs significantly from the industry WACC, additional analysis may be required to understand the difference. If the implied IRR and WACC differ, it may be an indication that entity-specific synergies are included in the PFI, and therefore should be adjusted accordingly. It may also indicate a bias in the projections. Figure FV 7-1 summarizes the relationship between the IRR, WACC, the existence of synergies, and the basis of the PFI. Both the IRR and the WACC are considered when selecting discount rates used to measure the fair value of tangible and intangible assets.

Figure FV 7-1**Relationship between IRR, WACC, synergies, and consideration transferred**

IRR = WACC	Indicates that the PFI may reflect market participant synergies and the consideration transferred equals the fair value of the acquiree.
IRR > WACC	Indicates that the PFI may include entity-specific synergies, the PFI may include an optimistic bias, or the consideration transferred is lower than the fair value of the acquiree (potential bargain purchase).
IRR < WACC	Indicates that the PFI may exclude market participant synergies, the PFI may include a conservative bias, the consideration transferred may be greater than the fair value of the acquiree, or the consideration transferred may include payment for entity specific synergies.

The present value computed varies inversely with the discount rate used to present value the PFI (i.e., a higher discount rate results in lower fair values). Conceptually, when PFI includes optimistic assumptions, such as high revenue growth rates, expanding profit margins (i.e., higher cash flows), or the consideration transferred is lower than the fair value of the acquiree, a higher IRR is required to reconcile the PFI on a present-value basis to the consideration transferred.

Conditional versus expected cash flows

Cash flow models will use either conditional or expected cash flows; and other valuation inputs need to be consistent with the approach chosen. Conditional cash flows are based on a single outcome that is dependent upon the occurrence of specific events. For example, the cash flows may reflect a “most likely” or “promised” cash flow scenario, such as a zero coupon bond that promises to repay a principal amount at the end of a fixed time period. Alternatively, expected cash flows represent a probability-weighted average of all possible outcomes. Since expected cash flows incorporate expectations of all possible outcomes, expected cash flows are not conditional on certain events.

The discount rate applied to measure the present value of the cash flow estimate should be consistent with the nature of the cash flow estimate. In principle, conditional and expected approaches consider many of the same risks but an expected cash flow reflects the risks of achieving the cash flow directly in the cash flow estimates, while a conditional cash flow requires an adjustment to the discount rate to adjust for the conditional nature of the cash flow estimate. Conceptually, both methods should result in consistent valuation conclusions. See FV 7.3.3.3 for an application of this concept to liabilities.

Discount rates

Conceptually, a discount rate represents the expected rate of return (i.e., yield) that an investor would expect from an investment. The magnitude of the discount rate is dependent upon the perceived risk of the investment. Theoretically, investors are compensated, in part, based on the degree of inherent risk and would therefore require additional compensation in the form of a higher rate of return for investments bearing additional risk.

The rate of return on the overall company will often differ from the rate of return on the individual components of the company. For example, the rates of return on an entity’s individual RUs may be higher or lower than the entity’s overall discount rate, depending on the relative risk of the RUs in comparison to the overall company. The discount rate should reflect the WACC of a particular

component of the company when measuring the fair value of that business using expected cash flows based on market participant assumptions.

Terminal value

A terminal value should be included at the end of the discrete projection period of a discounted cash flow analysis used in a BEV to reflect the remaining value that the entity is expected to generate beyond the projection period. Business enterprises are generally assumed to have perpetual lives. The most commonly used terminal value technique is the constant growth method (CGM). The terminal value is calculated by dividing annual sustainable cash flow by a capitalization rate (cap rate). The annual sustainable cash flow is often estimated based on the cash flows of the final year of the discrete projection period, adjusted as needed to reflect sustainable margins, working capital needs, and capital expenditures consistent with an assumed constant growth rate. The cap rate is calculated as the discount rate (i.e., WACC or IRR) less the long-term, sustainable growth rate. The cap rate varies inversely to the growth rate and terminal value (i.e., a lower growth rate results in a higher cap rate and a lower terminal value).

The terminal value represents the present value in the last year of the projection period of all subsequent cash flows into perpetuity. A long-term growth rate in excess of a projected inflation rate should be viewed with caution and adequately supported and explained in the valuation analysis.

If the projection period is so short relative to the age of the enterprise that significant growth is projected in the final year, then the CGM should not be applied to that year. Rather, the projection period should be extended until the growth in the final year approaches a sustainable level, or an alternative method should be used.

An alternative to the CGM to calculate the terminal value is the market pricing multiple method (commonly referred to as an exit multiple). Under this method, a current observed pricing multiple of earnings—generally earnings before interest, taxes, depreciation, and amortization (EBITDA) or earnings before interest and taxes (EBIT)—is applied to the entity’s projected earnings for the final year of the projection period. However, this method must be used cautiously to avoid significant misstatement of the fair value resulting from growth rate differences. Inherent in observed, current pricing multiples for entities are implied income growth rates, reflecting the markets’ view of its relatively short-term growth prospects. The implied growth rate inherent in the multiple must be compared to the growth rate reflected in the last year of the projection period. If a pricing multiple observed for an enterprise is applied to the final year of a projection, not only must the implied growth rate in the multiple be consistent with the projected growth, but the implied risk for the enterprise must be consistent with the risk inherent in realizing the projected income.

The terminal value often represents a significant portion of total fair value. Therefore, a relatively small change in the cap rate or market pricing multiple can have a significant impact on the total fair value produced by the BEV analysis. Figure FV 7-2 highlights leading practices in calculating terminal value.

Figure FV 7-2

Leading practices when calculating terminal value

- **Use sustainable cash flows** — The terminal value calculated using a DCF approach should be based on a sustainable set of cash flows. If one-time, nonrecurring events (e.g., a one-time large restructuring charge, cash tax impact of net operating loss (NOL) or amortization of intangible

assets) distort cash flows in the terminal period, the fair value may be distorted. Adjustments should be made to normalize the terminal year cash flows.

- **Apply sustainable cap rates** — For developing companies experiencing rapid cash flow growth over the entire discrete cash flow forecast, the discount rate used to calculate the cap rate should reflect a “normalized” expectation of cash flow. Both the discount rate and growth rate used to calculate the cap rate should reflect a normalized level of cash flows.
- **Projections should reflect a mature business** — Terminal values should be calculated at the point when projections reflect the maturity of the business and future significant real growth is not expected (in excess of an inflation rate) in perpetuity. Terminal values that imply significant perpetual growth may overstate fair value. If the terminal year projections do not reflect a mature business, it would be necessary to incorporate the additional growth through a weighted growth or a terminal multiple that reflects companies at the same stage of development.
- **Multiples from current trading data should be adjusted for changes in expected growth** — Multiples should reflect the growth and profitability expectations for the business at the end of the explicit projection period. Although multiples may be derived from current market trading data that reflect short-term, high-growth rates, multiples for later periods with lower growth should reflect the growth assumption as of this terminal period (e.g., 10 years out).
- **Select appropriate multiples** — The valuation multiple should best reflect how the market assesses the value of a business or an asset. If the company tends to trade on operating metrics, then multiples of earnings, such as total invested capital/sales, total invested capital/EBITDA, or total invested capital/EBIT multiples, may be appropriate multiples to apply. If the company tends to trade as a function of its capital at risk, it may be more appropriate to apply a price/book value multiple.
- **Use an appropriate terminal growth rate assumption** — The terminal growth rate should be carefully considered. While an inflationary perpetual growth rate may be appropriate, this is a valuation input that should not be automatically assumed. In some situations, an enterprise will not be able to pass along inflationary price increases due to market and other economic circumstances. If the enterprise’s earnings are not expected to keep pace with inflation, the cap rate or market pricing multiple should reflect a lower than inflationary growth rate. If growth beyond inflation is expected beyond the projection period, a terminal growth rate greater than inflation may be appropriate. In cases such as this, it may be appropriate to consider a market pricing multiple approach rather than the CGM.
- **Consider comparability** — Multiples should be derived from companies that exhibit a high degree of comparability to the business enterprise being valued. The implied values should be adjusted based on the differences between the enterprise being valued and the guideline companies.
- **Consider whether a perpetual model is appropriate** — Certain businesses may have finite lives; for instance, a power plant can reasonably be expected to have a finite life if no investment was made to sustain its generation capacity. The terminal value may be the liquidation value of the business at the end of its projected life.

- **Consider capital expenditures that are consistent with expected growth** — An assumption of sustained growth over a long period (approximating “in perpetuity”) should reflect the necessary capital investment to support the forecasted growth.
- **Test the terminal value** — The computed terminal value should be tested against market multiples to evaluate its reasonableness.

Example FV 7-5 provides an illustration of the determination of terminal value.

EXAMPLE FV 7-5

Calculating the terminal value

Company A was recently acquired in a business combination for \$100,000. Through the BEV and IRR analyses, the acquirer has identified the following market participant PFI for projected years one through five:

Year	Revenues	Net cash flow	Net cash flow growth (%)
Actual year	\$95,000	\$9,500	—
Forecast year 1	105,000	10,000	5.3%
Forecast year 2	115,000	11,000	10.0%
Forecast year 3	135,000	12,500	13.6%
Forecast year 4	147,000	13,500	8.0%
Forecast year 5	160,000	14,000	3.7%

The long-term sustainable growth rate is 3%. Based on the consideration transferred and Company A’s cash flows, the IRR was calculated to be 15%, which is consistent with the industry WACC of 15%. In the industry, multiples of annual cash flows range between 7.5 and 10.

What is the terminal value of Company A?

Analysis

In year five, net cash flow growth trended down to 3.7%, which is fairly consistent with the expected long-term growth rate of 3%. The cash flow growth rate in the last year of the PFI should generally be consistent with the long-term sustainable growth rate. For example, it would not be appropriate to assume normalized growth using the Forecast Year 3 net cash flow growth rate of 13.6%. The constant growth model is used to measure the terminal value, as follows:

$$TV = \frac{CF_5(1 + g)}{k - g}$$

Where:

TV = Terminal value

$$\begin{aligned} CF_5 &= \text{Year 5 net cash flow} \\ g &= \text{Long-term sustainable growth rate} \\ k &= \text{WACC or discount rate} \end{aligned}$$

Therefore:

$$TV = \frac{\$14,000 (1 + 0.03)}{0.15 - 0.03}$$

$$TV = \$120,167$$

The computed multiple is 8.6 times prior year's cash flow (\$120,167/\$14,000). As this falls within the range of multiples found for companies similar to Company A at the end of the projection period, the terminal value appears reasonable.

Conceptually, the terminal value represents the value of the business at the end of year five and is then discounted to a present value as follows:

$$PV \text{ of } TV^1 = \frac{\$120,167}{(1 + 0.15)^5}$$

$$PV \text{ of } TV^1 = \$59,744^2$$

¹ The present value = $1/(1+k)^t$, where k = discount rate and t = number of years.

² For illustrative simplicity, an end-of-year discounting convention was used.

7.3.2.2 **Market approach in the business enterprise value analysis**

The market approach is generally used as a secondary approach to measure the fair value of the business enterprise when determining the fair values of the assets acquired and liabilities assumed in a business combination. The market approach is often used to assess the reasonableness of the implied valuation multiples derived from the income approach.

The market approach also may be used when measuring the fair value of an RU as part of the goodwill impairment analysis or when measuring the fair value of an entity as a whole (e.g., for purposes of valuing a noncontrolling interest).

Following are examples of two methods used to apply the market approach in performing a BEV analysis.

Guideline public company method

The most common form of the market approach applicable to a business enterprise is the guideline public company method (also referred to as the public company market multiple method). Publicly traded companies are reviewed to develop a peer group similar to the company being valued, often referred to as "comparable" companies. Market multiples are developed and based on two inputs: (1) quoted trading prices, which represent minority interest shares as exchanges of equity shares in active

markets typically involving small (minority interest) blocks; and (2) financial metrics, such as net income, EBITDA, etc. Market multiples are then adjusted, as appropriate, for differences in growth rates, profitability, size, accounting policies, and other relevant factors. The adjusted multiples are then applied to the subject company's comparable financial metric. This results in the estimated fair value of the entity's BEV on a minority interest basis, because the pricing multiples were derived from minority interest prices.

If a controlling or majority interest in the subject company is being valued, then a further adjustment, often referred to as a "control premium," may be necessary. A control premium represents the amount paid by a new controlling shareholder for the benefits resulting from synergies and other potential benefits derived from controlling the enterprise. For example, when measuring the fair value of a publicly traded business, there could be incremental value associated with a controlling interest in the business. As such, a control premium could be added to the company's market capitalization (using observed market prices) to measure the fair value of a publicly traded company as a whole. A control premium should not be automatically applied without consideration of the relevant factors (e.g., synergies, number of possible market participant acquirers). Reporting entities need to evaluate and assess whether such factors indicate a control premium is justified and, if so, assess the magnitude of the control premium.

Guideline transaction method

The guideline transaction method is another technique within the market approach that is often applied when valuing a controlling or majority ownership interest of a business enterprise. This approach is based upon prices paid in observed market transactions of guideline companies, involving exchanges of entire (or majority interests in) companies, which often include a control premium in the price paid.

Valuation multiples are developed from observed market data for a particular financial metric of the business enterprise, such as earnings or total market capitalization. The valuation multiple is then applied to the financial metric of the subject company to measure the estimated fair value of the business enterprise on a control basis. Generally, the value of control included in the transaction multiple is specific to the buyer and seller involved in the transaction and may not be broadly applicable to the subject company. Therefore, this valuation technique should consider the synergies in the transaction and whether they may be appropriate to the company being valued.

Obtaining and reviewing guideline information

The data used in the techniques within the market approach is typically obtained from several sources, including past transactions that the company has participated in, peer company securities' filings, periodicals, industry magazines and trade organizations, and M&A databases. The data for a single transaction may be derived from several sources.

The degree of similarity of the observed data to the subject company (industry, transaction date, size, demographics, and other factors) needs to be considered in evaluating the relevance and weight given to the selected financial metric.

The relevance of the market approach in measuring BEV is dependent on the comparability of the companies on which the analysis is based. The higher the degree of correlation between the operations in the peer group and the subject company, the better the analysis. Some of the more significant attributes used to determine comparability are:

- Type of product produced or service performed
- Market segment to which the product or service is sold
- Geographic area of operation
- Positioning in market
- Influence of buyers/suppliers
- Size (e.g., revenue, assets)
- Growth—historical and projected
- Profitability
- Capital intensity (fixed assets and working capital)
- Leverage
- Liquidity
- Diversification

Leading practices when calculating the business enterprise value

Figure FV 7-3 highlights leading practices when calculating the business enterprise value.

Figure FV 7-3

Leading practices when calculating the business enterprise value

Confirm that cash flows provided by management are consistent with the cash flows used to measure the consideration transferred	One of the primary purposes of performing the BEV analysis is to evaluate the cash flows that will be used to measure the fair value of assets acquired and liabilities assumed. The projections should also be checked against market forecasts to check their reasonableness.
Reconcile material differences between the IRR and the WACC	Understanding the difference between these rates provides valuable information about the economics of the transaction and the motivation behind the transaction. It often will help distinguish between market participant and entity-specific synergies and measure the amount of synergies reflected in the consideration transferred and PFI. It will also help in assessing potential bias in the PFI. If the IRR is greater than the WACC, there may be an optimistic bias in the projections. If the IRR is less than the WACC, the projections may be too conservative.

Properly consider cash, debt, nonoperating assets and liabilities, contingent consideration, and the impact of NOL or tax amortization benefits in the PFI and in the consideration transferred when calculating the IRR	Because the IRR equates the PFI with the consideration transferred, it is important to properly reflect all elements of the cash flows and the consideration transferred. Nonoperating assets and liabilities, and financing elements usually do not contribute to the normal operations of the entity. The value of these assets or liabilities should be separately added to or deducted from the value of the business based on cash flows reflected in the PFI in the IRR calculation. If any of these assets or liabilities are part of the consideration transferred (e.g., contingent consideration), then their value should be accounted for in the consideration transferred when calculating the IRR of the transaction.
Develop the WACC by properly identifying and performing a comparable peer company or market participant analysis	The WACC should reflect the industry-weighted average return on debt and equity from a market participant's perspective. Market participants may include financial investors as well as peer companies.
Use PFI which reflects market participant assumptions instead of entity-specific assumptions	Entities should test whether PFI is representative of market participant assumptions.
Use PFI prepared on a cash basis not an accrual basis	Since the starting point in most valuations is cash flows, the PFI needs to be on a cash basis. If the PFI is on an accrual basis, it must be converted to a cash basis such that the subsequent valuation of assets and liabilities will reflect the accurate timing of cash flows.
Use PFI that includes the appropriate amount of capital expenditures, depreciation, and working capital required to support the forecasted growth	This should be tested both in the projection period and in the terminal year. The level of investment must be consistent with the growth during the projection period and the terminal year investment must provide a normalized level of growth.
Use PFI that includes tax-deductible amortization and/or depreciation expense	PFI should consider tax deductible amortization and depreciation to correctly allow for the computation of after tax cash flows. PFI that incorrectly uses book amortization and depreciation will result in a mismatch between the post-tax amortization and depreciation expense and the pre-tax amount added back to determine free cash flow. (See FV 7.3.2.1 for further information on calculating free cash flows.)
Use multiple valuation approaches when possible	Multiple valuation approaches should be used if sufficient data is available. While an income approach is most frequently used, a market approach using appropriate guideline companies or transactions helps to check the reasonableness of the income approach.

7.3.3 *Valuation approach – individual assets and liabilities acquired*

Generally, different methods are used to measure the fair value of the majority of assets and liabilities acquired in a business combination, including the components of working capital (e.g., accounts receivable, inventory, and accounts payable) and tangible assets, such as property, plant and equipment. Certain additional considerations are necessary when determining the value of acquired intangible assets.

7.3.3.1 *Measuring the fair value of working capital*

Working capital is commonly defined as current assets less current liabilities. ASC 805 requires that the components of working capital be recorded at fair value. Valuation considerations for selected components of working capital are as discussed in the following sections.

Inventories

ASC 805 requires that inventory acquired in a business combination be measured at its fair value on the acquisition date in accordance with ASC 820. Fair value is an exit price. That is, it represents the price that would be received by a seller of the inventory in an orderly transaction between market participants.

As described in FV 7.2.5, reporting entities should measure fair value using the valuation approach and technique that is appropriate in the circumstances and for which sufficient data is available.

Inventory acquired in a business combination can be in the form of finished goods, work in process, and/or raw materials.

Finished goods and work-in-process inventory

ASC 820-10-55-21 describes the valuation of finished goods inventory as follows:

ASC 820-10-55-21(f)

Finished goods inventory at a retail outlet. For finished goods inventory that is acquired in a business combination, a Level 2 input would be either a price to customers in a retail market or a price to retailers in a wholesale market, adjusted for differences between the condition and location of the inventory item and the comparable (i.e. similar) inventory items so that the fair value measurement reflects the price that would be received in a transaction to sell the inventory to another retailer that would complete the requisite selling efforts. Conceptually, the fair value measurement will be the same, whether adjustments are made to a retail price (downward) or to a wholesale price (upward). Generally, the price that requires the least amount of subjective adjustments should be used for the fair value measurement.

The fair value of finished goods inventory is generally measured as estimated selling price of the inventory, less the sum of (1) costs of disposal and (2) a reasonable profit allowance for the selling effort. This represents an exit price. Work-in-process inventory is measured similar to finished goods inventory except that, in addition, the estimated selling price is further reduced for the costs to complete the manufacturing process and a reasonable profit allowance for that effort. This is referred to as the top-down method.

Alternatively, reporting entities may start with the book value of the acquired inventory and adjust to add the costs (to the extent not previously capitalized into the book value) and a reasonable profit margin for the procurement/manufacturing process completed as of the acquisition date. This is referred to as the bottom-up method. One approach when using either the top-down or bottom-up method is to assess each expense line item in the PFI to determine if it relates to expenses incurred in the procurement/manufacturing process or is an expense remaining to be incurred to sell the finished goods inventory. Refer to FV 7.3.2 for testing of the PFI. These methods are further discussed in a working draft of inventory valuation guidance issued by the AICPA in November 2018, which will be a chapter in a comprehensive AICPA Business Combinations Accounting and Valuation Guide to be released at a future date (the IVSC expects to release an exposure draft with content similar to the AICPA guide in 2019).

Classifying expenses as procurement/manufacturing or selling requires consideration of the specific attributes of the product. This is especially the case for branded products or products with proprietary technology for which the direct costs of manufacturing are significantly less than the selling price. In this case, an assessment needs to be made as to how much of the additional value contributed by intangible assets is inherent in the inventory versus being utilized during the sales process (e.g., a customer relationship used at the time inventory is sold as part of the selling efforts).

Intangible assets may be internally developed or licensed from third parties. Whether intangible assets are owned or licensed, the impact on the fair value of the inventory should be the same. Analysis is required to determine whether the intangible assets are part of the procurement/manufacturing process and therefore become an attribute of the inventory, or are related to the selling effort. Intangible assets that are used in procurement, the manufacturing process, or that are added to the value of the goods are considered a component of the fair value of the finished goods inventory. When valuing the work-in-process inventory, a similar assessment would be performed to determine at what point during the inventory production cycle the intangible assets contribute value.

Question FV 7-1 discusses intangible asset contributions to inventory valuation.

Question FV 7-1

When considering intangible assets contributions to the inventory valuation, how should a reporting entity evaluate how much of their contribution is added to the inventory during the manufacturing process versus being used in selling the inventory?

PwC response

One key factor a reporting entity should consider is how the inventory would be marketed by a market participant to its customers. There are two concepts, generally referred to as the pull and push models, that may often be used to market inventory to customers. In push marketing, products are promoted by pushing them onto customers (e.g., candy placed at the front counter in a retail store where companies are vying for optimal shelf/location, which requires selling expense). Therefore, in a push marketing model, the intangible assets are sales related and not included in the value of the inventory. In pull marketing, the premise is to pull customers to the products (e.g., a customer goes to a department store to buy luxury brand purses). In this case, although marketing efforts are made to support the brand, no significant retail location or push marketing is required due to the brand recognition inherent in the pull marketing model. Accordingly, in pull marketing, the intangible assets' contribution is included in the value of the inventory.

Example FV 7-6 illustrates how intangible assets contribute to the fair value of inventory.

EXAMPLE FV 7-6

Evaluating how intangible assets contribute to the fair value of inventory

Company XYZ acquires Company ABC in a business combination. Company ABC manufactures clothing in the United States and produces shirts under a highly recognized brand name.

Should Company XYZ ascribe the value contributed by the intangible assets (brand name) to shirts in finished goods inventory as part of its acquisition accounting?

Analysis

Yes. The fair value of a premium brand shirt is greater than the fair value of a mass-market branded shirt due not only to the higher cost of fabric and the incremental cost of attaching a logo, but also due to the power of the brand to pull the product through the distribution channel. On the other hand, intangible assets expected to be utilized as part of the selling process would be considered selling related and therefore excluded from the fair value of the finished goods inventory.

Raw materials inventory

Raw materials inventory is recorded at fair value and is generally measured based on the price that would be received by a seller of the inventory in an orderly transaction between market participants (i.e., current replacement cost).

Example FV 7-7 illustrates measurement of raw materials purchased in a business combination.

EXAMPLE FV 7-7

Measuring the fair value of raw materials inventory

Company A acquires Company B in a business combination. On the acquisition date, Company B has lumber raw materials (that are used in the production process) that were initially purchased (historical cost) at \$390 per 1,000 board feet. The current fair value is \$410 per 1,000 board feet.

At what value should Company A record the lumber raw materials inventory as part of its acquisition accounting?

Analysis

The fair value of the lumber raw materials inventory is based on the price that a market participant would receive to sell the lumber in its principal (or most advantageous) market. Therefore, Company A should recognize the acquired lumber raw materials inventory at \$410 per 1,000 board feet at the acquisition date.

7.3.3.2 Fair value of property, plant and equipment

The fair value of certain tangible assets (e.g., buildings, machinery, and equipment) is typically established using the market approach because there is usually available market data for sales and

rentals of buildings, machinery, and equipment. The income approach is typically used to value assets that generate a discrete income stream (e.g., a power plant), or that act in concert with other tangible assets (e.g., a network of wireless towers). In the rare instances in which a reporting entity is valuing buildings, machinery, or equipment for which there is no market or cash flow data, the depreciated replacement cost approach may be appropriate to measure fair value.

The fair value of other tangible assets, such as unique properties or plant and equipment, is often measured using the replacement cost or the cost approach. This represents the highest value that a market participant would pay for an asset with similar utility. The cost approach is based on the principle of substitution. It uses the cost to replace an asset as an indicator of the fair value of that asset. Comparable utility implies similar economic satisfaction, but does not necessarily require that the substitute asset be an exact duplicate of the asset being measured. The cost of an exact duplicate is referred to as reproduction cost. The substitute asset is perceived as equivalent if it possesses similar utility and, therefore, may serve as a measure of fair value of the asset being valued.

Typically, the first step in the cost approach is to identify the asset's original cost. The next step is to adjust the original cost for changes in price levels between the asset's original in-service date and the date of the valuation to obtain its "replacement cost new." Replacement cost new represents the indicated value of current labor and materials necessary to construct or acquire an asset of similar utility to the asset being measured.

Next, adjustments are made to replacement cost new to reflect any losses in value due to physical deterioration or functional obsolescence of the asset, which results in "replacement cost new, less depreciation." Physical deterioration represents the loss in value due to the decreased usefulness of a fixed asset as the asset's useful life expires. This can be caused by factors such as wear and tear, deterioration, physical stresses, and exposure to various elements.

Excessive physical deterioration may result in an inability to meet production standards or in higher product rejections as the tolerance on manufacturing equipment decreases. Higher than average maintenance expenditure requirements may also suggest higher levels of physical deterioration. However, below average maintenance expenditures may also indicate higher levels of physical deterioration due to inadequate or deferred maintenance. Functional obsolescence represents the loss in value due to the decreased usefulness of a fixed asset that is inefficient or inadequate relative to other more efficient or less costly replacement assets resulting from technological developments. Functional obsolescence is observed in several different forms. If the subject asset has higher operating costs relative to a new asset, this may indicate a form of functional obsolescence. If in developing an asset's replacement cost new, that replacement cost is less than its reproduction cost, this may also be indicative of a form of functional obsolescence. It is important to consider functional obsolescence as the objective of the fair value measurement is to identify the replacement cost of a modern equivalent asset.

Physical and functional obsolescence are direct attributes of the asset being valued. However, to provide an indication of the fair value of the asset being measured, further adjustment may be necessary to "replacement cost new less depreciation" for any loss in value due to economic obsolescence. Economic obsolescence represents the loss in value due to the decreased usefulness of a fixed asset caused by external factors, independent from the characteristics of the asset or how it is operated. Increased cost of raw materials, labor, or utilities that cannot be offset by an increase in price due to competition or limited demand, as well as a change in environmental or other regulations, inflation, or high interest rates, may suggest economic obsolescence.

Certain tangible assets are measured using an income or market approach. An example is the measurement of a power plant in the energy sector, which often has few, if any, intangible assets other than the embedded license. The cash flows from the plant reflect only the economic benefits generated by the plant and its embedded license. Management should consider other US GAAP to determine whether the assets measured together need to be accounted for separately. This approach could result in a fair value measurement above the replacement cost. In this situation, management should consider whether any of the difference relates to other assets included in the cash flows, such as customer or contractual assets that could be separately recognized.

Other considerations

Other issues with respect to the valuation of inventory include estimating holding (opportunity) costs and obsolescence.

Holding costs may need to be estimated to account for the opportunity cost associated with the time required for a market participant to sell the inventory. In other words, this represents the foregone return on investment during the time it takes to sell the inventory. When considering whether holding costs should be included (i.e., added) in the inventory valuation, it is important to ensure that holding costs are not already included in the other assumptions, such as the profit assumptions being applied.

When determining the fair value of inventory, the impact of obsolescence should also be considered. The acquiree often has recorded a valuation reserve to reflect aging, obsolescence, and/or seasonality in its inventory carrying value. When adjusting the acquiree's carrying value of inventory to fair value, consideration is needed as to whether obsolescence has already been factored into the inventory or if any reduction to the carrying value of the inventory is needed to record it at fair value. When a valuation reserve has previously been recorded, an understanding of which inventory (i.e., all or a portion) the valuation reserve relates to is important in assessing whether the inventory is reflected at fair value.

7.3.3.3 *General principles for measuring fair value of liabilities*

ASC 820 provides high-level guidance and a framework for measuring the fair value of nonfinancial liabilities, but do not provide practical valuation guidance. ASC 820-10-35-16 defines a liability based on a transfer concept, which assumes that the liability is transferred to a market participant, and therefore, continues in existence and is not settled with the counterparty. The following discussion focuses on potential issues that may emerge in measuring fair value of nonfinancial liabilities.

A liability is not necessarily a negative asset

A liability is not considered merely a “negative asset” when measuring fair value. Some concepts applied in valuing assets, such as “highest and best use” or “valuation premise,” may not have a readily apparent parallel in measuring the fair value of a liability. In measuring liabilities at fair value, the reporting entity must assume that the liability is transferred to a credit equivalent entity and that it continues after the transfer (i.e., it is not settled). As such, it follows that the hypothetical transaction used for valuation is based on a transfer to a credit equivalent entity that is in need of funding and willing to take on the terms of the obligation. If there is an observable market for the transfer of a liability, it must be used to determine the fair value. It is only in the absence of an observable market that ASC 820 requires preparers to consider the value of the corresponding asset held by a market participant.

The concern with reliance on the value from the perspective of the asset holder is that assets and liabilities typically transact in different markets and therefore may have different values. For example, the holder of an automobile warranty asset (the right to have an automobile repaired) likely views the warranty asset in a much different way than the automaker, who has a pool of warranty liabilities. The holders of the asset and liability do not transact in the same market and would be unlikely to value the asset and liability in the same way. The valuation of liabilities is an evolving area.

For additional information on valuing nonfinancial liabilities, refer to IVS 220, *Nonfinancial liabilities*. The General IVSC standards apply to valuations of nonfinancial liabilities and valuations with a nonfinancial liability component. IVS 220 contains additional requirements that apply to valuations of nonfinancial liabilities.

Not all liabilities are the same

Some accounting standards differentiate an obligation to deliver cash (i.e., a financial liability) from an obligation to deliver goods and services (i.e., a nonfinancial liability). Financial liabilities are typically interest bearing and nonfinancial liabilities typically are not. An entity's financial liabilities often are referred to as debt and its nonfinancial liabilities are referred to as operating or performance obligations. Unlike debt, which requires only a cash transfer for settlement, satisfying a performance obligation may require the use of other operating assets.

Different liabilities can have fundamentally different characteristics. For example, debt or a performance obligation may mature simply by the passage of time (i.e., noncontingent) or may depend on other events (i.e., contingent) resulting in performance and other related risks.

A performance obligation may be contractual or noncontractual, which affects the risk that the obligation will be satisfied. These differences affect the variability and magnitude of risks and uncertainties that can influence the settlement or satisfaction of the obligation and its fair value. Therefore, it is important to consider these differences when measuring the fair value of performance obligations. This is particularly critical when considering future cash flow estimates and applicable discount rates when using the income method to measure fair value.

Not all cash flows and rates of return are the same

Projected future cash flows can be “conditional” (sometimes referred to as “promised” or “traditional”) or “expected” (see FV 7.3.2.1). While these principles apply in using future cash flow estimates to measure the fair value of assets and liabilities, they are more widely used in the context of measuring assets. They are discussed below in the context of liabilities. A conditional cash flow estimate reflects a specific (single) condition, such as the “most likely,” “maximum,” or “promised” amount or set of conditions. For example, for a zero coupon bond in which a debtor promises to repay \$500 at the end of a five-year period, the \$500 is referred to as the contractual amount and the condition is that the debtor does not default.

In contrast, an “expected” amount represents a statistical aggregation of the possible outcomes reflecting the relative probability or likelihood of each outcome. In the following \$500 zero coupon bond example, there are three possible outcomes, representing different expectations of cash flow amounts.

	Cash flow payment	Probability	Weighted payment
Outcome 1	\$500	85%	\$425
Outcome 2	250	10%	25
Outcome 3	0	5%	0
Expected cash flow			\$450

For simplicity of presentation, the effect of income taxes is not considered.

In this example, the conditional, or contractual, amount (i.e., \$500) differs from the expected amount (i.e., \$450). This difference is important because the discount rate used to measure the present value of the cash flows should be selected based on the nature of the cash flows being discounted. That is, the discount rate selected should adjust for only those risks not already incorporated into the cash flows. For example, conditional cash flows should be discounted using a rate inclusive of risk, while expected cash flows should only be discounted for those risks not already incorporated in the cash flows. For this reason, when measuring the present value of expected cash flows, the discount rate will be lower than the rate utilized for measuring conditional cash flows. The fair value calculation using both conditional and expected cash flow approaches should give a similar result.

As the level of uncertainty about expected future cash flows increases, the fair value of assets will decrease and the fair value of liabilities will increase. This is because market participants may expect an increase in compensation in exchange for accepting a higher level of uncertainty. Typically, the risk component of a liability will be calculated separate from the discount rate, whereas for assets, the uncertainty may be considered in the selection of the discount rate or separately.

Consideration of taxes

Market participants will generally consider the potential effects of income taxes when determining the fair value of a liability; however, those considerations are different than those for an asset. Taxes represent a reduction of the cash flows available to the owner of the asset. A liability is a probable future sacrifice of assets by the reporting entity to a third party. The payment of a liability may result in a tax deduction for the reporting entity. However, the tax consequences do not change the amount owed by the reporting entity to the third party. Taxes are generally not deducted from the amount owed to the third party.

Comparable debt securities that have observable prices and yields are a common starting point when estimating a discount rate to use to fair value a liability using the income approach. Different instruments may have different tax attributes. To be considered similar, the tax attributes should be similar. For example, the interest payments on a debt instrument may be taxable, but the principal payments may be nontaxable. Accordingly, the market interest rate selected that will be used to derive a discount rate should be consistent with the characteristics of the subject liability.

7.3.3.4 Fair value of nonfinancial liabilities

The business combinations standard requires most nonfinancial liabilities assumed (for example, provisions) to be measured at fair value, except as limited by ASC 805-10-15-4. ASC 820-10-35-18 requires the entity's credit risk to be included in determining the fair value of a nonfinancial liability.

Some common nonfinancial liabilities assumed in a business combination include contingent liabilities and warranties.

Example FV 7-8 provides an overview of the application of a basic discounted cash flow technique to measure a warranty liability.

EXAMPLE FV 7-8

Measuring the fair value of a warranty liability

Company A is acquired in a business combination. Company A is a manufacturer of computers and related products and provides a three-year limited warranty to its customers related to the performance of its products. Expenses related to expected warranty claims are accrued based on the detailed analyses of past claims history for different products. Company A's experience indicates that warranty claims increase each year of a contract based on the age of the computer components.

One of Company A's product lines (Line 1) has significant new components for which there is little historical claims data as well as other components for which historical claims data is available.

Given the availability of historical claims data, the acquirer believes that the expected cash flow technique will provide a reasonable measure of the fair value of the warranty obligation.

Using the information provided, what is the fair value of the warranty obligation based on the probability adjusted expected cash flows?

Analysis

To develop the probabilities needed to estimate expected cash flows, the acquirer evaluates Company A's historical warranty claims. This includes evaluating how the performance of the new components used in Line 1 compares to the performance trends of the other components for which historical claims data is available. The acquirer develops expected cash flows and a probability assessment for each of the various outcomes. The cash flows are based on different assumptions about the amount of expected service cost plus parts and labor related to a repair or replacement. The acquirer estimates the following outcomes for Line 1, each of which is expected to be payable over the three-year warranty period.

The expected cash flows of the warranty claims are as follows:

Product Line 1	Probability	Year 1	Year 2	Year 3
Outcome 1	50%	3,000	6,000	12,000
Outcome 2	30%	8,000	14,000	20,000
Outcome 3	20%	12,000	20,000	30,000

In calculating the fair value of the warranty obligation, the acquirer needs to estimate the level of profit a market participant would require to perform under the warranty obligations. The acquirer considers the margins for public companies engaged in the warranty fulfillment business as well as its own experience in arriving at a pre-tax profit margin equal to 5% of revenue.¹

The acquirer also needs to select a discount rate to apply to the probability-weighted expected warranty claims for each year and discount them to calculate a present value. Because the expected claim amounts reflect the probability weighted average of the possible outcomes identified, the expected cash flows do not depend on the occurrence of a specific event. In this case, the acquirer determined that the discount rate is 7%.³ The table below reflects the expected cash flows developed in the previous table with the value of each outcome adjusted for the acquirer's estimate of the probability of occurrence.

Product line 1	Year 1	Year 2	Year 3
Outcome 1	1,500	3,000	6,000
Outcome 2	2,400	4,200	6,000
Outcome 3	2,400	4,000	6,000
Probability weighted	6,300	11,200	18,000
Pre-tax profit (5%) ¹	315	560	900
Warranty claim amount	6,615	11,760	18,900
Discount period ²	0.5	1.5	2.5
Discount rate ³	7%	7%	7%
Present value factor ⁴	0.9667	0.9035	0.8444
Present value of warranty claims ⁵	6,395	10,625	15,959
Estimated fair value ⁶ (rounded)	33,000		

¹ The expected payment should include a profit element required by market participants, which is consistent with the fair value transfer concept for liabilities. The profit element included here represents an assumed profit for this example.

² A mid-year discounting convention was used based on the assumption that warranty claims occur evenly throughout the year.

³ In practice, determining the discount rate can be a challenging process requiring a significant amount of judgment. The discount rate should reflect a risk premium that market participants would consider when determining the fair value of a contingent liability. For performance obligations (e.g., warranties) determination of discount rates may be more challenging than for financial liabilities, as data to assess the nonperformance risk component is not as readily obtainable as it may be for financial liabilities.

⁴ Calculated as $1/(1+k)^t$, where k = discount rate and t = discount period.

⁵ Calculated as the warranty claim amount multiplied by the present value factor.

⁶ Calculated as the sum of the present value of warranty claims for years 1 through 3.

7.3.3.5 *Fair value of financial liabilities*

With limited exceptions, ASC 805 requires the measurement of liabilities assumed to be at their acquisition-date fair values. ASC 805 incorporates the definition of fair value in ASC 820; therefore, fair value must be measured based on the price that would be paid to transfer a liability.

Refer to FV 6 for further details on the fair value measurement of financial liabilities.

Contingent assets and liabilities

The valuation of contingent assets and liabilities is an area for which there is limited practical experience and guidance. ASC 805-20-25-19 through ASC 805-20-25-20B clarifies the initial recognition, subsequent measurement, and related disclosures arising from contingencies in a business combination. Under ASC 805, assets acquired and liabilities assumed in a business combination that arise from contingencies are required to be recognized at fair value at the acquisition date if fair value can be determined during the measurement period. If the acquisition date fair value of such assets acquired or liabilities assumed cannot be determined during the measurement period, the asset or liability should generally be recognized in accordance with ASC 450, *Contingencies*. See BCG 2 for more information.

A technique consistent with the income approach will most likely be used to estimate the fair value if fair value is determinable. A straightforward discounted cash flow technique may be sufficient in some circumstances, while in other circumstances more sophisticated valuation techniques and models such as real options, option pricing, Probability Weighted Expected Return Method sometimes called PWERM, or Monte Carlo simulation may be warranted.

Contingent consideration

Contingent consideration is generally classified either as a liability or as equity at the time of the acquisition. For details on the determination of the classification of contingent consideration, refer to BCG 2. Measuring the fair value of contingent consideration presents a number of valuation challenges. Generally, there are two methodologies used in practice to value contingent consideration. The first is a scenario-based technique and the second is an option pricing technique. The scenario-based technique involves developing discrete scenario-specific cash flow estimates or potential outcomes in circumstances when the trigger for payment is event driven. These amounts are then probability weighted and discounted using an appropriate discount rate. For example, a contingent payment that is triggered by a drug achieving an R&D milestone is often valued using a scenario-based method. The option pricing technique, which is more fully described in the Appraisal Foundation paper Valuation Advisory #4: *Valuation of Contingent Consideration*, is similar in concept, but uses an option-pricing framework for valuing contingent consideration. This eliminates the need to determine the appropriate discount rate and replaces scenarios with a volatility assumption. Option pricing techniques rely on estimates of volatility and a milestone-specific risk, referred to as Market Price of Risk. The option pricing technique is most appropriate in situations when the payment trigger is in some way correlated to the market (for example, if payment is a function of exceeding an EBITDA target for a consumer products company). The scenario method applies in situation when the trigger is not correlated (for example, if payment is tied to a decision by a court).

As is the case for all models, entities will need to consider the key inputs of the arrangement and market participant assumptions when developing the fair value of the arrangement. This will include the need to estimate the likelihood and timing of achieving the relevant milestones of the arrangement. Entities will also need to exercise judgment when applying a probability assessment for each of the potential outcomes. In the case of the option pricing method, the volatility assumption is key. In some cases, the volatility will not be objectively determinable (e.g., a revenue-based trigger for a company that has few or no reasonable comparative companies). In such cases, market participants may consider various techniques to estimate fair value based on the best available information.

The fair value of liability-classified contingent consideration will need to be updated each reporting period after the acquisition date. Changes in fair value measurements should consider the most current estimates and assumptions, including changes due to the time value of money.

Example FV 7-9 provides an overview of the application of a basic technique to measure contingent consideration.

EXAMPLE FV 7-9

Measuring the fair value of cash settled contingent consideration — liability classified

Company A purchases Company B for \$400. Company A and Company B agree that if revenues of Company B exceed \$2500 in the year following the acquisition date, Company A will pay \$50 to the former shareholders of Company B. Company B is a biotech with one unique oncology product. Company A should classify the arrangement as a liability because it requires Company A to pay cash.

How could the fair value of the liability be calculated based on the arrangement between Company A and Company B?

Analysis

Company A would most likely consider a scenario-based discounted cash flow methodology to measure the fair value of the arrangement. A key determination for this approach is selecting a discount rate that best represents the risks inherent in the arrangement. In reality, there is more than one source of risk involved. For example, both projection risk (the risk of achieving the projected revenue level) and credit risk (the risk that the entity may not have the financial ability to make the arrangement payment) need to be considered.

Each of these risks may be quantifiable in isolation. When the two risks exist in tandem, consideration should be given to factors such as the potential correlation between the two risks and the relative impact of each risk upon the realization of the arrangement.

One alternative approach to determine the fair value of the cash settled contingent consideration would be to develop a set of discrete potential outcomes for future revenues. Some outcomes would show revenue levels above the \$2500 performance target and some would be below. Outcomes showing revenues above the \$2500 threshold would result in a payout. For those below the threshold, there would be no payout.

Each discrete payout outcome would then be assigned a probability and the probability-weighted average payout discounted based on market participant assumptions. For example, using the following assumed alternative outcomes and related probability, the fair value of the arrangement would be calculated as follows.

Outcome	Revenue level	Payout	Probability	Probability-weighted payout
1	\$2000	\$0	10%	\$0
2	2250	0	15	0
3	2500	0	15	0
4	2750	50	40	20
5	3000	50	20	10
		Total:	100%	\$30
		Discount rate ¹		20%
		Fair value:		\$25

¹ A discount rate of 20% is used for illustrative purposes.

Example FV 7-10 provides an overview of the measurement of liability-classified share-settled contingent consideration.

EXAMPLE FV 7-10

Measuring the fair value of share settled contingent consideration — liability classified

Company A purchases Company B by issuing 1 million common shares of Company A stock to Company B's shareholders. At the acquisition date, Company A's share price is \$40 per share. Company A and Company B agree that if the common shares of Company A are trading below \$40 per share one year after the acquisition date, Company A will issue additional common shares to Company B's former shareholders sufficient to mitigate price declines below \$40 million (i.e., the acquisition date fair value of the 1 million common shares issued).

The guarantee arrangement creates an obligation that Company A would be required to settle with a variable number of Company A's equity shares, the amount of which varies inversely to changes in the fair value of Company A's equity shares. For example, if Company A's share price decreases from \$40 per share to \$35 per share one year after the acquisition date, the amount of the obligation would be \$5 million. Therefore, the guarantee arrangement would require liability classification on the acquisition date. Further, changes in the liability will be recognized in Company A's earnings until the arrangement is settled.

How could the fair value of the contingent consideration arrangement be calculated based on the arrangement between Company A and Company B?

Analysis

The contingent consideration arrangements would likely be valued using an option pricing technique that estimates the value of a put option. In this example, Company A is guaranteeing its share price, effectively giving a put option on the transferred shares. Assuming a 2% risk-free rate, no dividends, 55% volatility, a one-year put option with a stock price of \$40 million, a strike price of \$40 million, and time to expiration of one year, the put value is \$8.2 million.

The best estimate or the probability-weighted approach will likely not be sufficient to value the share-settled arrangement. In addition to the quantification of projection and credit risks, the modeling of Company A's share price is required. The following factors, which are relevant in performing a valuation for such arrangements, are what make it unlikely that the probability-weighted approach would be appropriate:

- Potential outcomes for Company A's financial results next year
- Potential outcomes for Company A's share price over the coming year
- Correlation of the potential financial results with share prices
- Potential outcomes for other market events that could impact the overall stock market
- Selection of an appropriate discount rate that adequately reflects all of the risks not reflected in other assumptions (e.g., projection risk, share price return estimation risk, Company A's credit risk)

Example FV 7-11 provides an overview of the measurement of equity-classified share-settled contingent consideration.

EXAMPLE FV 7-11**Measuring the fair value of share-settled contingent consideration — equity classified**

Company A acquires Company B in a business combination. The consideration includes 10 million Company A shares transferred at the acquisition date and 2 million shares to be issued 2 years after the acquisition date, if a performance target is met. The performance target is met if Company B's revenues (as a wholly owned subsidiary of Company A) exceed \$500 million in the second year after the acquisition. The market price of Company A's stock is \$15/share at the acquisition date. Company A management assesses a 25% probability that the performance target will be met. A dividend of \$0.25 per share is expected at the end of years 1 and 2. The seller will not be entitled to receive a dividend on the contingent shares.

Because Company A has already received Company B's business upon transfer of the 10 million Company A shares, the agreement for Company A to contingently deliver another 2 million shares to the former owners of Company B is a prepaid contingent forward contract.

How could the fair value of the equity classified prepaid contingent forward contract be valued based on the arrangement between Company A and Company B?

Analysis

There may be several acceptable methods for determining the fair value of the forward contract. One that is commonly used is a model based on discounted expected payment. In this case, the fair value of the contingent consideration at the acquisition date would be based on the acquisition-date fair value of the shares and incorporate the probability of Company B achieving the targeted revenues. The fair value would exclude the dividend cash flows in years 1 and 2, as the market price is inclusive of the right to receive dividends to which the seller is not entitled and would incorporate the time value of money.

The discount rate for the present value of dividends should be the acquirer's cost of equity¹ because returns are available to equity holders from capital appreciation and dividends paid. Those earnings are all sourced from net income of the acquirer.

Based on the facts above and an assumed 15% cost of equity, the fair value would be calculated as follows.

	A	B	C
Revenue forecast (\$ millions)	Probability	Payment in shares	Probability weighted number of shares
350	30%	0	
450	45%	0	
>500	25%	2,000,000	500,000
Probability-weighted shares			500,000
Share price ¹			\$15/share
Probability weighted value			\$7,500,000
Dividend year 1 (500,000 shares × \$0.25/share)			\$125,000
Dividend year 2 (500,000 shares × \$0.25/share)			\$125,000
Present value of dividend cash flow (assuming 15% discount rate) ²			\$203,214
Present value of contingent consideration (7,500,000 – 203,214)			\$7,296,786

¹ In most cases, there will be a correlation between the revenues of Company B and the share price of Company A. This requires a more complex analysis in which the movement of Company A's share price fluctuates with Company B's revenues. A simplifying assumption has been made in this example that Company B's revenues and Company A's share price are not correlated.

² The required rate of return on dividends would likely be less than the cost of equity in many cases. For simplicity, the example used the same discount rate.

Each arrangement should be evaluated based on its own specific features, which may require different modelling techniques and assumptions. Additionally, the valuation model used for liability-classified

contingent consideration would need to be flexible enough to accommodate inputs and assumptions that need to be updated each reporting period. The PFI used in valuing contingent consideration should be consistent with the PFI used in other aspects of an acquisition, such as valuing intangible assets. The valuation model used to value the contingent consideration needs to capture the optionality in a contingent consideration arrangement and may therefore be complex.

Debt

When an entity with listed debt is acquired, market evidence shows that the listed price of the debt changes to reflect the credit enhancement to be provided by the acquirer (i.e., it reflects the market's perception of the value of the liability if it is expected to become a liability of the new group). If the acquirer does not legally add any credit enhancement to the debt or in some other way guarantee the debt, the fair value of the debt may not change.

The fair value of debt is required to be determined as of the acquisition date. If the acquiree has public debt, the quoted price should be used. If the acquiree has both public and nonpublic debt, the price of the public debt should be considered as one of the inputs in valuing the nonpublic debt.

Question FV 7-2 illustrates how a company should measure the fair value of debt assumed in a business combination.

Question FV 7-2

How should a company measure the fair value of debt assumed in a business combination?

PwC response

The credit standing of the combined entity in a business combination will often be used when determining the fair value of the acquired debt. For example, if acquired debt is credit-enhanced because the debt holders become general creditors of the combined entity, the value of the acquired debt should follow the characteristics of the acquirer's post combination credit rating. However, if the credit characteristics of the debt acquired remain unchanged after the acquisition because, for example, the debt remains secured by only the net assets of the acquired entity, the value of the acquired debt should reflect the characteristics of the acquiree's pre-combination credit rating.

7.3.3.6 *Deferred revenue (subsequent to the adoption of ASU 2021-08)*

Deferred revenue represents an obligation to provide products or services to a customer when payment has been made in advance and delivery or performance has not yet occurred. Examples of deferred revenue obligations that may be recognized in a business combination include upfront subscriptions collected for magazines or upfront payment for post-contract customer support for licensed software.

In October 2021, the FASB issued ASU 2021-08, *Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers*, which requires contract assets and contract liabilities (i.e., deferred revenue) acquired in a business combination to be recognized and measured by the acquirer on the acquisition date in accordance with ASC 606, *Revenue from Contracts with Customers*. The new guidance is an exception to the fair value model in business combination accounting and only applies to acquired contract assets and contract liabilities.

The new guidance is effective for public business entities for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. For all other entities, the new guidance is effective for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years.

Refer to BCG 2.5.16 for more information.

Under current US GAAP, contract assets and contract liabilities acquired in a business combination are recorded by the acquirer at fair value. Refer to FV 7.3.3.6A.

7.3.3.6A *Deferred revenue (prior to the adoption of 2021-08)*

This section discusses the guidance in ASC 805 prior to the adoption of ASU 2021-08, *Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers*. FV 7.3.3.6 discusses the guidance in ASC 805 subsequent to the adoption of ASU 2021-08.

Deferred revenue represents an obligation to provide products or services to a customer when payment has been made in advance and delivery or performance has not yet occurred. Examples of deferred revenue obligations that may be recognized in a business combination include upfront subscriptions collected for magazines or upfront payment for post-contract customer support for licensed software.

The fair value of a deferred revenue liability typically reflects how much an acquirer has to pay a third party to assume the liability. The deferred revenue amount recorded on the acquiree's balance sheet generally represents the cash received in advance, less the amount amortized for services performed to date. Accordingly, the acquiree's recognized deferred revenue liability at the acquisition date is rarely the fair value amount that would be required to transfer the underlying contractual obligation.

Fair value considerations when deferred revenue exists

Generally, there are two methods of measuring the fair value of a deferred revenue liability. The first method, commonly referred to as a bottom-up approach, measures the liability as the direct, incremental costs to fulfill the legal performance obligation, plus a reasonable profit margin if associated with goods or services being provided, and a premium for risks associated with price variability. Direct and incremental costs may or may not include certain overhead items, but should include costs incurred by market participants to service the remaining performance obligation related to the deferred revenue obligation. These costs do not include elements of service or costs incurred or completed prior to the consummation of the business combination, such as upfront selling and marketing costs, training costs, and recruiting costs.

The reasonable profit margin should be based on the nature of the remaining activities and reflect a market participant's profit. If the profit margin on the specific component of deferred revenue is known, it should be used if it is representative of a market participant's normal profit margin on the specific obligation. If the current market rate is higher than the market rate that existed at the time the original transactions took place, the higher current rate should be used. The measurement of the fair value of a deferred revenue liability is generally performed on a pre-tax basis and, therefore, the normal profit margin should be on a pre-tax basis.

An alternative method of measuring the fair value of a deferred revenue liability (commonly referred to as a top-down approach) relies on market indicators of expected revenue for any obligation yet to be delivered with appropriate adjustments. This approach starts with the amount that an entity would receive in a transaction, less the cost of the selling effort (which has already been performed) including a profit margin on that selling effort. This method is used less frequently, but is commonly used for measuring the fair value of remaining post-contract customer support for licensed software.

When valuing intangible assets using the income approach (e.g., Relief-from-royalty method or multi-period excess earnings method) in instances where deferred revenues exist at the time of the business combination, adjustments may be required to the PFI to eliminate any revenues reflected in those projections that have already been received by the acquiree (because the cash collected by the acquiree includes the deferred revenue amount). If the excess earnings method is used, the expenses and required profit on the expenses that are captured in valuing the deferred revenue should also be eliminated from the PFI. However, if cash based PFI is used in the valuation, and therefore acquired deferred revenues are not reflected in the PFI, then no adjustment is required in the valuation of intangible assets using the income approach.

7.3.4 *Fair value of intangible assets*

ASC 805 requires entities to recognize separately from goodwill the identifiable intangible assets acquired in a business combination at their acquisition-date fair values. Few intangible assets are traded in an active market. When they are, fair value can be measured by reference to the quoted price of an identical asset and can be a Level 1 measurement. When they are not traded, the reporting entity will need to use one or more valuation approaches/techniques. Figure FV 7-8, which follows the description of the approaches, summarizes some key considerations for measuring the fair value of intangible assets.

7.3.4.1 *Income approach for intangible assets*

The income approach is a valuation approach used to convert future cash flows to a single discounted present value amount. It is discussed in FV 4.4.3.

The most common techniques within the income approach, along with the types of intangible assets they are typically used to measure, are included in Figure FV 7-4.

Figure FV 7-4

Intangible asset income approach techniques

Multi-period excess earnings method including the distributor method	Customer relationships and enabling technology
Relief-from-royalty method	Trade names, brands, and technology assets
Greenfield method	Broadcast, gaming and other long-lived government-issued licenses
With and without method	Non-compete agreements, customer relationships

The cost savings and premium profit methods are other ways to value intangible assets but are used less frequently.

Multi-period excess earnings method

The multi-period excess earnings method (MEEM) is a valuation technique commonly used for measuring the fair value of intangible assets. The fundamental principle underlying the MEEM is isolating the net earnings attributable to the asset being measured. Cash flows are generally used as a basis for applying this method. Specifically, an intangible asset's fair value is equal to the present value of the incremental after-tax cash flows (excess earnings) attributable solely to the intangible asset over its remaining economic life.

Intangible assets are generally used in combination with other tangible and intangible assets to generate income. The other assets in the group are often referred to as "contributory assets," as they contribute to the realization of the intangible asset's value. To measure the fair value of an intangible asset, its projected cash flows are isolated from the projected cash flows of the combined asset group over the intangible asset's remaining economic life. Both the amount and the duration of the cash flows are considered from a market participant's perspective.

The fair value measurement of an intangible asset starts with an estimate of the expected net income of a particular asset group. "Contributory asset charges" or "economic rents" are then deducted from the total net after-tax cash flows projected for the combined group to obtain the residual or "excess earnings" attributable to the intangible asset. The contributory asset charges represent the charges for the use of an asset or group of assets (e.g., working capital, fixed assets, other tangible assets) and should be calculated considering all assets, excluding goodwill, that contribute to the realization of cash flows for a particular intangible asset. Goodwill is excluded as it is generally not viewed as an asset that can be reliably measured. (See further discussion of contributory asset charges within this section.) The excess cash flows are then discounted to a net present value. The net present value of any tax benefits associated with amortizing the intangible asset for tax purposes (where relevant) is added to arrive at the intangible asset's fair value.

The contributory asset charges are calculated using the assets' respective fair values and are conceptually based upon an "earnings hierarchy" or prioritization of total earnings ascribed to the assets in the group. The earnings hierarchy is the foundation of the MEEM in which earnings are first attributed to a fair return on contributory assets, such as investments in working capital, and property, plant, and equipment. These are considered a prerequisite to developing the ability to deliver goods and services to customers, and thus their values are not included as part of the intangible assets' value.

The return or charge for each asset should be based upon comparable or hypothetical market rates, which reflect the amount market participants would charge for the use of the asset (i.e., a "market-derived rent"). In addition, contributory assets may benefit a number of intangible and other assets. The total return or charge earned by a particular asset should be distributed among the assets that benefit from its use. Therefore, in determining the fair value of intangible assets, a capital-intensive manufacturing business should have a higher contributory asset charge from fixed assets (in absolute terms) than that of a service business.

Terminal values are not appropriate in the valuation of a finite-lived intangible asset under the income approach. However, it is appropriate to add a terminal value to a discrete projection period for indefinite-lived intangible assets, such as some trade names.

The key assumptions of the MEEM, in addition to the projected cash flows over the asset's remaining useful life, include consideration of the following, each of which is discussed in the subsequent sections:

- Discount rate, including reconciliation of the rate of return
- Contributory asset charges
- Tax amortization benefits

MEEM – discount rates for intangible assets

Using the appropriate discount rate is an important factor in a multi-period excess earnings analysis, whether using expected (i.e., probability adjusted) or conditional (i.e., management's best estimate) cash flows. The determination of the appropriate discount rate to be used to estimate an intangible asset's fair value requires additional consideration as compared to those used when selecting a discount rate to estimate the business enterprise valuation (BEV). Refer to FV 7.3.2 for further details on the BEV.

The discount rate should reflect the risks commensurate with the intangible asset's individual cash flow assumptions. Some intangible assets, such as order or production backlog, may be assigned a lower discount rate relative to other intangible assets, because the cash flows are more certain. Other intangible assets, such as technology-related and customer relationship intangible assets are generally assigned higher discount rates, because the projected level of future earnings is deemed to have greater risk and variability. While discount rates for intangible assets could be higher or lower than the entity's weighted average cost of capital (WACC), they are typically higher than discount rates on tangible assets.

Figure FV 7-5 depicts the continuum of risks that are typically associated with intangible assets, although specific facts and circumstances should be considered.

Figure FV 7-5
Spectrum of risk for intangible assets



The WACC represents the average expected return from the business (i.e., all the assets and liabilities used collectively in generating the cash flows of the entire business) for a market participant investor, and includes an element to compensate for the average risk associated with potential realization of these cash flows. The internal rate of return (IRR) in a business combination represents the implied return from the transaction that may include acquirer-specific elements.

Conceptually, the WACC applicable for the acquiree should be the starting point for developing the appropriate discount rate for an intangible asset. The WACC and the IRR should be equal when the projected financial information (PFI) is market participant expected cash flows and the consideration transferred equals the fair value of the acquiree. However, circumstances arise in practice when the WACC and the IRR are not equal, creating the need for further analysis to determine the appropriate starting point for an intangible asset discount rate. See FV 7.3.2.1.

If a difference exists between the IRR and the WACC and it is driven by the PFI (i.e., optimistic or conservative bias rather than expected cash flows, while the consideration transferred is the fair value of the acquiree), leading practice would be to revise the PFI to better represent expected cash flows and recalculate the IRR. If the PFI is not adjusted, it may be necessary to only consider the IRR as a starting point for determining the discount rates for intangible assets.

If the IRR is higher than the WACC because the overall PFI includes optimistic assumptions about revenue growth from selling products to future customers, it may be necessary to make adjustments to the discount rate used to value the intangibles in the products that would be sold to both existing and future customers as existing customer cash flow rates are lower. If the revenue growth rate for the existing customer relationships does not reflect a similar level of growth or risk than future customers, then the discount rate for existing customer relationships should generally be based on the WACC without such adjustments.

If the difference between the IRR and the WACC is driven by the consideration transferred (i.e., the transaction is a bargain purchase or the buyer has paid for entity-specific synergies), then the WACC may be more appropriate to use as the basis of the intangible assets' discount rate. The relationship between the WACC and the IRR in certain circumstances impacts the selection of discount rates for intangible assets.

The WACC is generally the starting point for determining the discount rate applicable to an individual intangible asset. However, as discussed above, in certain circumstances the WACC may need to be adjusted if the cash flows do not represent market participant assumptions, for example, because the information needed to adjust the cash flows is not available.

Figure FV 7-6 illustrates how the relationship between the WACC and the IRR impacts the selection of discount rates for intangible assets in certain circumstances.

Figure FV 7-6

The relationship between the WACC and the IRR and the selection of discount rates for intangible assets

The projected financial information (PFI) represents market participant cash flows and consideration represents fair value	WACC = IRR
Alternatively:	
The PFI are optimistic or pessimistic, therefore, WACC \neq IRR	Adjust cash flows so WACC and IRR are the same
Consideration is a bargain purchase	Use WACC
PFI includes company specific synergies not paid for	Adjust PFI to reflect market participant synergies and use WACC
Consideration is not fair value, because it includes company-specific synergies not reflected in PFI	Use WACC

Premiums and discounts are applied to the entity's WACC or IRR to reflect the relative risk associated with the particular tangible and intangible asset categories that comprise the group of assets expected to generate the projected cash flows. Once the appropriate WACC has been identified, the rate is disaggregated to determine the discount rate applicable to the individual assets. This process is typically referred to as "rate stratification." The range of discount rates assigned to the various tangible and intangible assets should reconcile, on a fair-value weighted basis, to the entity's overall WACC. For example, working capital and fixed assets are generally assigned a lower required discount rate relative to a company's overall discount rate, whereas intangible assets and goodwill are assigned a higher discount rate. This is because achieving the cash flows necessary to provide a "fair" return on tangible assets is more certain than achieving the cash flows necessary to provide a fair return on intangible assets. Application of the concept is subjective and requires significant judgment.

MEEM – reconciliation of rates of return

The stratification of the discount rate to the various classes of assets is a challenging process, because there are few, if any, observable active markets for intangible assets. Nonetheless, reporting entities should assess the overall reasonableness of the discount rate assigned to each asset by reconciling the discount rates assigned to the individual assets, on a fair-value-weighted basis, to the WACC of the acquiree (or the IRR of the transaction if the PFI does not represent market participant assumptions). This reconciliation is often referred to as a "weighted average return analysis" (WARA). The WARA is a tool used to assess the reasonableness of the selected discount rates.

The rate of return assigned to each asset should be consistent with the type of cash flows associated with the underlying asset; that is, the expected cash flows or conditional cash flows, as the rate of return may be different for each. Assets valued using expected cash flows would have a lower required rate of return than the same assets valued using conditional cash flows because the latter cash flows do not include all of the possible downside scenarios. The discount rates used in the WARA should be appropriate for expected cash flows. Using discount rates appropriate to conditional cash flows will distort the WARA analysis as the discount rate for the overall company will generally be on an

expected cash flows basis. The value of the assets used in the WARA should be adjusted to the extent the assets' value is not amortizable for tax purposes. Some transactions (for example, share acquisitions in some jurisdictions) do not result in a change in the tax basis of acquired assets or liabilities assumed.

Determining the implied rate of return on goodwill, is necessary to assess the reasonableness of the selected rates of return on the individual assets acquired, and is the reconciling rate between the WACC and total of individual asset rates in the WARA. Although goodwill is not explicitly valued by discounting residual cash flows, its implied discount rate should be reasonable, considering the facts and circumstances surrounding the transaction and the risks normally associated with realizing earnings high enough to justify investment in goodwill.

Example FV 7-12 shows a WARA reconciliation used to test the reasonableness of the discount rates applied to the individual assets.

EXAMPLE FV 7-12

Weighted average return analysis

Company A acquires Company B in a business combination for \$400 million. Reconciling Company B's PFI to the consideration transferred of \$400 million results in an internal rate of return of 12%. Assume a 40% tax rate. The WACC for comparable companies is 11.5%.

(\$ in millions)

Assets	Fair value	Percent of total (a)	After-tax discount rate (b)	Weighted average discount rates (a) x (b)
Working capital	\$30	7.5%	4.0%	0.3%
Fixed assets	60	15.0	8.0	1.2
Patent	50	12.5	12.0	1.5
Customer relationships	50	12.5	13.0	1.6
Developed technology	80	20.0	13.0	2.6
Goodwill	130	32.5	15.0	4.9
Total	\$400	100.0%		12.1%

The rates used for contributory assets, which are working capital (4%) and fixed assets (8%), are assumed to be consistent with after-tax observed market rates. In general, discount rates on working capital and fixed assets are derived assuming a combination of equity and debt financing. The cost of debt on working capital could be based on the company's short-term borrowing cost. The fixed asset discount rate typically assumes a greater portion of equity in its financing compared to working capital. The entity's overall borrowing cost for the debt component of the fixed asset discount rate would be used rather than a short-term borrowing cost as used for working capital.

Do each of the respective discount rates included in the WARA performed by Company A appear reasonable?

Analysis

The discount rates selected for intangible assets in conjunction with the rates selected for other assets, including goodwill, results in a WARA of 12.1%, which approximates the comparable entity WACC and IRR of 11.5% and 12%, respectively. Therefore, the selected discount rates assigned to the assets acquired appear reasonable.

The rates used to derive the fair value of the patent, customer relationships, and developed technology of 12%, 13%, and 13%, respectively, each represent a premium to the WACC (11.5%). The premium should be based on judgment and consistent with market participant assumptions. Certain intangible assets, such as patents, are perceived to be less risky than other intangible assets, such as customer relationships and developed technology. Discount rates on lower-risk intangible assets may be consistent with the entity's WACC, whereas higher risk intangible assets may reflect the entity's cost of equity.

The implied discount rate for goodwill (15% in this example) should, in most cases, be higher than the rates assigned to any other asset, but not significantly higher than the rate of return on higher risk intangible assets. Generally, goodwill has the most risk of all of the assets on the balance sheet. If the implied rate of return on goodwill is significantly different from the rates of return on the identifiable assets, the selected rates of return on the identifiable assets should be reconsidered.

Significant professional judgment is required to determine the stratified discount rates that should be applied in performing a WARA reconciliation. A higher selected rate of return on intangible assets would result in a lower fair value of the intangible assets and a higher implied fair value of goodwill (implying a lower rate of return on goodwill compared to other assets). This may suggest that the selected return on intangible assets is too high, because goodwill should conceptually have a higher rate of return than intangible assets.

Leading practices in determining contributory asset charges

Cash flows associated with measuring the fair value of an intangible asset using the MEEM should be reduced or adjusted by contributory asset charges. The practice of taking contributory asset charges on assets, such as net working capital, fixed assets, and other identifiable intangible assets, is widely accepted among valuation practitioners. However, there are varying views related to which assets should be used to calculate the contributory asset charges. Some valuation practitioners have argued that certain elements of goodwill or goodwill in its entirety should be included as a contributory asset, presumably representing going concern value, institutional know-how, repeat patronage, and reputation of a business. A majority of valuation practitioners and accountants have rejected this view because goodwill is generally not viewed as an asset that can be reliably measured.

However, assembled workforce, as an element of goodwill, may be identifiable and reasonably measured, even though it does not meet the accounting criteria for separate recognition. As a result, an assembled workforce is typically considered a contributory asset, even though it is not recognized separately from goodwill according to ASC 805-20-55-6. It is rare to see a valuation of an intangible asset that includes a contributory asset charge for a portion of goodwill, with the exception of an assembled workforce. Improperly including a contributory asset charge will tend to understate the fair

value of the intangible asset and overstate goodwill. This is an evolving area; valuation practitioners are debating which other elements of goodwill might be treated in the same way as an assembled workforce and if such elements can be reasonably measured.

Another common practice issue in determining contributory asset charges is the inclusion of both returns “on” and “of” the contributory asset when the “of” component is already reflected in the asset’s cash flow forecast. The “return of” component encompasses the cost to replace an asset, which differs from the “return on” component, which represents the expected return from an alternate investment with similar risk (i.e., opportunity cost of funds). For self-constructed assets, such as customer lists, the cost to replace them (i.e., the return of value) is typically included in normal operating costs and, therefore, is already factored into the PFI as part of the operating cost structure. Because this component of return is already deducted from the entity’s revenues, the returns charged for these assets would include only the required return on the investment (i.e., the profit element on those assets has not been considered) and not the return of the investment in those assets.

The applied contributory asset charge may include both a “return on” and a “return of” component in certain circumstances taking into consideration the factors discussed in the prior paragraph. This may require an adjustment to the PFI used to value a particular intangible asset. For example, when a royalty rate is used as a technology contributory asset charge, the assumption is that the entity licenses its existing and future technology instead of developing it in-house. If the PFI was developed on the assumption that future technology will be developed in-house, it would reflect cash expenditures for research and development. In this case, the PFI used to value the individual intangible asset (e.g., customer relationships) should be adjusted by eliminating the cash spent on research and development for future technology. This is because the royalty is the cost for licensing completed technology (whether current or future) from a third party. As a result, inclusion of cash spent on research and development in the PFI results in double counting as there is no need to develop a technology in-house when it is assumed to be licensed from a third party.

MEEM – tax amortization benefits

The effect of income taxes should be considered when an intangible asset’s fair value is estimated as part of a business combination, an asset acquisition, or an impairment analysis. The fair values of the acquired assets and liabilities assumed for financial reporting purposes and tax purposes are generally the same in a taxable business combination (see further discussion in TX 10). Accordingly, the present value of the intangible asset’s projected cash flows should reflect the tax benefit that may result from amortizing the new tax basis in the intangible asset. Generally, the tax amortization benefit is applied when using the income approach and is not applied when using the market approach. Market-based data used in the market approach is assumed to include the potential tax benefits resulting from obtaining a new tax basis.

Some business combinations result in the acquiring entity carrying over the acquiree’s tax basis. As a result, the amounts recorded for financial reporting purposes will most likely differ from the amounts recorded for tax purposes. A deferred tax asset or deferred tax liability should generally be recognized for the effects of such differences. Although no “step up” of the intangible asset’s tax basis actually occurs, the estimation of fair value should still reflect hypothetical potential tax benefits as if it did. ASC 820 requires each asset to be measured at fair value as if hypothetically acquired separately, in which case the tax benefit would be realized. US GAAP requires that the tax amortization benefit be factored into an asset’s fair value, regardless of the tax attributes of the transaction (e.g., taxable or nontaxable). The tax benefits should reflect the tax legislation in the domicile where the asset is situated. However, if there are no tax benefits possible (i.e., the tax legislation in the subject

jurisdiction does not permit market participants to recognize a new tax basis under any circumstance), then the fair value of the assets should not include any tax benefits.

Distributor method

The distributor method is another valuation technique consistent with the income approach. It is a variation of the MEEM used to value customer relationship intangible assets when they are not a primary value driver of an acquired business. The distributor method may be an appropriate valuation model for valuing customer relationships when the nature of the relationship between the company and its customers, and the value added by the activities the company provides for its customers, are similar to the relationship and activities found between a distributor and its customers. For example, valuing the customer relationship asset using the distributor method may be appropriate when the company sells a commodity-like product and customer purchasing decisions are driven largely by price. The distributor method would likely be an inappropriate method in cases where the company provides significant value added products or services that may be highly specialized and difficult for customers to switch vendors.

The fundamental concept underlying the distributor method is that an earnings approach can be performed similar to how one might value a distribution company. Profit margins are estimated consistent with those earned by distributors for their distribution effort, and contributory asset charges are taken on assets typically used by distributors in their business (e.g., use of warehouse facilities, working capital, etc.). This is contrasted with the traditional MEEM approach that considers the overall cash flows of a product or business (that will frequently earn higher margins) and have more contributory assets (e.g., use of intellectual property, trade names, etc.). Discount rates used to value the customer relationship when using the distributor method should reflect the risks of a distribution business.

Although considered a MEEM method, the distributor method can be seen as being similar to a relief-from-royalty method in that both methods attempt to isolate the cash flows related to a specific function of a business. One advantage of using the distributor method is that the customer relationship asset can be valued using a defined subset of cash flows of the total business. As a result, the remaining cash flows of the business can be used in a separate MEEM for the primary value driving asset, such as intellectual property or other assets, without the need for contributory assets charges that result in double counting or omitting cash flows from the valuation of those assets.

Potential concerns with the use of the distributor method include the following:

- The relationship between a reporting entity and its customers is often greater than that found between a distributor and its customers. As a result, the use of the distributor method may understate the value of the customer relationship asset.
- Finding appropriate comparable distributor inputs (profit margins and contributory asset returns) consistent with the industry of the entity being analysed may be difficult for several reasons including:
 - Distributors are not found in all industries
 - Distributors are often small companies and may not have the economies of scale of a larger company

- Disaggregating the functions of a business in order to estimate distributor inputs may be viewed as arbitrary
- The distributor method should not be used to value a primary asset as it likely does not capture all of the cash flows that the business derives from the asset. The primary asset of a business should be valued using the cash flows of the business of which it is the primary asset. It is unlikely that cash flows of a proxy would be a better indication of the value of a primary asset.

Relief-from-royalty method

Relief-from-royalty (RFR) is a commonly-used method for measuring the fair value of intangible assets that are often the subject of licensing, such as trade names, patents, and proprietary technologies. The fundamental concept underlying this method is that in lieu of ownership, the acquirer can obtain comparable rights to use the subject asset via a license from a hypothetical third-party owner. The asset's fair value is the present value of license fees avoided by owning it (i.e., the royalty savings). To appropriately apply this method, it is critical to develop a hypothetical royalty rate that reflects comparable comprehensive rights of use for comparable intangible assets. The use of observed market data, such as observed royalty rates in actual arm's length negotiated licenses, is preferable to more subjective unobservable inputs.

Royalty rate selection requires judgment because most brands, trade names, trademarks, and intellectual property have unique characteristics. If available, the actual royalty rate charged by the entity for the use of the technology or brand is generally the best starting point for an estimate of the appropriate royalty rate. The use of observed market data, such as observed royalty rates in actual arm's length negotiated licenses for similar products, brands, trade names, or technologies, may also be used to estimate royalty rates. Market rates are adjusted so that they are comparable to the subject asset being measured, and to reflect the fact that market royalty rates typically reflect rights that are more limited than those of full ownership. Market royalty rates can be obtained from various third-party data vendors and publications.

In the absence of market-derived rates, other methods have been developed to estimate royalty rates. These include the profit split method (in which the profits of the business are allocated to the various business functions), the return on assets method (in which returns on other assets are subtracted from the profits of the business), and the comparable profits method (in which the profitability measures of entities or business units that carry out activities similar to that provided by the intangible asset are considered).

Example FV 7-13 provides an overview of the relief-from-royalty method.

EXAMPLE FV 7-13

The relief-from-royalty method

Company A acquires technology from Company B in a business combination. Prior to the business combination, Company X was licensing the technology from Company B for a royalty of 5% of sales. The technology acquired from Company B is expected to generate cash flows for the next five years. Company A has determined the relief-from-royalty method is appropriate to measure the fair value of the acquired technology.

The following is a summary of the assumptions used in the relief-from-royalty method:

Projected revenue represents the expected cash flows from the technology.

The royalty rate of 5% was based on the rate paid by Company X before the business combination, and is assumed to represent a market participant royalty rate. Actual royalty rates charged by the acquiree (Company B) should be corroborated by other market evidence where available to verify this assumption.

Based on an assessment of the relative risk of the cash flows and the overall entity's cost of capital, management has determined a 15% discount rate to be reasonable.

Based on the discount rate, tax rate, and a statutory 15-year tax life, the tax benefit is assumed to be calculated as 18.5% of the royalty savings.

What is the fair value of the technology utilizing the relief-from-royalty method?

Analysis

The fair value of the technology would be calculated as follows.

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	\$10,000	\$8,500	\$6,500	\$3,250	\$1,000
Royalty rate	5.0%	5.0%	5.0%	5.0%	5.0%
Royalty savings	500	425	325	163	50
Income tax rate	40%	40%	40%	40%	40%
Less: Income tax expense	(200)	(170)	(130)	(65)	(20)
After-tax royalty savings	\$300	\$255	\$195	\$98	\$30
Discount period ¹	0.5	1.5	2.5	3.5	4.5
Discount rate	15%	15%	15%	15%	15%
Present value factor ²	0.9325	0.8109	0.7051	0.6131	0.5332
Present value of royalty savings ³	\$280	\$207	\$137	\$60	\$16
Sum of present values	\$700				
Tax amortization benefit ⁴	129				
Fair value	\$829				

¹ Represents a mid-period discounting convention, because cash flows are recognized throughout the year.

² Calculated as $1/(1+k)^t$, where k = discount rate and t = discount period.

³ Calculated as the after-tax royalty savings multiplied by the present value factor.

⁴ Calculated as 18.5% of the sum of present values.

Greenfield method

The Greenfield method values an intangible asset using a hypothetical cash flow scenario of developing an operating business from an entity that at inception only holds the intangible asset. Consequently, this valuation technique is most relevant for assets that are considered to be scarce or fundamental to the business, even if they do not necessarily drive the excess returns that may be generated by the overall business. For example, the Greenfield method is frequently used to value broadcasting licenses. These assets are fundamental to a broadcasting business but do not necessarily generate excess returns for the business. Excess returns may be driven by the broadcasted content or technology.

This technique considers the fact that the value of a business can be divided into three categories: (1) the “going concern value,” (2) the value of the subject intangible asset, and (3) the value of the excess returns driven by other assets. The going concern value is the value of having all necessary assets and liabilities assembled such that normal business operations can be performed. Under the Greenfield method, the investments required to recreate the going concern value of the business (both capital investments and operating losses) are deducted from the overall business cash flows. This results in the going concern value being deducted from the overall business value. Similarly, the value of the excess returns driven by intangible assets other than the subject intangible asset is also excluded from the overall business cash flows by using cash flows providing only market participant or normalized levels of returns. The result of deducting the investment needed to recreate the going concern value and excluding the excess returns driven by other intangible assets from the overall business cash flows provides a value of the subject intangible asset, the third element of the overall business.

The Greenfield method requires an understanding of how much time and investment it would take to grow the business considering the current market conditions. The expenses and capital expenditures required to recreate the business would be higher than the expense and capital expenditure level of an established business. In addition, the time to recreate or the ramp-up period also determines the required level of investments (i.e., to shorten the ramp-up period more investment would be required). In summary, the key inputs of this method are the time and required expenses of the ramp-up period, the market participant or normalized level of operation of the business at the end of the ramp-up period, and the market participant required rate of return for investing in such a business (discount rate).

The tax amortization benefit of the intangible asset should also be included in determining the value of the subject intangible asset.

With and without method

The value of an intangible asset under the with and without method is calculated as the difference between the business value estimated under the following two sets of cash flow projections as of the valuation date:

- The value of the business with all assets in place
- The value of the business with all assets in place except the intangible asset

The fundamental concept underlying this method is that the value of the intangible asset is the difference between an established, ongoing business and one where the intangible asset does not exist. If the intangible asset can be rebuilt or replaced in a certain period of time, then the period of lost profit, which would be considered in valuing the intangible asset, is limited to the time to rebuild.

However, the incremental expenses required to rebuild the intangible asset also increase the difference between the scenarios and, therefore, the value of the intangible asset.

This valuation method is most applicable for assets that provide incremental benefits, either through higher revenues or lower cost margins, but where there are other assets that drive revenue generation. This method is sometimes used to value customer-related intangible assets when the MEEM is used to value another asset. Key inputs of this method are the assumptions of how much time and additional expense are required to recreate the intangible asset and the amount of lost cash flows that should be assumed during this period. The expenses required to recreate the intangible asset should generally be higher than the expenses required to maintain its existing service potential. The estimate should also consider that shortening the time to recreate it would generally require a higher level of investment.

The tax amortization benefit of the intangible asset should also be included in determining the value of the intangible asset.

7.3.4.2 Market approach for intangible assets

The market approach, discussed in FV 4.4.1, may be applied to measure the fair value of an intangible asset that is, or can be, traded, and for which market data is reasonably available. Intangible assets tend to be unique and typically do not trade in active markets. For those transactions that do occur, there tends to be insufficient information available. However, there are some types of intangible assets that may trade as separate portfolios (such as brands, cable television, or wireless telephone service subscriptions), as well as some licenses to which this approach may apply.

When applying the market approach to intangible assets, relevance and weight should be given to financial and key nonfinancial performance indicators (see FV 7.3.2.2 for further details). As a practical matter, information about key nonfinancial performance indicators (e.g., value per bed for hospitals, value per advisor for an advisory business, value per subscriber for a telecommunications company) may be more relevant and available than pure financial metrics. When used, these performance metrics should be reviewed carefully. For example, a cell phone subscription in an area with low monthly usage would not be of equivalent value to a subscription in an area with a high monthly usage.

Another factor to consider when valuing assets is that price and value are often affected by the motivations of the buyer and seller. For example, the selling price of an asset that is sold in liquidation is not a useful indication of fair value.

The market approach typically does not require an adjustment for incremental tax benefits from a “stepped-up” or new tax basis. The market-based data from which the asset’s value is derived is assumed to implicitly include the potential tax benefits resulting from obtaining a new tax basis. An adjustment may be required, however, if the tax rules in the domicile where comparable transactions occurred are different from the tax rules where the subject asset is domiciled.

7.3.4.3 Cost approach for intangible assets

The cost approach discussed in FV 4.4.2, while more commonly used to value machinery and equipment, can be an effective means of estimating the fair value of certain intangible assets that are readily replicated or replaced, such as routine software and assembled workforce. However, it is seldom appropriate to use a cost approach for an intangible asset that is one of the primary assets of the business.

The cost approach, applied to intangible assets, may fail to capture the economic benefits expected from future cash flows. For example, the costs required to replace a customer relationship intangible asset will generally be less than the future value generated from those customer relationships. This is because the cost approach may fail to capture all of the necessary costs to rebuild that customer relationship to the mature level/stage that exists as of the valuation date, as such costs are difficult to distinguish from the costs of developing the business.

A market participant may pay a premium for the benefit of having the intangible asset available at the valuation date, rather than waiting until the asset is obtained or created. If the premium would be significant, then an “opportunity cost” should be considered when using the cost approach to estimate the fair value of the intangible asset. That opportunity cost represents the foregone cash flows during the period it takes to obtain or create the asset, as compared to the cash flows that would be earned if the intangible asset was on hand today. Some factors to consider when determining if opportunity cost should be applied include the following:

- Difficulty of obtaining or creating the asset
- Period of time required to obtain or create the asset
- Scarcity of the asset
- Relative importance of the asset to the business operations

If the additional opportunity cost included in the cost approach is based on the total enterprise cash flows, then the calculation would be similar to the approach in the with and without method. However, intangible assets valued using the cost approach are typically more independent from other assets and liabilities of the business than intangible assets valued using the with and without method. Further analysis is required to determine whether the opportunity cost can be estimated by alternative approaches, like renting a substitute asset for the period required to create the subject intangible asset.

Estimating the opportunity cost can be difficult and requires judgment. Also, it may not be appropriate to include the total lost profit of a business in the value of one intangible asset if there are other intangible assets generating excess returns for the business.

The cost approach typically requires no adjustment for incremental tax benefits from a “stepped-up” or new tax basis. The market-based data from which the asset’s value is derived under the cost approach is assumed to implicitly include the potential tax benefits resulting from obtaining a new tax basis. Under the cost approach the assumed replacement cost is not tax-effected while the opportunity cost is calculated on a post-tax basis.

7.3.4.4 *Assets not used in their highest and best use*

The business combination guidance clarifies that assets that an acquirer does not intend to use or intends to use in a way other than their highest and best use must still be recorded at fair value based on market participant assumptions. In general, assets that are not intended to be used by the acquirer include overlapping assets (e.g., systems, facilities) that the acquirer already owns, thus they do not view such assets as having value. Figure FV 7-7 shows the relationship between the relative values at initial recognition of assets the acquirer does not intend to actively use.

Figure FV 7-7

Considerations for assets the acquirer does not intend to actively use

Categories	Observations
<ul style="list-style-type: none"> □ Acquirer entity will not actively use the asset, but a market participant would (e.g., brands, licenses) 	<ul style="list-style-type: none"> □ Typically of greater value relative to other defensive assets □ Common example: Industry leader acquires significant competitor and does not use target brand
<ul style="list-style-type: none"> □ Acquirer entity will not actively use the asset, nor would another market participant in the same industry (e.g., process technology, know-how) 	<ul style="list-style-type: none"> □ Typically smaller value relative to other assets not intended to be used □ Common example: Manufacturing process technology or know-how that is generally common and relatively unvaried within the industry, but still withheld from the market to prevent new entrants into the market

Defensive intangible assets

Defensive intangible assets are a subset of assets not intended to be used and represent intangible assets that an acquirer does not intend to actively use, but intends to prevent others from using. Defensive intangible assets may include assets that the acquirer will never actively use, as well as assets that will be actively used by the acquirer only during a transition period. In either case, the acquirer will lock up the defensive intangible assets to prevent others from obtaining access to them for a period longer than the period of active use. Examples of typical defensive intangible assets include brand names and trademarks. However, not all assets that are not intended to be used are defensive intangible assets. If an asset is not being used and market participants would not use the asset, it would not necessarily be considered a defensive intangible asset. For example, the billing software acquired by the strategic buyer in Example FV 7-4 is not considered a defensive asset even if it is not intended to be used beyond the transition period. For further details on the recognition of defensive assets, refer to BCG 4.

A business may acquire in-process research and development (IPR&D) that it does not intend to actively use. However, if a market participant would use it, the IPR&D must be measured at fair value. For further discussion of IPR&D not intended to be used by the acquirer refer to BCG 4.

A reporting entity's determination of how a market participant would use an asset will have a direct impact on the initial value ascribed to each defensive asset. Therefore, identifying market participants, developing market participant assumptions, and determining the appropriate valuation basis are critical components in developing the initial fair value measurement for defensive assets. Additional considerations would include the following:

- Unit of account — All defensive assets should be recognized and valued separately. They should not be combined with other assets even if the purpose of acquiring the defensive asset is to enhance the value of those other assets. By locking up a trade name, for example, and preventing others from using it, the acquirer's own trade name may be enhanced. The enhancement in value is measured as a separate unit of account rather than as additional value to the acquirer's pre-

- existing trade name, even if assumptions about the enhanced value of the existing asset are the basis for valuation of the defensive asset.
- Defining market participants — Market participants for a given defensive asset may be different from those for the transaction as a whole.
 - Valuation techniques and approaches — Common valuation techniques will likely still apply for defensive assets (e.g., relief-from-royalty, with-and-without), taking into account the cash flows reflecting market participant assumptions. However, while the valuation techniques may be consistent with other intangible assets, the need to use market participant assumptions and hypothetical cash flow forecasts will require more effort. For example, determining the hypothetical cash flows that a market participant would generate if it were to use the defensive asset in the marketplace will require a significant amount of judgment. Accordingly, assumptions may need to be refined to appropriately capture the value associated with locking up the acquired asset. Such assumptions may consider enhancements to other complementary assets, such as an existing brand, increased projected profit margins from reduced competition, or avoidance of margin erosion from a competitor using the brand that the entity has locked up. If no market participants in the industry would actively use the asset, it may also be appropriate to estimate the direct and indirect benefits associated with the defensive use of the asset although the value is likely to be low.

Regardless of the methodology used in valuing the defensive asset, it is important not to include value in a defensive asset that is already included in the value of another asset.

Example FV 7-14 provides an example of a defensive asset.

EXAMPLE FV 7-14

Defensive asset

Company A (a large beverage company) acquires Company B (a smaller beverage company) in a business combination. Company A acquired Company B in order to gain distribution systems in an area that Company A had an inefficient distribution system. While Company A does not plan on using Company B's trademark, other market participants would continue to use Company B's trademark.

Is Company B's trademark a defensive asset?

Analysis

Although Company A has determined that it will not use Company B's trademark, other market participants would use Company B's trademark. As a result, the trademark is a defensive asset and should be valued using market participant assumptions.

Key considerations

Figure FV 7-8 summarizes some key considerations in measuring the fair value of intangible assets.

Figure FV 7-8

Leading practices in measuring the fair value of intangible assets

Use an appropriate valuation methodology for the primary intangible assets	The income approach is most commonly used to measure the fair value of primary intangible assets. The market approach is not typically used due to the lack of comparable transactions. The cost approach is generally not appropriate for intangible assets that are deemed to be primarily cash-generating assets, such as technology or customer relationships. As discussed in FV 7.3.4.3, the cost approach is sometimes used to measure the fair value of certain software assets used for internal purposes, an assembled workforce, or assets that are readily replicated or replaced.
Value intangible assets separately	In most cases, intangible assets should be valued on a stand-alone basis (e.g., trademark, customer relationships, technology). In some instances, the economic life, profitability, and financial risks will be the same for several intangible assets such that they can be combined. See BCG 4.2.2 for further information on the separability criterion.
Consider and assess the economic life of an asset	For example, the remaining economic life of patented technology should not be based solely on the remaining legal life of the patent because the patented technology may have a much shorter economic life than the legal life of the patent. The life of customer relationships should be determined by reviewing expected customer turnover.
Use PFI that reflects market participant assumptions	PFI should be representative of market participant assumptions, rather than entity-specific assumptions.
Use PFI prepared on a cash basis not an accrual basis	Since the starting point in most valuations is cash flows, the PFI needs to be on a cash basis. If the PFI is on an accrual basis, it must be converted to a cash basis such that the subsequent valuation of assets and liabilities will reflect the accurate timing of cash flows.
Use PFI that includes the appropriate amount of capital expenditures, depreciation, and working capital required to support the forecasted growth	The level of investment in the projection period and in the terminal year should be consistent with the growth during those periods. The terminal period must provide a normalized level of growth.
Use PFI that includes tax-deductible amortization and/or depreciation expense	PFI should consider tax deductible amortization and depreciation to correctly allow for the computation of after-tax cash flows. PFI that incorrectly uses book amortization and depreciation will result in a mismatch between the post-tax amortization and depreciation expense and the pre-tax amount added back to determine free cash flow. (See FV 7.3.2.1 for further information on calculating free cash flows.)

Select discount rates that are within a reasonable range of the WACC and/or IRR	In general, low-risk assets should be assigned a lower discount rate than high-risk assets. The required return on goodwill should be highest in comparison to the other assets acquired.
Use the MEEM only for the primary intangible asset	The MEEM, which is an income approach, is generally used only to measure the fair value of the primary intangible asset. Secondary or less-significant intangible assets are generally measured using an alternate valuation technique (e.g., relief-from royalty, greenfield, or cost approach). The MEEM should not be used to measure the fair value of two intangible assets using a common revenue stream and contributory asset charges because it results in double counting or omitting cash flows from the valuations of the assets.
Include the tax amortization benefit when using an income approach	As discussed in FV 7.3.4.1, the tax benefits associated with amortizing intangible assets should generally be applied regardless of the tax attributes of the transaction. The tax jurisdiction of the country the asset is domiciled in should drive the tax benefit calculation.
Foreign currency cash flows	<p>When a discounted cash flow analysis is done in a currency that differs from the currency used in the cash flow projections, the cash flows should be translated using one of the following two methods:</p> <ul style="list-style-type: none"> <li>□ Discount the cash flows in the reporting currency using a discount rate appropriate for that currency. Convert the present value of the cash flows at the spot rate on the measurement date. <li>□ Use a currency exchange forward curve, if available, to translate the reporting currency projections and discount them using a discount rate appropriate for the foreign currency.

Reacquired rights

An acquirer may reacquire a right that it had previously granted to the acquiree to use one or more of the acquirer's recognized or unrecognized assets. Examples of such rights include a right to use the acquirer's trade name under a franchise agreement or a right to use the acquirer's technology under a technology licensing agreement. Such reacquired rights generally are identifiable intangible assets that are separately recognized apart from goodwill in accordance with ASC 805-20-25-14. The reacquisition should be evaluated separately to determine if a gain or loss on the settlement should be recognized. For further details on the recognition of reacquired rights see BCG 2.

Reacquired rights are identified as an exception to the fair value measurement principle, because the value recognized for reacquired rights is not based on market participant assumptions for the life of the reacquired right. The value of a reacquired right is determined based on the estimated cash flows over the remaining contractual life, even if market participants would reflect expected renewals in their measurement of that right according to ASC 805-20-30-20, as discussed in more detail in BCG 2.

The value of a reacquired right should generally be measured using a valuation technique consistent with an income approach. That technique would consider the acquiree's cash flows after payment of the royalty rate to the acquirer for the right that is being reacquired.

The market and the cost approaches are rarely used to value reacquired rights. The usefulness of these approaches is diminished by the requirement to limit the term of the reacquired right to the remaining contractual term. For example, a market approach could not be readily applied to a reacquired right as a market price for a comparable intangible asset would likely include expectations about contract renewals; however, these expectations are excluded from the measurement of a reacquired right.

7.3.5 Fair value of NCI and previously held equity interests

Any noncontrolling interest (NCI) in the acquiree must be measured at its acquisition-date fair value under US GAAP.

A business combination in which an acquirer holds a noncontrolling equity investment in the acquiree immediately before obtaining control of that acquiree is referred to as a business combination achieved in stages, or a step acquisition. In accordance with ASC 805-10-25-10, the acquirer should remeasure its previously held equity interest (PHEI) in the acquiree at its acquisition-date fair value in a step acquisition and recognize the resulting gain or loss in earnings (profit or loss).

The fair value of the controlling ownership interest acquired may generally be valued based on the consideration transferred. However, the determination of the fair value of the NCI in transactions when less than all the outstanding ownership interests are acquired, and the fair value of the PHEI when control is obtained may present certain challenges. The consideration transferred for the controlling interest on a per-share basis may be an indication of the fair value of the NCI and PHEI on a per-share basis in some, but not all circumstances. In certain circumstances, an acquirer will be able to measure the acquisition-date fair value of the NCI and PHEI based on active market prices for the remaining equity shares not held by the acquirer, which are publicly traded. However, in other situations, an active market for the equity shares will not be available. According to ASC 805-20-30-7, in those circumstances, the fair value of the NCI and PHEI will likely need to be established through other valuation approaches and methods.

7.3.5.1 Determining the impact of control on the NCI

The existence of control premiums or minority interest discounts should be considered when measuring the fair value of the NCI. The acquirer may have paid a control premium on a per-share basis or conversely there may be a discount for lack of control in the per-share fair value of the NCI as noted in ASC 805-20-30-8.

A control premium generally represents the amount paid by a new controlling shareholder for the benefit of controlling the acquiree's assets and cash flows. The elements of control derived by an acquirer can be categorized as (1) benefits derived from potential synergies that result from combining the acquirer's assets with the acquiree's assets and (2) the acquirer's ability to influence the acquiree's operating, financial, or corporate governance characteristics (e.g., improve operating efficiency, appoint board members, declare dividends, and compel the sale of the company).

Synergies will often benefit the acquiree as a whole, including the NCI. Entities should understand whether, and to what extent, the NCI will benefit from those synergies. Consideration of a noncontrolling (minority interest) discount may be necessary to account for synergies that would not

transfer to the NCI. Companies should not mechanically apply a noncontrolling discount to a controlling interest without considering whether the facts and circumstances related to the transaction indicate a difference exists between the controlling and noncontrolling values. It is helpful to understand how the negotiations between the acquiree and acquirer evolved when assessing the existence of a control premium. For example, if multiple bidders were involved in the negotiations, it is important to understand what factors were included in determining the amount of consideration transferred and what synergies were expected to be realized. Additionally, understanding the significant issues that were subject to the negotiations and how they were eventually resolved may provide valuable insight into determining the existence of a control premium.

7.3.5.2 *Measuring the fair value of the NCI*

Generally, the fair value of the NCI will be determined using the market and income approaches, as discussed in FV 7.2.5.2 and FV 7.2.5.1, respectively. However, the determination of fair value for the NCI that remains publicly traded post acquisition should be made using the NCI's quoted market price if an active market price for the shares not held by the acquirer is available. This is consistent with ASC 820-10-35-41, which states that price quotations at the acquisition date in an active market provide the most reliable and best evidence of fair value, and should be used when they exist.

A reasonable method of estimating the fair value of the NCI, in the absence of quoted prices, may be to gross up the fair value of the controlling interest to a 100% value to determine a per-share price to be applied to the NCI shares (see Example FV 7-13). This method reflects the goodwill for the acquiree as a whole, in both the controlling interest and the NCI, which may be more reflective of the economics of the transaction. This method assumes that the NCI shareholder will participate equally with the controlling shareholder in the economic benefits of the post-combination entity which may not always be appropriate. However, although there is no control inherent in the NCI, in some circumstances the NCI may receive a portion of the overall benefits from the synergies that are inherent in the control premium. Therefore, when discussing NCI in this section, we refer to the synergistic benefit as a "control premium" even though control clearly does not reside with the NCI. Use of both the market and income approaches should also be considered, as they may provide further support for the fair value of the NCI.

NCI – market approach

Entities may need to consider using the market approach, specifically, the guideline public company method, to value an NCI that is not publicly traded and for which the controlling interest value is not an appropriate basis for estimating fair value. See further information at FV 7.3.2.2.

The first step in applying this method is to identify publicly-traded companies that are comparable to the acquiree. Pricing multiples of revenue or earnings are calculated from the guideline companies; these are analysed, adjusted, and applied to the revenue and earnings of the acquiree. Applying the pricing multiples to the acquiree's earnings produces the fair value of the acquiree on an aggregate basis. This is then adjusted to reflect the pro rata NCI and control premium, if required, for any synergies from the acquisition that would be realized by the NCI. Similarly, the pricing multiples could be applied directly to the pro rata portion of the acquiree's earnings to estimate the fair value of the NCI.

Example FV 7-15 provides an example of measuring the fair value of the NCI using the guideline public company method. It also presents issues that may arise when this approach is used.

EXAMPLE FV 7-15**Measuring the fair value of the NCI using the guideline public company method**

Company A acquires 350 shares, or 70%, of Company B, which is privately held and meets the definition of a business, for \$2,100 (\$6.00 per share). There are 500 shares outstanding. The outstanding 30% interest in Company B represents the NCI. At the acquisition date, Company B's most recent annual net income was \$200. Company A used the guideline public company method to measure the fair value of the NCI. Company A identified three publicly traded companies comparable to Company B, which were trading at an average price-to-earnings multiple of 15. Based on differences in growth, profitability, and product differences, Company A adjusted the observed price-to-earnings ratio to 13 for the purpose of valuing Company B.

How would Company A initially apply the price to earnings multiple in measuring the fair value of the NCI in Company B?

Analysis

To measure the fair value of the NCI in Company B, Company A may initially apply the price-to-earnings multiple in the aggregate as follows:

Company B net income	\$200
Price-to-earnings multiple	x13
Fair value of Company B	2,600
Company B NCI interest	30%
Fair value of Company B NCI	\$780

Entities will have to understand whether the consideration transferred for the 70% interest includes a control premium paid by the acquirer and whether that control premium would extend to the NCI when determining its fair value. In this example, the fair value of Company B using the market approach is \$2,600, which represents a minority interest value because the price-to-earnings multiple was derived from per-share prices (i.e., excludes control). If it had been determined to be appropriate to include the control premium in the fair value estimate, grossing up the 70% interest yields a fair value for the acquiree as a whole of \$3,000 ($\$2,100/0.70$), compared to the \$2,600 derived above, resulting in a value for the NCI of \$900 ($\$3,000 \times .30$).

NCI – income approach

The income approach may be used to measure the NCI's fair value using a discounted cash flow method to measure the value of the acquired entity. The BEV and IRR analysis performed as part of assigning the fair value to the assets acquired and liabilities assumed may serve as the basis for the fair value of the acquiree as a whole. Again, understanding whether a control premium exists and whether the NCI shareholders benefit from the synergies from the acquisition is critical in measuring the fair value of the NCI. This can be achieved by understanding the motivation behind the business combination (e.g., expectations to improve operations or influence corporate governance activities)

and whether the expected synergies would result in direct and indirect cash flow benefits to the NCI shareholders.

If it is determined that a control premium exists and the premium would not extend to the NCI, there are two methods widely used to remove the control premium from the fair value of the business enterprise.

- Calculate the NCI's proportionate share of the BEV and apply a minority interest discount.
- Adjust the PFI used for the BEV analysis to remove the economic benefits of control embedded in the PFI.

7.3.5.3 *Measuring the fair value of previously held equity interest*

The acquirer should remeasure any PHEI in the acquiree and recognize the resulting gain or loss in earnings in accordance with ASC 805-10-25-10. The fair value of any PHEI should be determined consistent with paragraph B387 of FAS 141(R). A PHEI that has been measured at fair value as of each reporting date prior to the acquisition should be measured similarly as of the acquisition date. The resulting gain or loss should be recognized in the income statement and may include previously unrecognized gains or losses deferred in equity.

The fair value of the PHEI in a company that remains publicly traded should generally be based on the observable quoted market price without adjustment. If there are multiple classes of stock and the PHEI is not the same class of share as the shares on the active market, it may be appropriate to use another valuation method. A PHEI of a company that is not publicly traded should be measured using the market or income approaches or the fair value derived from the consideration transferred.

7.4 *Impairments of long-lived assets, intangibles, and goodwill*

Fair value measurements are not only a critical part of applying the acquisition method, but are also important in post-acquisition accounting, including the various impairment tests required by US GAAP. Under US GAAP, guidance for impairment testing of indefinite-lived intangible assets and goodwill is provided in ASC 350, while the guidance for long-lived assets is provided in ASC 360.

BCG 8 and BCG 9 describe the impairment tests for long-lived and indefinite-lived intangible assets, and for goodwill under US GAAP.

7.4.1 *Impairment tests — key considerations*

Key considerations in determining fair value to measure impairment, and specifically if an impairment is being measured using the fair value less costs of disposal for IFRS, include the following:

- Market participants — Management may start with internal cash flow estimates, but it then needs to incorporate the perspective of market participants. Reporting entities should not presume that entity-specific projected financial information is representative of market participant assumptions. One of the inputs to the discounted cash flow model is the discount rate. The weighted average cost of capital should reflect the starting point for determining the rate that a market participant would demand based upon industry-weighted average returns on debt and

equity adjusted for the relative advantages or disadvantages of the entity, rather than an entity-specific rate.

- **Markets** — In determining fair value, a reporting entity must determine the principal or most advantageous market. In general, there may not be a principal market for the sale of the reporting unit (under US GAAP)/cash-generating unit (under IFRS) or indefinite-lived intangible asset being considered in the impairment analysis. If the reporting entity determines that there is no principal or most advantageous market, it should assess potential market participants and develop a hypothetical market based on its assessment of market participant assumptions.
- **Valuation premise** — The reporting entity should assess potential markets, considering whether the highest and best use of the asset is alone or in combination with other assets. The reporting entity should use market participant assumptions in this analysis. The highest and best use of the reporting unit/cash-generating unit from the perspective of market participants may differ from that of the reporting entity.
- **Multiple valuation techniques** — Although a discounted cash flow model may be the most suitable valuation technique in many cases, management should also consider the use of alternative methodologies each time an impairment test is performed. For example, valuation professions often use the market approach as a secondary method to the income approach when valuing a business. Reporting entities need to consider whether multiple approaches should be used when valuing reporting units/cash generating units. In determining the fair value of the reporting unit/cash generating unit, reporting entities may need to consider a weighting of reasonable results from all methods appropriate in the circumstances.

ASC 820, Example 3, Case A (ASC 820-10-55-36 through ASC 820-10-38A) and IFRS 13, Example 4 (IFRS 13.IE11 through IFRS 13.IE14) provide an example of the application of the ASC 820 framework in an impairment analysis. Issues such as asset groupings and allocations of losses are beyond the scope of this guide.

7.4.1.1 Fair value measurements in inactive markets

In inactive markets, market capitalization may not be representative of fair value and other valuation methods may be required to measure the fair value of an entity comprised of a single RU or CGU. Use of a value other than market capitalization will require other evidence and documentation that clearly support that the quoted market prices are not the best indication of fair value. The guidance discussed at FV 4.6 is helpful to address these situations.

Question FV 7-3 addresses whether the original transaction price can be an indicator of fair value in the first post-acquisition goodwill impairment test.

Question FV 7-3

Can the original transaction price be used as an indicator of fair value in the first post-acquisition goodwill impairment test? What if the next highest bid was substantially lower?

PwC response

When assessing fair value in the first goodwill impairment test after an acquisition, an acquirer may consider the purchase price as one data point, among others, in determining fair value, unless there is

contradictory evidence. ASC 820-10-30-3A and IFRS 13.59 require that a reporting entity consider factors specific to the transaction in determining whether the transaction price represents fair value. The fact that the next highest bid was substantially lower than an acquirer's bid does not necessarily mean that the transaction price is not representative of fair value, but it could indicate that significant acquirer-specific synergies were included in the determination of the purchase price. Therefore, the reporting entity should most likely make a new detailed determination of fair value when performing its first post-acquisition annual impairment test.

7.5 Nonfinancial assets and liabilities not in a business combination

Fair value measurement can be required for nonfinancial assets and liabilities outside a business combination. Valuation approaches for some of these nonfinancial assets and liabilities are included below.

7.5.1 Asset retirement obligations

ASC 410, *Asset Retirement and Environmental Obligations*, applies to legal obligations associated with the retirement of tangible long-lived assets. Assuming fair value can be reasonably estimated, ASC 410-20-25-4 requires that a reporting entity recognize the fair value of a liability for an asset retirement obligation (ARO) in the period in which it is incurred. ASC 410 provides a practicability exception, which requires disclosure if a reasonable estimate of fair value cannot be made. The ASC 820 framework is also applicable to AROs. Refer to PPE 3 for the initial and subsequent accounting for asset retirement obligations, as well as considerations for applying ASC 820 to these obligations.

The provisions of ASC 410-20 do not apply to obligations that result from improper operation of an asset, including environmental remediation liabilities, which are subject to ASC 410-30, *Asset Retirement and Environmental Obligations – Environmental Obligations*. Refer to PPE 9 for more information on accounting for environmental obligations under ASC 410-30.

7.5.2 Investment property

Under US GAAP, investment property is generally measured at the lower of fair value less costs to sell or carrying value. In some instances, the reporting entity may be subject to specialized accounting that requires investment property to be measured at fair value. The fair value used in these measurements is subject to the requirements in ASC 820.

7.5.2.1 How to fair value investment property

An investment property's fair value is typically based either on the market approach by reference to sales in the market of comparable properties, or the income approach by reference to rentals obtained from the subject property or similar properties. The replacement cost approach may not be appropriate for the fair value model under ASC 820 because the value of an investment property lies in its ability to generate income or to appreciate in value by reference to market prices, not in the cost to rebuild it.

Fair value excludes any estimated price that is inflated or deflated by special terms such as unusual financing, sale and leaseback arrangements, or special considerations or concessions granted by

anyone associated with the sale. Fair value is determined without deduction for transaction costs that might be incurred on sale or other disposal.

When a reporting entity has prepaid or accrued operating lease income on its balance sheet, it does not include the value of that income in the fair value of the related investment property, as the prepaid or accrued operating lease income is a separate asset.

The market approach – investment property

The best evidence of fair value is usually provided by current prices in an active market for similar property in a similar location and condition and subject to similar lease terms and other conditions. Such similar properties may not always be present and thus an entity should take into account, and make allowances for, differences from the comparable properties in location, nature, and condition or in contractual terms of leases and other contracts relating to the property. For example, if the property is leased by the entity through a finance lease that contains restrictions on the use of the property by present and future lessees that could significantly affect the property's fair value because it might restrict the entity's ability to obtain the optimum market rentals, an adjustment to comparable property values would likely be necessary.

Fair value of an investment property does not reflect the following factors if they would not be generally available to market participants:

- Additional value created by bringing together a number of properties in different locations and combining them into a portfolio of properties
- Synergies between investment properties and other assets
- Legal rights and restrictions specific to the present owner
- Tax benefits or disadvantages specific to the present owner

Where current prices in an active market are not available, entities should consider evidence from alternative sources, such as:

- Current prices in an active market for properties of a different nature, condition, or location or that are subject to different lease or other contractual terms, adjusted to reflect the differences
- Recent prices from transactions in less active markets, adjusted to reflect changes in economic conditions since the date of those transactions

Using the market approach to measure the fair value of investment property is likely to be a Level 2 measurement as long as any multiple used is observable and the reporting entity does not make any significant adjustments using unobservable data.

The income approach – investment property

The fair value of an investment property may be measured using discounted cash flow projections based on reliable estimates of future rental income and expenditures, supported by the terms of the existing lease and other contracts. When practicable, external evidence should also be used, such as current market rents for properties of a similar nature, condition, and location. Discount rates that

reflect current market participant assessments of uncertainty regarding the amount and timing of cash flows should be used to discount the projected future cash flows.

Using the income approach to measure the fair value of investment property is likely to result in a Level 3 measurement as the most significant input will be the projected cash flows.

Question FV 7-4 discusses classification of real estate assets within the fair value hierarchy.

Question FV 7-4

Where are fair value measurements of real estate assets classified within the fair value hierarchy?

PwC response

The fair value hierarchy level chosen for real estate assets will vary by the inputs used. For example, a multi-unit condominium development in which each unit has similar floor plans, features, and few differentiating characteristics, may be measured using an appraisal based on a market approach that incorporates a dollar-per-square-foot multiple. As long as the multiple is observable and the reporting entity does not make any significant adjustments using unobservable data, the valuation would represent a Level 2 fair value measurement.

However, the valuation of many real estate assets—such as office buildings, shopping centers, hospitals, manufacturing facilities, and similar build-to-suit facilities—may require adjustments to market-based valuation inputs to reflect the different characteristics between the assets being measured and the assets upon which the observable inputs are based. These adjustments could result in classification as a Level 3 fair value measurement for the real estate asset. Real estate assets may also be measured using an income approach based on unobservable cash flows to be received from expected rents and expenses, which would likely also yield a Level 3 fair value measurement.

In considering the results from appraisals of real estate assets, it is the reporting entity's responsibility to ensure the third-party valuation specialist appropriately evaluates and documents the assumptions and inputs used in their assessment of the highest and best use of the asset.

Refer to FV 4.4 and FV 4.5 for further discussion of available valuation approaches, techniques and the evaluation of related inputs.

7.5.3 Commodity broker-trader inventory — IFRS only

Broker-traders are those who trade in commodities on their own behalf or for others. Their inventories are normally traded in an active market and are purchased with the intent to resell in the near future, generating a profit from fluctuations in price or the broker-traders' margin. Industry practice is often to carry such inventories at fair value less costs of disposal. Measurement of these inventories is within IFRS 13's scope.

If such inventories do not meet the definition of Level 1, we would not expect them to qualify as commodity broker-trader inventory. Entities with commodity broker-trader inventory generally measure fair value by reference to the market price for the item in the principal market.

7.5.4 *Biological assets*

US GAAP

There is no specific US GAAP for biological assets. These assets are measured at fair value less frequently under US GAAP than under IFRS. However, many of the concepts discussed in the IFRS section that follows could be helpful in situations when, under US GAAP, a reporting entity elects or is required to measure a biological asset at fair value in accordance with specialized accounting or other US GAAP applicable to nonfinancial assets (e.g., if acquired in a business combination).

IFRS

Biological assets are generally categorized as bearer or consumable and plants or animals. All biological assets, except bearer plants, are required by IAS 41 to be measured at fair value less costs to sell at both initial recognition and at each subsequent reporting date, and are therefore within the scope of IFRS 13 for both measurement and disclosure.

Bearer plants

Bearer plants are used solely to grow produce. The term is defined in IAS 41.5.

Excerpt from IAS 41.5

A bearer plant is a living plant that:

- (a) is used in the production or supply of agricultural produce;
- (b) is expected to bear produce for more than one period; and
- (c) has a remote likelihood of being sold as agricultural produce, except for incidental scrap sales.

Examples include apple trees and palm oil plants.

IAS 41.5A denotes what is not a bearer plant.

IAS 41.5A

The following are not bearer plants:

- (a) plants cultivated to be harvested as agricultural produce (for example, trees grown for use as lumber);
- (b) plants cultivated to produce agricultural produce when there is more than a remote likelihood that the entity will also harvest and sell the plant as agricultural produce, other than as incidental scrap sales (for example, trees that are cultivated both for their fruit and their lumber); and
- (c) annual crops (for example, maize and wheat).

Bearer plants are in the scope of IAS 16 and should be accounted for in the same way as property, plant, and equipment.

The produce growing on the bearer plant is within the scope of IAS 41 and should be measured at fair value less cost to sell.

7.5.4.1 Fair value of biological assets using the market approach

Many biological assets have relevant market-determined prices or values available, as they are often basic commodities that are traded actively. For example, there are usually market prices for calves and piglets, as there is an active market for these. When there is an active market for a biological asset or agricultural produce, the quoted price in that market is the appropriate basis for determining the fair value of that asset.

If an active market does not exist, one or more of the following methods should be used to estimate fair value, if such data is available:

- The most recent market transaction price, provided that there has not been a significant change in economic circumstances between the date of that transaction and the balance sheet date
- Market prices for similar assets with adjustment to reflect differences
- Sector benchmarks, such as the value of an orchard expressed per export tray, bushel, or hectare and the value of cattle expressed per kilogram of meat

Biological assets are often physically attached to land (for example, trees and vines). There may be no separate market for biological assets that are attached to the land, but an active market may exist for the combined assets, that is, for the biological assets, raw land, and land improvements, as a group. An entity may use information regarding the combined assets to determine the fair value of the biological assets. For example, the fair value of raw land and land improvements may be deducted from the fair value of the combined assets to arrive at the biological assets' fair value (IAS 41.25).

7.5.4.2 Fair value of biological assets using the income approach

When market-based prices or values are not available for a biological asset in its present location and condition, fair value should be measured on the basis of a valuation approach/technique that is appropriate in the circumstances and for which sufficient data is available. As per IFRS 13.61, the use of relevant observable inputs should be maximized while minimizing the use of unobservable inputs. The income approach would be an appropriate valuation approach. For example, the present value of expected net cash flows from the asset could be discounted at a current market-based rate.

The cash flow model should include all directly attributable cash inflows and outflows. The inflows will be the price in the market of the harvested produce/consumable asset for each harvest over the asset's life. The outflows will be those incurred to raise or grow the asset and get it to market, for example, direct labor, feed, fertilizer, and transport costs. The market is where the asset will be sold. For some assets, this will be an actual market; for others, it may be the "factory gate," i.e., the assets are sold excluding any retail profit or additional transport and delivery costs.

A contributory asset charge should be included when measuring fair value if there are otherwise no existing charges for the use of assets essential to the agricultural activity. One example is when the land on which the biological asset is growing is owned by the entity. The cash flows used to measure the fair value of the biological asset should include a cash outflow for rent of the land to be comparable with the asset of an entity that rents its land from a third party.

Fair value of produce

Agricultural produce are measured at fair value under the bearer plants amendment of IAS 41. A cash flow model is the most likely valuation method for bearer produce. The cash flow model should include all directly attributable cash inflows and outflows. The inflows will be the price in the market of the harvested produce. The outflows will be those incurred in growing the asset and getting it to market (for example, direct labor, fertilizer and transport to market). Contributory asset charges will be included for both the land and bearer plant if they are owned by the entity. This economic rent removes cash flows attributable to those assets so the remaining value relates solely to the produce. As such, on day one after the previous harvest, the next harvest is likely to have a fair value close to zero.

7.5.4.3 *Location of the asset – biological assets*

A biological asset's physical location is often one of the asset's critical characteristics. Transport costs are regularly incurred in an agricultural context as entities need to ensure that their biological assets and agricultural produce are transported to the principal or most advantageous market. In such cases, IFRS 13.26 requires the fair value of those assets to be adjusted for transport costs.

Under IFRS 13.28, fair value takes into account an asset's location and condition. Thus, transport costs impact the measurement of fair value. For example, the fair value of cattle at a farm is the price for the cattle in the principal market less the transport and other costs of getting the cattle from the farm to that market.

***Chapter 8:
Consideration of credit risk—
updated March 2022***

8.1 *Consideration of credit risk – chapter overview*

One of the key challenges for many reporting entities in estimating fair value in accordance with ASC 820 has been determining and incorporating the impact of nonperformance risk, including credit risk, into the fair value measurement.

Nonperformance risk is the risk that an entity will not perform on its obligation. This risk should be incorporated into a fair value measurement using a market-based estimate that follows the framework of ASC 820 and should be measured from the perspective of a market participant. The concept of nonperformance risk incorporates credit risk and other risk factors, including regulatory, operational, and commercial risks. Credit risk is often the largest component of nonperformance risk, and at times, the risks are referenced interchangeably. Although nonperformance risk, including credit risk, may have been a factor in determining the price of certain instruments, the price of the risk may not be separately observable, making it difficult to determine an appropriate measurement methodology and the inputs necessary to make a reasonable fair value estimate.

This chapter focuses on key considerations for incorporating credit risk into the measurement of fair value. Reporting entities should also consider the other components of nonperformance risk in developing fair value measurements.

8.1.1 *Incorporating credit risk*

The incorporation of counterparty credit risk (predominantly for asset or “positive” exposure positions) and the reporting entity’s own credit risk (predominantly for liability or “negative” exposure positions) is a key component in fair value measurements in ASC 820.

Excerpt from ASC 820-10-35-54E

Regardless of the valuation technique used, a reporting entity shall include appropriate risk adjustments, including a risk premium reflecting the amount that market participants would demand as compensation for the uncertainty inherent in the cash flows of an asset or a liability. [...]The risk adjustment shall be reflective of an orderly transaction between market participants at the measurement date under current market conditions.

ASC 820-10-35-18A explicitly requires that reporting entities consider the effect of nonperformance risk, including credit risk, in determining the fair value of both assets and liabilities. In evaluating the credit risk component of nonperformance risk, reporting entities should consider all relevant market information that is reasonably available. Factors that may impact the credit risk exposure include:

- Master netting arrangements or other netting arrangements (ASC 815-10-45-5 provides further description of master netting arrangements)
- Collateral and other credit support
- Structure of the transaction
- Specific characteristics of the instrument being measured

In general, the credit risk incorporated in the fair value measurement will vary depending on the exposure as follows:

- *Positive exposures* – The credit risk of the counterparty should be incorporated into the calculation of the credit risk adjustment. The reporting entity would incorporate the effect of the obligor’s credit risk in determining the price that a market participant would be willing to pay for the asset.
- *Negative exposures* – The reporting entity should incorporate its own credit risk as a component of the fair value measurement.

Market participants may use a number of different approaches to estimate the impact of credit risk on fair value measurement, which range from very complex to relatively straightforward. Any approach should consider factors such as:

- How the underlying exposure will behave over time – For example, certain instruments, due to their nature, could be both assets and liabilities over time as their fair value changes. These scenarios complicate the process of estimating the impact of credit risk on fair value measurement.
- How the credit risk of a position is dependent on the remaining life of the exposures – For example, a higher credit risk adjustment is typically required for longer-dated risk, and hence the credit risk associated with the position may decrease between reporting periods as the remaining maturity of the exposure decreases.
- How credit mitigants will affect the net exposure – For example, if the credit risk related to a group of assets and liabilities is measured together (i.e., legal right of offset exists between assets and liabilities, resulting in a net exposure based on the eligible portfolio), how will the portfolio exposure change over time? If collateral is required, the thresholds in the contractual agreements governing the collateral posting are relevant to how the net exposure behaves over time and how market participants would assess credit exposure.

The sophistication of a reporting entity’s calculation of the impact on fair value of credit risk may be affected by the nature and extent of its activities. For example, reporting entities with material, complex derivatives portfolios may need to apply sophisticated, scenario-based approaches that consider market-based predictions of their potential future exposure. Reporting entities with limited and less complex derivative activities may be able to demonstrate that a simplified approach provides a sufficiently accurate estimate of the impact of credit risk on fair value.

Reporting entities should continue to monitor market developments to ensure that their methodologies remain appropriate as derivatives valuations, including the incorporation of credit risk, continue to evolve to address market and regulatory impacts. See FV 6.7. Reporting entities should also document both the methodology applied and the rationale for the decisions made in determining an appropriate methodology for incorporating credit risk into their fair value measurements under ASC 820.

8.1.1.1 Other considerations

For some instruments, no separate measurement of credit risk is required as the quoted prices of these instruments incorporate the risk of nonperformance. In general, a reporting entity will not be required

to separately measure nonperformance risk for assets and liabilities with observable prices in active markets. Such prices already reflect a market participant's view of value including credit risk to the extent it is applicable.

Instruments whose prices incorporate the risk of nonperformance and as such, require no separate measurement of credit risk, include:

- *Publicly traded equity securities* – Equity securities accounted for in accordance with ASC 321 often have observable prices in active markets. As equity represents the residual value in a company, credit risk per se is not measured. However, the market view of the company's potential cash flows and the riskiness of those potential cash flows (including credit risk) are inherent in the market price. Therefore, no separate measurement of credit risk is required.
- *Publicly traded debt* – The fair value of a reporting entity's public debt can generally be determined based on available market prices. If quoted information is available for the same issue, no separate measurement of credit risk is required.
- *Cleared contracts* – Generally, clearing houses will require the posting of margin or collateral in order to manage counterparty credit risk. For example, on the Chicago Mercantile Exchange, margin postings are required daily on futures contracts in order to mitigate the risk that the holder will not perform. As a result, the valuation of a financial derivative contract cleared through a clearing house that requires a maintenance margin or another form of collateral arrangement would reflect an adjustment of the loss assumptions to include this collateral protection. Therefore, no separate measurement of credit risk is required.
- *Fully collateralized transactions* – Certain contracts may be fully collateralized on both sides if the terms of the CSA require collateral that is posted daily and not subject to any threshold value. In that case, no separate measurement of credit risk is required.

In cases in which quoted prices that incorporate credit risk are not available due to the lack of a liquid market for a particular instrument, the reporting entity should consider the risk of nonperformance, including credit risk, in developing its fair value measurement.

The determination of credit risk adjustments can be complex, and may require the consideration of future expectations of exposure, credit risk, and mitigating factors.

The remainder of this section will consider credit risk measurement under the following simplified assumptions:

- The market value of a position at a point in time approximates the exposure
- Assets approximate positive exposures, and liabilities approximate negative exposures
- Any collateral posted daily is assumed to be instantaneously posted, with no potential for default by the posting entity
- Any collateral posted is done so in accordance with the requirements of the CSA

Market participants should consider and memorialize the rationale, appropriateness, and support for any assumptions made in their assessment and quantification of the credit risk adjustment.

8.1.1.2 *Timing*

The credit risk adjustment should be reconsidered in each period in which fair value measurements are reported, because the market view of credit risk will vary depending on the credit quality of the counterparties, the value of the underlying asset or liability, market volatility, and other factors that are dynamic. The following discussion highlights some of the questions that may arise in practice as reporting entities consider measurement of the credit risk adjustment.

Question FV 8-1

For assets and liabilities reported at fair value, is an evaluation of credit risk required each reporting period if there has been no change in credit rating since origination?

PwC response

Yes. A credit risk adjustment should reflect all changes in the price of credit as well as changes in the creditworthiness of the reporting entity or the counterparty, as applicable, which may not be reflected in their credit ratings. For example, a decline in the reporting entity's credit default swap rate, or an overall change in the credit spreads for the reporting entity's industry sector may indicate a change in the market price of its credit. Credit spreads and risk can change without a change in credit ratings. The credit risk adjustment should incorporate all available market information, including changes in the company's standing within its credit category, changes in the market price of credit or the market value of the asset or liability being measured, as well as other factors.

Excerpt from ASC 820-10-55-59

On January 1, 20X7, Entity A, an investment bank with a AA credit rating, issues a five-year fixed rate note to Entity B. The contractual principal amount to be paid by Entity A at maturity is linked to the Standard & Poor's 500 index. No credit enhancements are issued in conjunction with or otherwise related to the contract (that is, no collateral is posted and there is no third-party guarantee). Entity A elects to account for the entire note at fair value in accordance with paragraph 815-15-25-4. The fair value of the note (that is the obligation of Entity A) during 20X7 is measured using an expected present value technique. Changes in fair value are as follows:

...

b. Fair value at March 31, 20X7. By During March 20X7, the credit spread for AA corporate bonds widens, with no changes to the specific credit risk of Entity A. The expected cash flows used in the expected present value technique are discounted at the risk-free rate using the treasury yield curve at March 31, 20X7, plus the current market observable AA corporate bond spread to treasuries, if nonperformance risk is not already reflected in the cash flows, adjusted for Entity A's specific credit risk (that is, resulting in a credit-adjusted risk-free rate). Entity A's specific credit risk is unchanged from initial recognition. Therefore, the fair value of Entity A's obligation changes as a result of changes in credit spreads generally. Changes in credit spreads reflect current market participant assumptions about changes in nonperformance risk generally, changes in liquidity risk, and the compensation required for assuming those risks.

As this example illustrates, a reporting entity is required to assess credit risk each period, even if there is no change in the related credit rating, because adjustments for credit are not triggered solely by a

change in credit rating. In fact, the credit risk to the entity changes simply because of the passage of time. Because there is less time for the parties to default, absent other changes to the counterparty credit standing, the default probabilities will typically be lower.

Question FV 8-2

In estimating fair value at a point in time, can entities assume the effect of credit risk on a financial instrument's fair value is immaterial?

PwC response

No. However, an entity may be able to demonstrate that for some financial instruments the effect of credit risk is immaterial, provided it has sufficient evidence to support this. For example, this might be the case if:

- any credit risk is substantially mitigated, for example, by the posting of collateral or netting arrangements; or
- there is persuasive evidence that the credit riskiness of the parties to the transaction has not changed and that all parties continue to have low credit risk.

What comprises sufficient evidence that the effect of credit risk is immaterial will vary depending on the facts and circumstances. Such evidence could be qualitative or quantitative. A numerical calculation may not be required in all cases.

The assessment should take into account the effect on both the financial instrument's carrying amount and on hedge effectiveness for derivatives in hedging relationships. For example, if a hedge relationship is near 100% effective before considering the effect of credit risk, it may be easier to demonstrate that any adjustment would not materially affect the financial statements than if a hedge is, say, close to 80% effective before considering the effect of credit risk. This is important because even a minor change could result in the hedge not meeting the 80%–125% practice-accepted threshold to qualify for hedge accounting. See FV 6.8 for further hedge accounting considerations.

Question FV 8-3

If the original contract price included an adjustment for credit risk, does the reporting entity need to continue to evaluate the credit risk adjustment each period?

PwC response

Yes. The effect of nonperformance risk, including credit risk, is typically priced into the terms of a contract at inception, but should be re-evaluated each reporting period. For example, credit risk may be incorporated into the pricing of a derivative instrument through an adjustment to the interest rate, other pricing terms, or contractual credit enhancements (such as requirements to post collateral or letters of credit).

Similarly, credit risk is priced into long-term debt through the credit spread, which may vary depending on seniority of debt and other factors that impact credit risk. Because those terms are established as part of the contractual arrangement and dictate the contractual cash flows, some

reporting entities have questioned whether an ongoing evaluation of credit risk is necessary in connection with the fair value measurement process at each reporting date.

Typically, commercial contract terms do not include provisions that reset pricing or cash flows due to changes in credit spreads or the credit standing of the issuing entity. As a result, credit risk should be reconsidered each period to incorporate contractual and market changes that may impact the credit risk measurement. Note that some contracts may require the posting of additional collateral or other credit enhancements for credit deterioration or other changes in fair value. This type of protection may impact the calculation of the credit risk adjustment but does not eliminate the requirement to re-evaluate the potential exposure to credit risk at each reporting date.

Question FV 8-4

If a reporting entity intends to settle a non-prepayable liability shortly after the end of the reporting period (i.e., the borrower intends to negotiate with the lender an early termination of the agreement after the reporting date), can settlement value be used as a proxy for fair value?

PwC response

No. The basic premise in the calculation of the fair value of a non-prepayable liability pursuant to ASC 820 is that the liability remains until its maturity. Therefore, fair value should be determined based on the transfer value of the liability, inclusive of nonperformance risk. Any difference between the settlement amount and the fair value measurement of the liability should be recognized in the period of settlement.

If the liability includes a prepayment option that was not separated as an embedded derivative, the terms of the prepayment option would impact the calculation of fair value. For example, if the prepayment option is deep in-the-money, the fair value may be close to the strike price as market participants would anticipate the prepayment of the liability by the borrower in the near term and therefore value the prepayment option considering such a possibility.

8.1.2 Market participant perspective

The measurement of credit risk should be based on market participant assumptions.

ASC 820-10-35-9

A reporting entity shall measure the fair value of an asset or a liability using the assumptions that market participants would use in pricing the asset or liability, assuming that market participants act in their economic best interest. In developing those assumptions, a reporting entity need not identify specific market participants. Rather, the reporting entity shall identify characteristics that distinguish market participants generally, considering factors specific to all of the following: (a) the asset or liability, (b) the principal (or most advantageous) market for the asset or liability, and (c) market participants with whom the reporting entity would enter into a transaction in that market.

Consistent with this guidance, credit risk should be measured based on market participant assumptions about the risk of default and how that risk will be valued. Market-based assumptions take priority over the reporting entity's point of view of its own credit risk or the credit risk associated with a specified counterparty. Accordingly, in calculating the credit risk adjustment, a reporting entity

should consider all sources of information, available without undue cost or effort, that market participants would consider when determining how much they would pay to purchase an asset or demand to assume a liability.

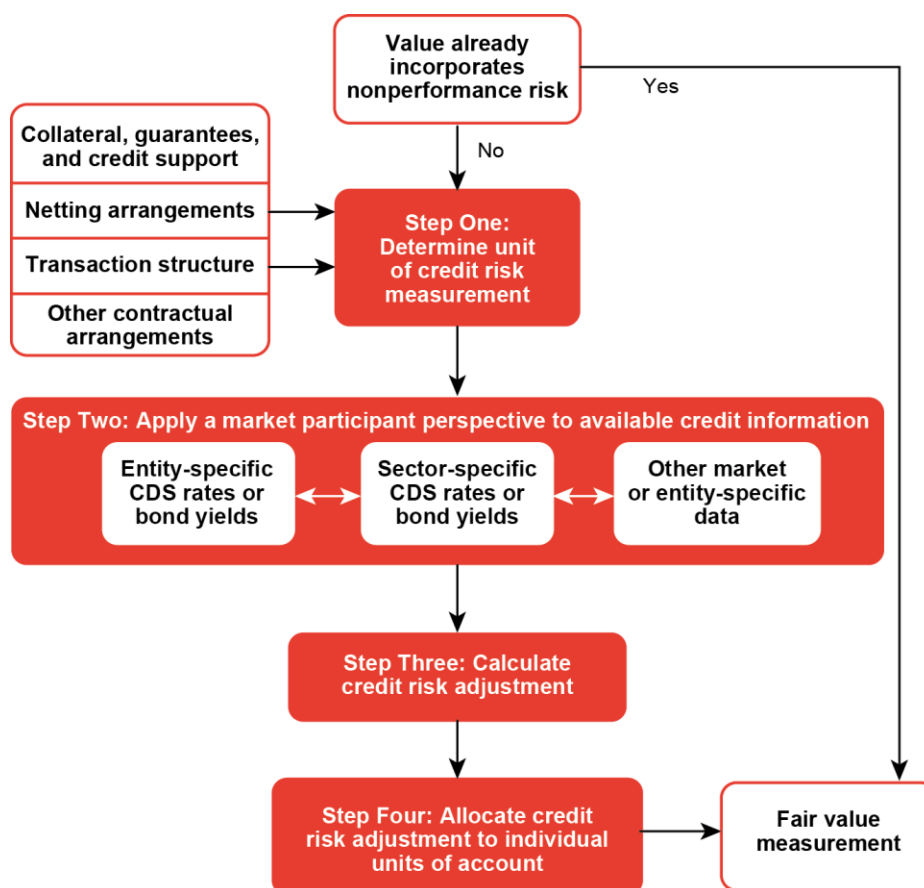
Available information can be adjusted and weighted based on facts and circumstances if the reporting entity believes it is not reflective of the characteristics of the liability being valued or market conditions. This will require the use of professional judgment, which is a key element in fair value measurements. The rationale for the approach used for assessing credit risk and the basis for adjustments made in measuring fair value should be documented as part of the reporting entity's credit risk assessment.

8.2 Introduction to a credit risk measurement framework

There are many factors that may impact the measurement of credit risk, including the nature of the instrument being measured (e.g., investment, debt, derivative), whether it is in an asset or liability position, and whether there are quoted prices available that already incorporate credit risk. This section discusses an overall framework that can be applied to assist in the calculation of a credit risk adjustment for a specific asset or liability and discusses specific implementation issues.

Figure FV 8-1 highlights key elements of the credit risk measurement framework.

Figure FV 8-1
Credit risk adjustment framework



8.2.1 Step one: determine unit of measurement for credit risk

As the first step in measuring credit risk, the reporting entity must determine the unit of measurement (i.e., what is being measured). Credit risk may be measured based on a grouping of instruments that differs from the unit of account for balance sheet presentation purposes.

For example, in measuring the fair value of a derivative instrument, the unit of account is the individual derivative instrument. However, credit risk may be estimated by some market participants on an individual transaction basis, whereas other market participants may evaluate credit risk on multiple contracts involving a single counterparty on a “net” basis if the contracts are covered under one master netting agreement. These factors add another consideration to the calculation. When credit risk is evaluated across a group of individual transactions, entities may be required to allocate the credit risk adjustment to a lower unit of account.

The unit of measurement for purposes of determining the credit risk adjustment (“unit of credit risk measurement”) should incorporate all relevant factors, including the profile of the asset or liability, its type (debt, derivative, or warrant), terms (maturity date and par or notional amount), and other attributes (priority, recourse, and secured or non-secured status). In addition, credit enhancements, such as collateral-posting requirements, master netting arrangements on derivatives, parent company guarantees, and transaction structure should be considered.

Due to the potentially significant effect of these factors on the calculation of the credit risk adjustment, a reporting entity should ensure that it obtains a full understanding of its rights and obligations associated with a particular contract or counterparty prior to calculating the credit risk adjustment. Specific items that may affect the unit of credit risk measurement include the following.

Collateral, guarantees, and credit support

Requirements to post collateral, guarantees, letters of credit, and similar forms of credit enhancement may reduce the potential credit risk exposure. In addition to considering posted collateral, a reporting entity should ensure it has a comprehensive understanding of all credit support arrangements. For example, a provision in an investment agreement that requires the counterparty to post collateral if the counterparty’s credit rating is downgraded will limit the reporting entity’s potential exposure to loss and should be incorporated into the unit of credit risk measurement.

Master netting arrangement or other netting agreements

A master netting arrangement generally provides that multiple derivative contracts with the same counterparty will be offset in the event of a default on any one of the contracts. The netting provisions result in a credit risk exposure based on the “net” position rather than at the individual contract level. Master netting arrangements may also incorporate other positions with the counterparty (e.g., non-derivative obligations and other forms of collateral) in the event of default.

Master netting arrangements or other agreements that allow for the netting of assets and liabilities held with the same counterparty will change the potential risk exposure. For example, assume a company has contracts in both asset and liability positions with a particular counterparty. If the company has a master netting arrangement in place, it may calculate the credit exposure based on the net exposure of the asset and liability positions. However, absent such an arrangement, it would be required to separately calculate the exposure for assets and liabilities based on the market participant view of counterparty credit risk and its own credit risk, respectively.

In evaluating such arrangements, a reporting entity should consider whether the arrangement permits netting across contract types (e.g., interest rate swaps, different types of commodity contracts) or product types (e.g., physical versus cash settlement). The reporting entity should evaluate each legal entity it transacts with separately. In some cases, an arrangement may cover transactions with multiple subsidiaries of a specific company. However, in other instances, each subsidiary may be covered by a separate arrangement. The specifics of such agreements, including their legal enforceability, may have a significant impact on the reporting entity's exposure to loss and the calculation of the related credit risk adjustment.

Structural and other contract considerations

A particular contract may incorporate other specific risks that may impact credit risk. For example, performance on a particular contract, such as delivery of an asset to a specific counterparty, may depend on receipt of an asset from another counterparty. In that case, the credit exposure on both contracts may be tied to performance by the party responsible for initial delivery. Any such contractual provisions should be considered in developing a credit risk adjustment.

Impact of third-party credit enhancements – perspective of the issuer

In accordance with ASC 825-10-25-13 and ASC 820-10-35-18A, the issuer of a liability with an inseparable third-party credit enhancement (such as a guarantee) should not include the effect of the credit enhancement in the fair value measurement of the liability. The credit risk adjustment for the liability should be calculated as though there were no third-party guarantee, letter of credit, or other form of credit enhancement.

For example, long-term debt and derivative instruments are frequently issued with a third-party guarantee or an underlying credit support arrangement. However, the issuer of the debt or derivative should ignore the credit enhancement in calculating its credit risk adjustment and revert to its own standalone credit risk, not that of the guarantor. Any proceeds received by the issuer are consideration for the liability issued as well as the credit enhancement purchased on the investor's behalf and should be allocated as such.

This guidance does not apply to credit enhancements granted to the issuer of the liability provided by governmental entities or to arrangements between reporting entities within a consolidated or combined group (for example, a parent and subsidiary or entities under common control).

Impact of third-party credit enhancements – perspective of the holder

Guidance differs for the holder of the instrument (e.g., the investor in a debt security or the counterparty to a derivative liability) with an inseparable third-party credit enhancement. The counterparty should consider the benefit of the enhancement in measuring the fair value of the instrument. However, if the third-party credit enhancement is detachable, there would be two units of account, each of which should be accounted for separately.

Determine exposure to be measured

After a reporting entity has identified and assessed all information that may impact the calculation of credit risk, it should calculate the net asset or liability exposure and determine whose credit needs to be measured. This information will be critical in the overall calculation of the credit risk adjustment. Following are specific examples of application of this guidance.

Example FV 8-1 demonstrates the impact of master netting arrangements on the credit risk adjustment.

EXAMPLE FV 8-1

Impact of master netting arrangements on the credit risk adjustment

As of December 31, 20X1, FV Company has several derivative contracts with Counterparty X as follows:

Type of derivative	Amount	Asset/(liability)
Interest rate swap	\$(20,000)	Liability
Interest rate swap	10,000	Asset
Total interest rate swaps	\$(10,000)	Net liability
Gas commodity contract	6,000	Asset
Gas commodity contract	5,000	Asset
Electricity commodity contract	8,000	Asset
Electricity commodity contract	(12,000)	Liability
Total commodity contracts	\$7,000	Net asset
Total of all contracts	\$(3,000)	Net liability

In evaluating its netting and other arrangements with Counterparty X, FV Company determines that it has a netting arrangement that covers the interest rate swaps and a separate master netting arrangement that affects all commodity derivatives, including both gas and electricity contracts.

Considering all of the noted contracts are with the same counterparty, how should management measure credit risk associated with the net \$3,000 liability?

Analysis

Management should separately measure credit risk associated with the following:

- Interest rate swaps – Rights and obligations under these contracts are not eligible to be netted with those relating to the commodity derivatives. Therefore, as of the reporting date, FV Company should measure the credit risk for the net interest rate swap liability based on a market participant's view of FV Company's credit standing.
- Commodity contracts – All commodity contracts are covered by a single master netting arrangement. Therefore, FV Company should measure the credit risk associated with the \$7,000 net asset based on a market participant's view of Counterparty X's credit.

This example illustrates how the form and substance of commercial agreements can impact the measurement of credit risk and can yield different credit risk adjustments. In this example, if there were no netting arrangements, FV Company would calculate the credit risk adjustment separately for each of the derivatives. Alternatively, if all of the contracts were covered under a single master netting arrangement, credit risk would typically be calculated based on a net liability of \$3,000. However, because the swaps and commodity contracts are subject to separate netting arrangements, credit risk should be separately evaluated for the net swap exposure and for the net commodity exposure.

Example FV 8-2 shows the impact of collateral and credit support on the credit risk adjustment.

EXAMPLE FV 8-2

Impact of collateral and credit support on the credit risk adjustment

As of December 31, 20X1, FV Company has several derivative contracts with Counterparty X as follows:

Type of derivative	Amount	Asset/(liability)
Interest rate swap	\$(20,000)	Liability
Interest rate swap	10,000	Asset
Total interest rate swaps	\$(10,000)	Net liability
Gas commodity contract	6,000	Asset
Gas commodity contract	5,000	Asset
Electricity commodity contract	8,000	Asset
Electricity commodity contract	(12,000)	Liability
Total commodity contracts	\$7,000	Net asset
Total of all contracts	\$(3,000)	Net liability

In evaluating its netting and other arrangements with Counterparty X, FV Company determines that it has a netting arrangement that covers the interest rate swaps and a separate master netting arrangement that affects all commodity derivatives, including both gas and electricity contracts. Under the CSA governing the commodity contracts, Counterparty X is required to provide \$5,000 of cash collateral to FV Company.

Does the posted collateral have an impact on the calculation of the credit risk adjustments for the commodity contracts and the interest rate swaps?

Analysis

As a result of the collateral, FV Company has limited its credit exposure to a net \$2,000 commodity asset from Counterparty X, instead of the \$7,000 asset calculated in Example FV 8-1. FV Company's net exposure (the uncollateralized amount) is calculated as follows:

Derivative type	Position	Collateral	Asset/(liability)
Interest rate swaps	\$(10,000)	\$ —	\$(10,000)
Commodity contracts	7,000	(5,000)	2,000

Therefore, FV Company should calculate the credit risk adjustment for the commodity contracts based on the net \$2,000 balance. However, the posted collateral has no impact on the calculation of the credit risk adjustment associated with the interest rate swap.

In this fact pattern, depending on the requirements of the underlying agreement, Counterparty X also may have been able to meet its collateral obligation by providing a parent company guarantee or a bank letter of credit.

Example FV 8-3 discusses the impact of credit enhancements on the calculation of credit risk adjustments.

EXAMPLE FV 8-3

Impact of credit enhancements on the credit risk adjustment

As of December 31, 20X1, FV Company has several derivative contracts with Counterparty X as follows:

Type of derivative	Amount	Asset/(liability)
Interest rate swap	\$(20,000)	Liability
Interest rate swap	10,000	Asset
Total interest rate swaps	\$(10,000)	Net liability
Gas commodity contract	6,000	Asset
Gas commodity contract	5,000	Asset
Electricity commodity contract	8,000	Asset
Electricity commodity contract	(12,000)	Liability
Total commodity contracts	\$7,000	Net asset
Total of all contracts	\$(3,000)	Net liability

In evaluating its netting and other arrangements with Counterparty X, FV Company determines that it has a netting arrangement that covers the interest rate swaps and a separate master netting arrangement that affects all commodity derivatives, including both gas and electricity contracts. FV Company's interest rate swaps are supported by a letter of credit issued by Bank B, a third party.

Should FV Company or Counterparty X consider the impact of the letter of credit issued by Bank B when determining the credit risk adjustment?

Analysis

In accordance with the requirements of ASC 820-10-35-18A, the obligor (FV Company) cannot consider the impact of a third-party credit enhancement in determining the credit risk adjustment for its liability. Therefore, FV Company is required to measure the credit risk as of the reporting date based on a market participant's assessment of its own credit standing, not that of Bank B.

However, Counterparty X would incorporate the impact of the credit enhancement issued by Bank B for FV Company in determining an appropriate credit risk adjustment for the interest rate swap asset recorded on its books. The guidance in ASC 820-10-35-18A has no impact on the measurement of nonperformance by Counterparty X, which may consider the credit enhancement provided by the letter of credit.

Example FV 8-4 evaluates the impact of contracts identified as normal purchases under US GAAP on the credit risk adjustment.

EXAMPLE FV 8-4

Impact of contracts identified as normal purchases under US GAAP on the credit risk adjustment

FV Company has two electricity commodity contracts with Counterparty X and has received collateral from Counterparty X. One of the two contracts qualifies, and has been designated, as a normal purchase in accordance with ASC 815 while the other contract does not qualify for the scope exception. As a result, the normal purchase contract is accounted for as an executory contract and is not recorded nor disclosed at fair value in the financial statements. The contract has a liability balance of \$5,000 as of December 31, 20X1 and is subject to the overall commodity master netting arrangement between FV Company and Counterparty X.

How should the credit risk adjustment be determined for the executory contract as FV Company has received collateral from Counterparty X? Should the credit risk adjustment be included in the fair value measurement of the derivatives?

Analysis

If a reporting entity received collateral from a particular counterparty, it should determine whether any of the collateral relates to contracts designated as normal purchases and normal sales contracts. If some of the collateral relates to such off-balance sheet contracts, the reporting entity should allocate the collateral between contracts recorded at fair value and those accounted for as executory contracts prior to the calculation of the credit risk adjustment.

Further, ASC 820 applies to derivatives recorded at fair value in the financial statements, and the credit risk adjustment is intended to reflect the credit risk associated with recognized contracts in the

fair value measurement. Therefore, although included in the determination of the credit risk adjustments associated with a specific counterparty, the portion of the credit risk adjustment for such executory contracts and other contracts that are not recorded at fair value on the balance sheet should not be included in the fair value measurement of the derivatives.

Example FV 8-5 assesses the impact of deal structure on the credit risk adjustment.

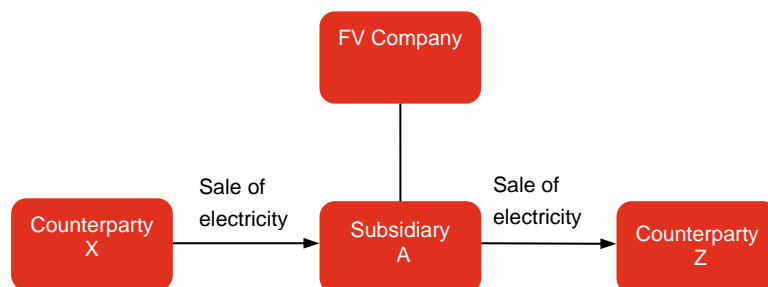
EXAMPLE FV 8-5

Impact of deal structure on the credit risk adjustment

As of December 31, 20X1, FV Company has several derivative contracts with Counterparty X as follows:

Type of derivative	Amount	Asset/(liability)
Interest rate swap	\$(20,000)	Liability
Interest rate swap	10,000	Asset
Total interest rate swaps	\$(10,000)	Net liability
Gas commodity contract	6,000	Asset
Gas commodity contract	5,000	Asset
Electricity commodity contract	8,000	Asset
Electricity commodity contract	(12,000)	Liability
Total commodity contracts	\$7,000	Net asset
Total of all contracts	\$(3,000)	Net liability

In evaluating its netting and other arrangements with Counterparty X, FV Company determines that it has a netting arrangement that covers the interest rate swaps and a separate master netting arrangement that affects all commodity derivatives, including both gas and electricity contracts. One of FV Company's subsidiaries enters into a structured transaction with Counterparty X and Counterparty Z, moving the in-the-money electricity commodity contract with Counterparty X (the \$8,000 commodity asset above) into a separate subsidiary (Subsidiary A). Subsidiary A is purchasing electricity from Counterparty X under this contract. Subsidiary A then enters into a power sales agreement with Counterparty Z. The structure of this transaction is as follows:



Performance on the Counterparty Z sales agreement is dependent on the receipt of the electricity by Subsidiary A from Counterparty X; Counterparty Z has no recourse to the overall assets of FV Company if Subsidiary A fails to perform.

How should FV Company consider the credit risk associated with the sales agreement with Counterparty Z?

Analysis

In this transaction, performance by Subsidiary A on the contract with Counterparty Z depends on the receipt of power by Subsidiary A from Counterparty X. Thus, if the contract with Counterparty Z is in a liability position, FV Company should consider Counterparty X's credit standing in measuring credit risk, rather than solely considering its own credit risk.

If the Counterparty Z contract were in an overall asset position, FV Company would consider Counterparty Z's performance risk. In assessing the exposure attributable to Counterparty Z, FV Company should also consider the impact of any collateral held by Subsidiary A associated with the transaction from Counterparty Z (as opposed to collateral from Counterparty X).

8.2.2 Step two: market participant perspective of credit information

In measuring credit risk, a reporting entity should acquire and evaluate information about the probability of default and the cost of transferring the risk to another party. Information that a market participant may consider includes the following:

- Credit ratings
- Market credit spreads
- Credit default swap rates
- Other public information with respect to a particular or similar entity
- Historical default rates

This information may be entity-specific or pertain to a similar entity or particular industry sector. When evaluating the effect of credit risk on a fair value measurement, a reporting entity should consider current market conditions and whether the data it is using appropriately incorporates the

most recent market trends. Some data sources may be more responsive to current conditions while other information may lag. These factors should be considered to the extent they represent the characteristics of the liability. For example, a holding company rating may not be relevant to the liability of a consolidated subsidiary with its own separate rating and/or different credit characteristics.

8.2.2.1 *Evaluating credit information*

In evaluating available information, reporting entities should also consider the fair value hierarchy. In determining the fair value of an asset or liability, observable inputs should be prioritized over unobservable inputs. However, observable information may not always be available, or unobservable data may be more appropriate in certain circumstances. If observable, market-based inputs are available, those inputs cannot be ignored and should be appropriately weighed in the measurement.

Historical default rates and recovery data

Tables of historical default and related recovery rates are routinely available through ratings agencies (e.g., Standard & Poor's, Moody's). Published default information is typically provided according to credit rating category (e.g., AAA, AA, A) and term (e.g., one year, five years, ten years).

Many reporting entities traditionally used historical default rates to measure credit risk for counterparties with a particular rating. However, reporting entities should understand the limitations of using this default data, without adjustment, when measuring credit risk for purposes of fair value measurement.

ASC 820-10-35-17 requires that the measurement of fair value incorporates a market participant's perspective of nonperformance risk, including credit risk. Historical default information reflects loss information from a designated period in the past, which may not reflect current market developments. For example, if a reporting entity is developing credit risk adjustments for counterparties that are experiencing financial difficulty, historical default rates generally would not reflect current and emerging information. The fact that the data does not reflect current conditions may become an issue of increasing significance in periods of heightened economic fluctuation. In addition, historical default rates may not sufficiently incorporate a market participant perspective about a specific entity.

In measuring credit risk, market participants may make adjustments for market factors, especially in periods of heightened market volatility, or for transactions involving counterparties that are not highly rated or that are experiencing issues or uncertainty, as reflected in their credit standing. Historical default rates do not incorporate this type of market-based risk adjustment. Such rates do not reflect a current price for credit risk and may not reflect current market perceptions of the future behavior of the obligor. As described below, bond spreads or credit default swap rates may provide a better indication of "market" rates for credit risk because they result from market participant pricing of credit risk for a specified instrument and counterparty. If entity-specific bond yields or credit default swap rates are not available, comparable industry sector credit information may be a more reliable indication of the market view of the risk of default than historical default rates alone.

For these reasons, solely using historical default information to measure credit risk is generally not sufficient. Such information often should be adjusted by incorporating other market data.

Market credit spreads

A credit spread is the difference in yield between two debt instruments that is attributable to a difference in credit standing of the respective issuers. Credit spreads are often quoted in relation to the yield on a credit risk-free benchmark security (e.g., U.S. Treasury bonds) or reference rate (e.g., U.S. Treasury rates or LIBOR). A credit spread for a public company is based on the issuer's publicly traded unsecured debt or by reference to a debt instrument with similar terms and for which credit exposure is considered to be substantially similar. Credit spread information may be obtained from a financial information network, such as Bloomberg, or other debt pricing and quotation sources.

Compared to using unadjusted historical default rates, credit spreads typically consider the price of credit risk and may provide more current information about a market participant's view of the credit risk of a particular counterparty. Credit spreads are often a better reflection of a market participant's perspective. However, there are limitations on the use of this information, as a credit spread is specific to the debt instrument to which it relates, including its liquidity, seniority, tenor, and other terms, and to the instrument's issuer. Furthermore, credit spreads may not reflect the most current market information as timely as a credit default swap rate (discussed below).

Publicly quoted credit spreads may not be readily available for private companies. When company-specific spreads are not available, it may be appropriate to consider credit spreads on publicly traded debt with a similar credit rating as an input in calculating the credit risk adjustment.

Credit default swap (CDS) rates

A CDS is a swap contract in which one party (the buyer of credit protection) makes a series of payments to another party (the seller) and, in exchange, receives a payoff if a referenced issuer of a debt instrument defaults or on the occurrence of a specified credit event (such as bankruptcy or restructuring).

A CDS rate refers to the current market-implied spread for protection on a given obligor. The rate is typically derived from a CDS price, which is the upfront payment, that, when combined with a series of standard coupon payments, equates to the market-implied price of protection. The standard coupon payments of 100 or 500 basis points are determined based on the credit quality of the reference credit obligation.

The price of credit as expressed by a CDS rate is approximately the annual rate multiplied by the amount of the reference credit obligation, discounted at LIBOR. A CDS is typically cash-settled. However, it may also be physically settled by delivery of the underlying instrument in exchange for payment of the contractual amount.

A CDS resembles an insurance policy in the sense that it can be used by the debt holder to hedge against the risk of loss caused by a default on a specific debt instrument. Unlike an insurance policy, however, the company that purchases the credit protection is not required to actually hold an asset or be at risk for loss. CDS rates are generally the most current information about a market participant's point of view of an issuer's credit. CDS rates can be obtained from financial information services (e.g., Bloomberg) or may be estimated based on appropriate pricing inputs.

CDS rates may be quoted for reference securities with different attributes, including, for example, maturity and seniority, and should be adjusted to match these attributes (e.g., comparable length or term of the exposure). Various methods, including interpolation, may be used to adjust the CDS

information to the appropriate tenor. Reporting entities should ensure that methodologies are appropriate and consistently applied.

The CDS market

According to the Statistical Release issued by the Bank of International Settlements, “OTC derivatives statistics at end-December 2020²” (May 2021), the notional value of the CDS market was \$8.4 trillion at the end of 2020. The CDS market is large and rapidly incorporates current market information in comparison to credit ratings or credit spreads. For example, while Lehman Brothers had an investment grade credit rating the Friday before it declared bankruptcy, the cost for obtaining credit protection on Lehman Brothers debt using a CDS was increasingly more costly over the period leading up to this event.

However, the CDS market is primarily an over-the-counter market, and there may be a lack of transparency regarding certain CDS information. In addition, the market is dominated by a few large financial institutions, and some CDS contracts are thinly traded (or may not be traded) and experience significant volatility. Therefore, questions have been raised about the use of unadjusted CDS information in incorporating credit risk in some fair value measurements.

Question FV 8-5

Some CDS information is available for a specific obligation, but it is for CDS contracts that are thinly traded and whose prices are volatile. Should this information still be considered in the calculation of credit risk?

PwC response

Yes. ASC 820-10-35-54A indicates that all reasonably available market information should be considered in the calculation of a credit risk adjustment. Even in times of market dislocation, it is not appropriate to conclude that all market activity represents forced liquidations or distressed sales. However, it is also not appropriate to automatically conclude that any transaction price is determinative of fair value. In determining fair value for a financial asset, the use of a reporting entity’s own assumptions about future cash flows and appropriately risk-adjusted discount rates is acceptable when relevant observable inputs are not available.

ASC 820-10-35-54C through ASC 820-10-35-54H reiterate the priority of market information in a fair value measurement by providing factors to consider in determining whether there has been a significant decrease in the volume or level of activity. Those factors may indicate when observable inputs may not be relevant or may require significant adjustment. In addition to cases in which the volume or level of activity has decreased significantly, observable inputs may not be relevant or may need adjustment when the available prices vary significantly over time or among market participants, or the prices are not current.

In addition, ASC 820-10-55-90 through ASC 820-10-55-98 provide an example of an approach to a fair value measurement that includes available market information and the entity’s own assumptions. This example demonstrates specific considerations in incorporating various sources of information in the fair value measurement. As demonstrated in the example, market information obtained from inactive markets still provides a point of reference in the estimation of fair value. Therefore, in assessing the use of a CDS rate, it is appropriate for the reporting entity to consider the source of the information, the liquidity of the market, and other factors.

Identifying all relevant sources of information, evaluating the accuracy of the information, and weighing the relative merits of all available data are difficult and judgmental processes. A reporting entity should document the information considered and the basis for its conclusions.

In addition, a lack of observable key inputs into the determination of the credit risk adjustment, such as in this case, could potentially impact how the valuation is classified in the reporting entity's fair value hierarchy disclosures. See FV 8.3.

8.2.2.2 *Comparing sources of credit information*

The following table highlights certain advantages and disadvantages associated with incorporating the various indicators of potential default into a credit calculation.

Figure FV 8-2 compares sources of credit information.

Figure FV 8-2
Comparing credit information

Method	Advantages	Disadvantages
Historical default rates	<ul style="list-style-type: none"> □ Provides an indication of risk and are widely available □ Routinely published by a variety of sources 	<ul style="list-style-type: none"> □ May not be indicative of market expectations of the obligor's current or future behavior □ Market events may be reflected on a lag □ Do not reflect entity-specific information □ Need to obtain additional information on applicable recovery rates/severities □ Severities and probabilities of default sourced separately (e.g., from different data providers) may not be consistent □ Severities and probabilities of default are not indicative of the price of credit

Method	Advantages	Disadvantages
Bond prices and yields (credit spreads)	<ul style="list-style-type: none"> □ Can be obtained for any publicly traded debt instrument □ Provide a current market view of credit risk □ Application of market standard recovery rates should result in consistent severity and probabilities of default for a given credit spread □ Probabilities of default and recovery rates will be internally consistent for a given credit spread 	<ul style="list-style-type: none"> □ May be difficult to apply if publicly traded instruments are not available □ Tend to be less responsive to current market events than CDS rates
Credit default swaps	<ul style="list-style-type: none"> □ Provides current market view of credit risk associated with a specific entity □ CDS rates related to a particular industry segment may be useful in assessing risk □ Can apply market standard assumptions for recovery rates □ Probabilities of default and recovery rates will be internally consistent for a given credit spread 	<ul style="list-style-type: none"> □ May be thinly traded and their pricing may be volatile □ Not available for all companies □ Limited to shorter maturity length of the CDS curve □ Application of market standard severity/recovery rates may not be applicable to a particular instrument/counterparty

8.2.2.3 Other considerations

Each company will have unique characteristics and often differing levels of reasonably available market information. For example, a large financial services institution may have a credit rating, multiple tranches of publicly traded debt, quoted credit default swap rates with multiple tenors, and other public information, which may provide strong evidence of a market participant's assumptions about credit risk. In contrast, a privately held company may have limited public information reasonably available for consideration of the appropriate credit risk adjustment.

If little or no entity-specific information is available, it may be helpful to consider credit default swap benchmarks or other credit benchmarks for the industry. Sector information may also be useful as another benchmark in evaluating counterparties when there is public information available.

When sector information is used in lieu of or to supplement entity-specific information, the reporting entity should adjust the information to align it with the unique characteristics of the asset or liability for which credit risk is being measured. For example, if the average credit rating for the industry is A, but a reporting entity is measuring an instrument issued by a counterparty with a credit rating of BBB, the difference in credit rating suggests a need to incorporate a higher degree of credit risk in the measurement of the instrument versus an instrument issued by others in the reporting entity's industry.

Question FV 8-6

A reporting entity's risk management group has developed a certain methodology for considering counterparty credit risk. Is the reporting entity required to consider the same methodology for purposes of measuring fair value for financial reporting?

PwC response

No, but the risk management group's assessment should be considered. Many reporting entities have implemented risk management processes that manage counterparty exposure. Those processes may include, for example, developing lists of approved counterparties, establishing limits for exposures with a particular counterparty, determining the level of collateral or other credit support required for each counterparty or type of counterparty, pricing credit when collateral or other credit support is considered insufficient, and other related criteria.

In many cases, the approach to managing credit exposure developed by the risk management group will reflect the overall approach to measuring credit risk used by other market participants. Therefore, a reporting entity's methodology for measuring credit risk for financial reporting purposes should include consideration of information used by its risk management group. If the internal process uses information consistent with market participant assumptions, it may be used as an input when measuring fair value. In all cases, the determination of credit risk adjustments should reflect market participant assumptions and not management assumptions developed by the reporting entity.

8.2.2.4 Approaches to assessing available information

Example FV 8-6 demonstrates approaches to considering and weighting various types of information.

EXAMPLE FV 8-6

Using company-specific market information

In September 20X1, Company B, a gas distribution company, enters into a two-year pay-fixed/receive-floating gas swap with Counterparty M, a gas marketer, based on the NYMEX Henry Hub monthly index. The swap meets the definition of a derivative and Company B will record it at fair value, with changes in fair value reported in the income statement each reporting period. The swap is not subject to a master netting arrangement and no collateral has been posted. As of December 31, 20X1, the fair value of the swap, without any adjustment for credit risk, is a liability of \$365,000.

Since the contract is in a liability position, the credit adjustment will be primarily adjusted based on market participant assumptions about Company B's credit risk (i.e., the amount market participants would require for assumption of this liability in a transfer).

Company B assesses the available credit information as follows:

- Credit rating – Company B's credit rating on September 30, 20X1, was BBB, which is generally consistent with comparable companies in the industry. Based on this credit rating, Company B noted that the historical default tables indicate a default rate of less than 0.6% over the term of the swap contract.

- Credit spreads – Company B’s publicly traded, unsecured debt was trading with yields in the range of 1.4%–1.7% over US Treasury bonds as of December 31, 20X1.
- Credit default swaps – There are publicly quoted CDS rates available for other debt of Company B with comparable credit exposure and current activity through December 31, 20X1. Company B is able to obtain CDS rates from an information service without undue cost or delay. The CDS rate is approximately 273 basis points for the first year of the contract, decreasing to 258 basis points for the second year. The spreads have been increasingly volatile. Company B incorporates CDS rates in its assessment of counterparty credit risk for its risk management purposes.

How might Company B conclude as it relates to the relevancy of the data points outlined above when determining its risk of default?

Analysis

The use of the credit rating and historical default rate is less likely to form a current market participant’s assumption about credit risk. Therefore, market participants would likely consider other market indicators in assessing credit risk.

Company B should consider the use of credit spreads in the calculation of the credit risk adjustment; however, because it has determined that CDS rates are available and more appropriate for the derivative being measured, these should also be considered. Given the currently volatile credit markets, CDS rates provide a more timely and reliable indicator of credit risk.

Management could conclude that although they have a higher volatility and may be thinly traded, and although the risk of default is minimal and consistent with the risk indicated by historical default rates, CDS rates provide the best estimate with respect to the current market view of its credit risk incorporating the price of credit as of the reporting date from the market participant perspective.

Example FV 8-7 illustrates the weighting of market information.

EXAMPLE FV 8-7

Weighting market information

In September 20X1, Company B, a gas distribution company, enters into a two-year pay-fixed/receive-floating gas swap with Counterparty M, a gas marketer, based on the NYMEX Henry Hub monthly index. The swap meets the definition of a derivative and Company B will record it at fair value, with changes in fair value reported in the income statement each reporting period. The swap is not subject to a master netting arrangement and no collateral has been posted. As of December 31, 20X1, the fair value of the swap, without any adjustment for credit risk, is a liability of \$365,000.

Since the contract is in a liability position, the credit adjustment will be primarily adjusted based on market participant assumptions about Company B’s credit risk (i.e., the amount market participants would require for assumption of this liability in a transfer).

Company B assesses the available credit information as follows:

- Credit rating – Company B’s credit rating on September 30, 20X1, was BBB, which is generally consistent with comparable companies in the industry. Based on this credit rating, Company B

noted that the historical default tables indicate a default rate of less than 0.6% over the term of the swap contract.

- Credit spreads – Company B’s publicly traded, unsecured debt was trading with yields in the range of 1.4%–1.7% over US Treasury bonds as of December 31, 20X1.
- Credit default swaps – There are no publicly quoted CDS rates available for other debt of Company B with comparable credit exposure and current activity through December 31, 20X1.

There are no quoted CDS rates available for Company B. There is CDS information available for the gas distribution sector. The CDS sector rate was approximately 250 basis points for the first year of the contract, decreasing to 225 basis points for the second year. Recent CDS quotes have been volatile.

Because there are no quoted CDS rates available for Company B, how might Company B conclude as it relates to the relevancy of the existing data points when determining its risk of default?

Analysis

Considering the available information, the credit spreads provide the best company-specific information about potential risk of default. However, if Company B is similar to the companies that comprise the gas distribution sector and correlation exists, management could conclude that the CDS rates, though not company-specific, are more reflective of the current market participant view of credit risk and credit risk can be calculated using the sector-specific CDS rates without adjustment.

Example FV 8-8 demonstrates the evaluation of various types of market information.

EXAMPLE FV 8-8

Evaluating various types of market information

Company B is valuing \$1.0 million in mandatorily redeemable preferred stock that it issued to private investors. This stock is classified as debt on the balance sheet under US GAAP. Company B is required to calculate the fair value of the preferred stock for disclosure purposes. In considering the valuation process, management observes that since issuance:

- market conditions for debt have deteriorated,
- its sector has been affected by a number of negative factors, and
- recently there has been a widening of credit spreads.

Company B’s management believes that the company tends to follow industry trends with a slight “positive” factor due to a lower than average debt-to-equity ratio. Company B’s management also obtains the following inputs for consideration:

- The credit spread on Company B’s public debt is 3%.
- The public debt is senior to the preferred stock. Due to current credit conditions, Company B’s management believes that an adjustment of 1% is required to reflect the lower seniority of the

preferred stock in relation to the public debt. Therefore, the implied credit spread for the preferred stock is 4%.

- Company B is able to obtain a quote for Company H's preferred stock that has similar terms and characteristics. The current credit spread implied in this issuance is 4%. Company H has the same credit rating as Company B; however, Company B operates in an industry that has a lower risk profile. Furthermore, Company H's debt trades at a higher price in its credit category than Company B. Management determines that the difference in sectors and position within its credit category require a downward adjustment of .5%. Therefore, the implied credit spread by these inputs for the preferred stock is 3.5%.
- Management obtains a quote for a publicly traded series of subordinated debt for Company J, a company within Company B's sector with a credit rating a grade below Company B's. The debt has characteristics (e.g., subordination, covenants, and other terms) that are similar to, though not exactly the same as, Company B's preferred stock. In addition, Company J has covenants that include restrictions beyond those imposed by Company B's preferred stock. The credit spread on the debt is 6% at the reporting date. Given the additional restrictions and the lower credit quality of Company J, management adjusts the credit spread downward by 1.5%, for an implied spread of 4.5%.

How might Company B evaluate the appropriateness of each of the three implied credit spreads when calculating the credit risk adjustment to determine the fair value of the preferred stock?

Analysis

The three referenced inputs, as adjusted, range from a low of 3.5% to a high of 4.5%. In assessing the appropriate rate to apply in calculating the credit risk adjustment, management should consider the quality of the data sources. As the first price starts with Company B's own debt and adjusts for the risk in the preferred stock, it could be considered the most relevant. However, the second two inputs reference subordinated debt, which is a better comparison to the subordinated position of the preferred stock. Because the credit markets place a premium on seniority, and because Company B operates in a lower risk sector, the weighting should likely be closer to the subordinated debt spreads. Therefore, in this case, a credit spread of 4.5% may be appropriate.

8.2.3 Step three: calculate credit risk adjustment

There are various methodologies to calculate the credit risk adjustment and to incorporate the adjustment into the measurement of fair value. There is some flexibility in the method selected; however, management should apply a consistent method when performing similar measurements. In addition, a reporting entity must consider all relevant valuation approaches that would be used by a market participant, for which inputs can be obtained without undue effort.

ASC 820-10-35-24A describes three main approaches to measuring the fair value of assets and liabilities:

- Cost approach
- Market approach

- Income approach

In some cases, such as exchange-traded commodity contracts, which are generally collateralized, or a marketable debt security such as a corporate bond, an approach to valuation based on the quoted market price will incorporate nonperformance risk (including credit risk). See FV 8.1.1.1. However, when quoted prices are not available or do not include a credit risk component, other approaches to valuation may be used.

In determining the appropriate methodology to calculate the credit risk adjustment, the reporting entity should consider how a market participant would be expected to approach the calculation. There are a number of approaches used to estimate a credit risk adjustment, and these approaches may evolve over time. Reporting entities should continue to assess their approaches to ensure consistency with current market participant approaches and assumptions.

Although ASC 820 describes three main approaches to measuring fair value, the cost approach assumes that fair value would not exceed what it would cost a market participant to acquire or construct a substitute asset of comparable utility, adjusted for obsolescence. For this reason, the cost method is typically used to value assets that can be easily replaced, such as property, plant, and equipment, rather than financial assets or liabilities. Therefore, this section details only the market and income approaches:

- Market Approach – As prices in traded markets for financial instruments will generally incorporate credit risk, incremental credit risk adjustments are not required. However, information on pricing for other financial instruments, including most derivatives, typically does not include credit risk adjustments because the terms of the observable instrument can be different from the terms of the company's own instrument being valued. If prices do require adjustment for credit risk, these adjustments can be computed based on market observable information such as CDS rates and credit spreads.
- Income Approach – When using the income approach, credit risk may be incorporated into the discount rate, the undiscounted expected cash flows, or the discounted cash flows. Credit spreads are often incorporated into the discount rate. CDS rates can be included in several ways, including the following:
 - Discount rate adjustment technique (ASC 820-10-55-10 through ASC 820-10-55-12) – The reporting entity uses the available inputs (CDS rates, bond spreads) to calculate the credit risk adjustment. The credit inputs may be used to directly adjust the discount rate used in the overall fair value calculation (i.e., the reporting entity may add the CDS rate or bond spread to the risk-free rate).
 - Exponential CDS default method – This method takes the CDS rate and extracts from it the implied risk of default, which is then applied to the market value of the unit of measurement and reduced by expected recoveries. A quoted CDS spread may be converted to a risk of default and a credit risk adjustment using the following formula:

$$\text{Probability of default (PD)} = 1 - \text{Exponential} [- \text{CDS spread} / (1 - \text{recovery rate}) \times \text{maturity}]$$

$$\text{Credit Risk Adjustment (CVA) or Debit Value Adjustment (DVA)} = \text{PD} \times \text{fair value of instrument} \times (1 - \text{recovery rate})$$

Recovery rates are available from published sources depending on the seniority of the obligation and the industry and credit rating of the reporting entity. The reporting entity should assess the probability of default and recovery rates implied from the market for its counterparty and itself, as appropriate, as part of this calculation.

The size of the credit risk adjustments may vary between different kinds of instruments and between markets or jurisdictions. The determination requires significant judgment. In estimating the size of the credit risk adjustment for any instrument, the reporting entity should consider all relevant market information that is reasonably available. This includes factors such as:

- Information about the pricing of new instruments that are similar to the one being valued and the extent to which the pricing of such instruments varies with the credit risk of the parties to it
- The extent to which credit risk is already reflected in the valuation model and assumptions at inception and over the life of the transaction. For example, a derivative valuation that uses a LIBOR discount rate will incorporate the credit risk inherent in LIBOR. However, this may differ from the credit risk inherent in the derivative being valued. Also, some derivative valuations use discount rates other than LIBOR (e.g., OIS) so further adjustments may be required. For example, generally corporate CDS rates are considered as measuring credit risk relative to LIBOR and are appropriate when discounting at LIBOR. If discounting at another rate (e.g., OIS), adjustments to the measure of credit riskiness may be required.
- The effect of the entity's own credit risk from the perspective of market participants. This may differ depending on the terms of credit enhancements, if any, related to the liability. It is assumed that: (i) the liability is transferred to a market participant at the measurement date and would remain outstanding; (ii) the market participant transferee would be required to fulfill the obligation; (iii) the liability would not be settled with the counterparty or otherwise extinguished at the measurement date; and (iv) non-performance risk is the same before and after the transfer of the liability [ASC 820-10-35-16(b) and ASC 820-10-35-17]. This chapter addresses the topic of credit risk, while nonperformance risk includes any factors that might influence the likelihood that the obligation will or will not be fulfilled.

8.2.3.1 Examples – calculation of a credit risk adjustment

Reporting entities may use different methods to calculate the credit risk adjustment. We provide some simplified examples below to illustrate various methods of using credit spreads and CDS rates to estimate the credit risk adjustment. The calculation format varies in each example to illustrate different formats in which the credit information may be received and different methods of calculation. As noted, calculations can be complex and may require the use of specialists. The following are brief descriptions of the methods used:

Example FV 8-9: Discount rate adjustment technique – Using a credit spread. This calculation is performed using credit spread information applied to the cumulative exposure.

Example FV 8-10: Discount rate adjustment technique – Impact of different credit sources. This example also demonstrates the use of discount rate adjustment techniques, comparing the results obtained by using CDS rates and credit spreads.

Example FV 8-11: Alternative CDS-based techniques. In this example, the credit risk adjustment of an interest rate swap is calculated using alternative methods of applying CDS spreads.

These examples are not meant to depict the full complexities of valuing credit risk in instruments with fluctuating fair values and other complexities that follow from common features related to derivatives and other financial instruments. For example, changes in the fair value of an instrument that causes its value to change from an asset to liability, or vice versa, present additional considerations. These simplified examples also do not take into account quoting conventions or the timing of cash flows for credit default swaps.

Example FV 8-9 demonstrates a discount rate adjustment technique using a credit spread.

EXAMPLE FV 8-9

Discount rate adjustment technique – using a credit spread

Company B is valuing \$1.0 million in mandatorily redeemable preferred stock that it issued to private investors. This stock is classified as debt on the balance sheet under US GAAP. Company B is required to calculate the fair value of the preferred stock for disclosure purposes. In considering the valuation process, management observes that since issuance:

- market conditions for debt have deteriorated,
- its sector has been affected by a number of negative factors, and
- recently there has been a widening of credit spreads.

Company B's management believes that the company tends to follow industry trends with a slight "positive" factor due to a lower than average debt-to-equity ratio. Company B's management also obtains the following inputs for consideration:

- The credit spread on Company B's public debt is 3%.
- The public debt is senior to the preferred stock. Due to current credit conditions, Company B's management believes that an adjustment of 1% is required to reflect the lower seniority of the preferred stock in relation to the public debt. Therefore, the implied credit spread for the preferred stock is 4%.
- Company B is able to obtain a quote for Company H's preferred stock that has similar terms and characteristics. The current credit spread implied in this issuance is 4%. Company H has the same credit rating as Company B; however, Company B operates in an industry that has a lower risk profile. Furthermore, Company H's debt trades at a higher price in its credit category than Company B. Management determines that the difference in sectors and position within its credit category require a downward adjustment of .5%. Therefore, the implied credit spread by these inputs for the preferred stock is 3.5%.
- Management obtains a quote for a publicly traded series of subordinated debt for Company J, a company within Company B's sector with a credit rating a grade below Company B's. The debt has characteristics (e.g., subordination, covenants, and other terms) that are similar to, though not exactly the same as, Company B's preferred stock. In addition, Company J has covenants that include restrictions beyond those imposed by Company B's preferred stock. The credit spread on the debt is 6% at the reporting date. Given the additional restrictions and the lower credit quality

of Company J, management adjusts the credit spread downward by 1.5%, for an implied spread of 4.5%.

The three referenced inputs, as adjusted, range from a low of 3.5% percent to a high of 4.5% percent. In assessing the appropriate rate to apply in calculating the credit risk adjustment, management considered the quality of the data sources. Because the credit markets place a premium on seniority, and because Company B operates in a lower risk sector, management believes the weighting should be closer to the subordinated debt spreads and estimated a credit spread of 4.5% to be appropriate.

The preferred stock is mandatorily redeemable at its par value of \$1 million in 5 years and provides for 20 quarterly dividend payments of \$17,500, based on a fixed annual rate of 7%.

The preferred stock rates are as follows:

Pre-credit-adjusted rate	5.00%
Credit spread	4.50%
Total rate	9.50%

How could Company B calculate the credit risk adjustment for the preferred stock using the credit spread?

Analysis

The credit risk adjustment may be calculated using a credit spread by comparing the cash flows discounted at a pre-credit-adjusted rate with those discounted at a credit-adjusted rate at the measurement date as follows:

	Cash flows (un-discounted)	Cash flows discounted at pre-credit-adjusted rate	Cash flows discounted at credit-adjusted rate	Impact of credit
Principal payment at maturity	\$1,000,000 ¹	\$780,009	\$625,348	\$(154,661)
Quarterly dividend stream of 7%	\$350,000 ²	\$307,988	\$276,059	\$(31,929)
Total value	\$1,350,000	\$1,087,997	\$901,407	\$(186,590)

1 (1 × \$1,000,000)

2 (20 × \$17,500)

Example FV 8-10 demonstrates the impact of using different information sources in the calculation of the credit risk adjustment for a natural gas swap.

EXAMPLE FV 8-10**Discount rate adjustment technique – impact of different credit sources**

In September 20X1, Company B, a gas distribution company, enters into a two-year pay-fixed/receive-floating gas swap with Counterparty M, a gas marketer, based on the NYMEX Henry Hub monthly index. The swap meets the definition of a derivative and Company B will record it at fair value, with changes in fair value reported in the income statement each reporting period. The swap is not subject to a master netting arrangement and no collateral has been posted.

Key terms of the contract are as follows:

- Company B will pay the Henry Hub Monthly Index as published by *Inside FERC* (trade publication) and will receive \$14.00 per MMBtu (i.e., a million British thermal units).
- The contract has a two-year term starting on October 1, 20X1.
- The daily notional volume is 10,000 MMBtus.
- The swap is not subject to a master netting arrangement and no collateral will be posted or received.

As of December 31, 20X1, the fair value of the swap, without any adjustment for credit risk, is a liability of \$365,000. As the contract is in a liability position, the credit risk adjustment will be predominantly based on market participant assumptions about Company B's risk of default (i.e., the amount market participants would require to assume this liability).

Company B has a BBB credit rating and determines that the following credit information is available:

	Historical default rates	Credit spread	CDS rates
One year	0.23%	1.74%	2.74%
Two year	0.54%	1.89%	2.58%

Company B determines that the historical default rates are not reflective of market participant assumptions about its risk of default and does not further evaluate this information. Company B determines that a market participant would calculate fair value by applying a discounted cash flow technique (based on the differential between the forward gas curve and the fixed amount per MMBtu under the contract).

How might Company B determine the risk-adjusted rate when calculating fair value by applying a discounted cash flow technique?

Analysis

The risk-adjusted rate to be used in the calculation could be determined by adding either the CDS rate or the credit spread to the discount rate, depending on which one of the two rates (or combination of the two rates) best represents a market participant's assumptions about credit risk. The potential outcomes vary depending on the adjustment used. The use of the CDS rate is assumed to result in a

credit risk adjustment of \$11,724 compared to a credit risk adjustment of \$8,598 using the credit spread. The reason for the difference in these amounts is that the credit spreads are lower than the CDS rates, which, when incorporated in discounting, results in a lower credit risk adjustment.

Example FV 8-11 illustrates the impact of using alternative CDS-based techniques in calculating the credit risk adjustment using cash flows and the discounting method.

EXAMPLE FV 8-11

Alternative CDS-based techniques

Company C holds an interest rate swap with Counterparty S. Under the terms of the swap, Company C is assumed to make equal net payments of 1% annually on a \$33,333,333 notional amount. The swap has a three-year remaining term until maturity. The swap meets the definition of a derivative and Company C records it at fair value, with changes recognized in earnings each reporting period. The swap is not subject to a master netting arrangement and no collateral will be posted or received.

As of September 30, 20X1, the cash flows associated with the fair value of the swap, without any adjustment for credit risk, represent cash outflows of \$333,333 at the end of each of the following three years, totaling to an expected outflow of \$999,999. As the contract is in a liability position, the credit risk adjustment will be primarily based on market participant assumptions about Company C's risk of default, liquidity of credit, and other factors (i.e., based on the amount market participants would require for assuming this liability in a transfer). Company C assesses the available credit information and determines that market participants would price credit based on Company C's CDS rate, which is available by reference to a number of pricing services.

How should Company C calculate the credit risk adjustment using cash flows and the discounting method?

Analysis

The credit risk adjustment would be calculated using cash flows and the discounting method as follows:

Year	Expected outflow	Pre-credit-adjusted discount rate (%)	CDS quote (%)	Risk adjusted discount rate (%)	Pre-credit-adjusted discounted value	Fair value	Risk adjustment
(t)	(a)	(b)	(c)	(d)=(b)+(c)	(e)=(a)/(1+(b))^t	(f)=(a)/(1+(d))^t	(f)-(e)
1	\$333,333	1.00	0.38	1.38	\$330,033	\$328,796	\$(1,237)
2	\$333,333	1.50	0.45	1.95	\$323,554	\$320,704	\$(2,850)
3	\$333,333	1.70	0.60	2.30	\$316,894	\$311,352	\$(5,543)
Total					\$970,481	\$960,851	\$(9,630)

(a) Expected outflow is the notional amount times the net payment of 1% annually.

(b) Discount rate is the pre-credit-adjusted rate at the three dates.

(c) Default assumptions for senior unsecured credit. CDS quote can be obtained from a pricing service such as Bloomberg.

Based on the calculation, Company C should record a credit risk adjustment of \$9,630. Therefore, as of September 30, 20X1, Company C would report a net derivative liability of \$960,851. This equals the

present value of the net swap cash flows discounted at a rate excluding counterparty credit risk, \$970,481, less the credit risk adjustment of \$9,630. The impact of the credit risk adjustment should be included in the change in fair value for the derivative that is recorded in the income statement.

Example FV 8-12 illustrates the impact of using exposure profiles and default probabilities in calculating the credit risk adjustment.

EXAMPLE FV 8-12

Company C holds an interest rate swap with Counterparty S. Under the terms of the swap, Company C is assumed to make equal net payments of 1% annually on a \$33,333,333 notional amount. The swap has a three-year remaining term until maturity. The swap meets the definition of a derivative and Company C records it at fair value, with changes recognized in earnings each reporting period. The swap is not subject to a master netting arrangement and no collateral will be posted or received.

As of September 30, 20X1, the cash flows associated with the fair value of the swap, without any adjustment for credit risk, represent cash outflows of \$333,333 at the end of each of the following three years, totaling to an expected outflow of \$999,999. As the contract is in a liability position, the credit risk adjustment will be primarily based on market participant assumptions about Company C's risk of default, liquidity of credit, and other factors (i.e., based on the amount market participants would require for assuming this liability in a transfer). Company C assesses the available credit information and determines that market participants would price credit based on Company C's exposure profile and default probabilities.

The credit risk adjustment using the exposure profile and default probabilities over one-year increments would be calculated as follows.

Year	Expected outflow	Pre-credit-adjusted discount rate (%)	Pre-credit-adjusted discounted value	Exposure	CDS quote (%)	Recovery rate (%)	Term default probability (%)	Default probability (%)	Bucket risk adjustment
(t)	(a)	(b)	(c)=(a)/(1+(b))^t	(d)=sum of remaining (c)	(e)	(f)	(g)=1-exp(-(e)/(1-(f))^t)	(h)=change in (g)	-(d)×(h)×(1-(f))
1	\$333,333	1.00	\$330,033	970,481	0.38	40	0.63	0.63	\$(3,668)
2	\$333,333	1.50	\$323,554	640,448	0.45	40	1.49	0.86	\$(3,305)
3	\$333,333	1.70	\$316,894	316,894	0.60	40	2.96	1.47	\$(2,795)
Total			\$970,481					2.96	\$(9,768)

(a) Expected outflow is the notional amount times the net payment of 1% annually.

(b) Discount rate is the pre-credit-adjusted rate at the three dates.

(d) Exposure is the present value of all the remaining cash flows as of the measurement date.

(e) Default assumptions for senior unsecured credit. CDS quote can be obtained from a pricing service such as Bloomberg.

(f) Recovery rate is the standard assumption for senior unsecured CDS.

Based on this calculation, Company C would record a credit risk adjustment of \$9,768. Therefore, as of September 30, 20X1, Company C would report a net derivative liability of \$960,713, equal to the present value of the net swap cash flows discounted at a rate excluding counterparty credit risk, \$970,481, less the credit risk adjustment of \$9,768. The impact of the credit risk adjustment should be included in the fair value change for the derivative that is recorded in the income statement.

Example FV 8-13 illustrates the impact of collateral when calculating the credit risk adjustment.

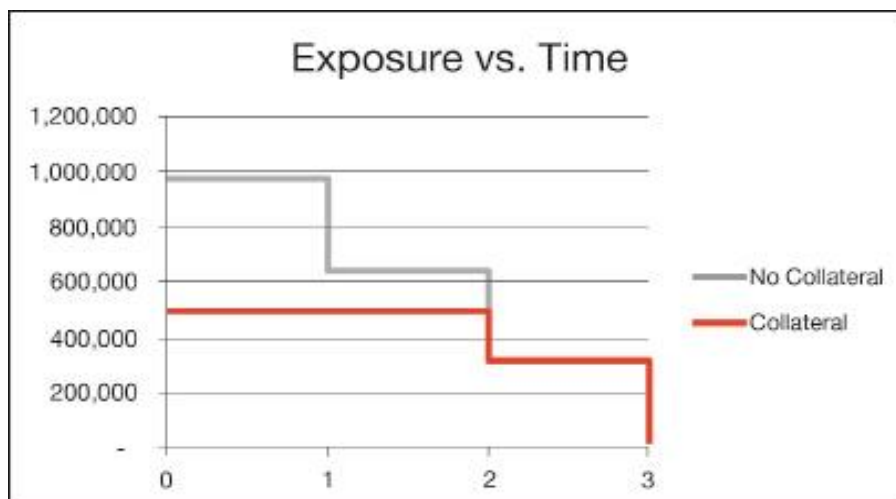
EXAMPLE FV 8-13

Impact of collateral calculating the credit risk adjustment.

Company C holds an interest rate swap with Counterparty S. Under the terms of the swap, Company C is assumed to make equal net payments of 1% annually on a \$33,333,333 notional amount. The swap has a three-year remaining term until maturity. The swap meets the definition of a derivative and Company C records it at fair value, with changes recognized in earnings each reporting period.

As of September 30, 20X1, the cash flows associated with the fair value of the swap, without any adjustment for credit risk, represent cash outflows of \$333,333 at the end of each of the following three years, totaling to an expected outflow of \$999,999. As the contract is in a liability position, the credit risk adjustment will be primarily based on market participant assumptions about Company C's risk of default, liquidity of credit, and other factors (i.e., based on the amount market participants would require for assuming this liability in a transfer). Company C assesses the available credit information and determines that market participants would price credit based on Company C's exposure profile and default probabilities.

Company C is required to collateralize any exposure above \$500,000. The exposure profile with collateral (the red line) and without collateral (the gray line) is depicted in the following graph.



The effect of the collateral requirement is to limit exposure to \$500,000 for the first two years.

Taking this into account, how might Company C compute the credit risk adjustment using default probabilities?

Analysis

The credit risk adjustment could be calculated using default probabilities as follows:

Year	Bucket exposure	CDS quote (%)	Recovery rate (%)	Term default probability (%)	Bucket default probability (%)	Bucket risk adjustment
(t)	(a)	(b)	(c)	$(d)=1-\exp(-(b)/(1-(c))\times t)$	(e)=change in (d)	$-(a)\times(e)\times(1-(c))$
1	\$500,000	0.38%	40%	0.63%	0.63%	\$(1,890)
2	\$500,000	0.45%	40%	1.49%	0.86%	\$(2,580)
3	\$316,894	0.60%	40%	2.96%	1.47%	\$(2,795)
Total					2.96%	\$(7,265)

- (a) Bucket exposure is the lower of the bucket exposure from the previous example (in which there was no collateral) and the collateral threshold in this example of \$500,000.
- (b) CDS quote can be obtained from a pricing service such as Bloomberg. Above are the default assumptions for senior unsecured credit.
- (c) Recovery rate is the standard assumption for senior unsecured CDS.

Based on this calculation, Company C should record a credit risk adjustment of \$7,265. Therefore, as of September 30, 20X1, Company C would report a net derivative liability of \$963,216, equal to the present value of the net swap cash flows discounted at a rate excluding counterparty credit risk, \$970,481, less the credit risk adjustment of \$7,265. The impact of the credit risk adjustment should be included in the fair value change for the derivative that is recorded in the income statement.

Note: the amounts in this example are displayed rounded to the nearest dollar. As a result, there may be minor differences between the amounts in the examples and the amounts produced by a calculation.

Question FV 8-7

What factors should an entity consider when adding a credit risk adjustment to estimates of fair value provided by third parties (for example, quotes from brokers or pricing services)?

PwC response

The entity will need to establish whether any adjustment for credit risk has already been made by the third party in arriving at the fair value estimate. If no adjustment has been made, the entity will need to adjust the estimate unless it can demonstrate that any adjustment would be immaterial (see Question FV 8-2).

If an adjustment has been made, the entity will need to establish the basis for the entire fair value estimate provided, including the basis for the credit risk adjustment and whether the result of the entity's analysis reasonably depicts the price at which an orderly transaction would take place between market participants on the measurement date.

8.2.4 *Step four: allocate credit risk adjustment to each unit of account*

After the reporting entity has determined the appropriate credit risk adjustment, the amount should be appropriately classified and disclosed. This process is relatively straightforward when the unit of measurement for the credit risk adjustment is the same as the unit of account for the overall fair value

measurement (such as a standalone derivative contract). In that case, the credit risk adjustment is calculated at an individual transaction level. The credit risk adjustment will be incorporated into the fair value measurement of those instruments on the balance sheet, statement of income (or profit or loss), or other comprehensive income, and in the fair value disclosures. When netting of credit exposures is permitted, such as under an International Swaps and Derivatives Association, Inc. (ISDA) master agreement, the credit risk adjustment is typically calculated on a portfolio basis, including all exposures under the ISDA master agreement, and then allocated to each transaction.

There may be specific challenges in allocating credit risk adjustments among items classified as short- and long-term assets and liabilities, net income (or profit or loss), and other comprehensive income, and among items split in the three-level fair value hierarchy disclosures. In addition, allocation of credit risk adjustments measured at the portfolio level may be required to comply with derivatives disclosure requirements in ASC 815 requires derivatives to be disclosed on a gross, transaction-level basis. Accordingly, the credit risk adjustment may need to be allocated to the individual derivative level for that purpose as well.

8.2.4.1 Allocation methods

There are several acceptable methods for the allocation of portfolio-level credit risk adjustment to individual units of account. Other methods also may be used as long as a reporting entity can support that the method is appropriate in the circumstances. The method selected should be consistently applied and clearly disclosed.

Each of the methods below assumes that the reporting entity calculates a net credit risk adjustment for all derivative positions with a specific counterparty with which the reporting entity has a master netting arrangement.

Relative fair value approach

Under the relative fair value approach, the portfolio level credit risk adjustment is calculated based on the net position with a specific counterparty (i.e., incorporating the netting permitted under a netting arrangement). In practice, we have observed two different methods used to allocate the net adjustment. In one method, a portion of the portfolio level credit risk adjustment is allocated to each individual derivative asset and liability with that counterparty. This approach results in recording the portfolio-level credit risk adjustment to both the individual assets and liabilities, based on the relative fair value of the individual derivative to the net position with the counterparty.

Under another acceptable method, the credit risk adjustment on the net position is allocated to all individual contracts in the same position as the net position based on their relative fair values. For example, if a reporting entity was in a net liability position with a specific counterparty, the credit risk adjustment would only be allocated to the liability positions with that counterparty that are subject to the netting arrangement. Asset positions would not reflect a credit risk adjustment.

Relative credit adjustment approach

Under the relative credit adjustment approach, a portion of the portfolio level credit risk adjustment (calculated on the net position) is allocated to each derivative asset and liability based on the relative credit risk adjustment of each of the derivative instruments in the portfolio. This approach will allocate the portfolio credit risk adjustment to each instrument based on the derivation of a credit risk adjustment for each position on a standalone basis.

In order to apply a relative credit risk adjustment approach, the reporting entity will need to calculate the credit risk adjustment on a net and gross basis (i.e., considering a master netting arrangement in one calculation and ignoring it in another). Both calculations are required because in order to calculate a relative credit risk adjustment basis, a derivative's individual credit risk adjustment would be compared to the net credit risk adjustment of the portfolio.

Marginal contribution approach

Under the marginal contribution approach, a portion of the portfolio level credit risk adjustment is allocated to each derivative asset and liability based on the marginal amount that each derivative asset or liability contributes to the portfolio level credit risk adjustment.

The marginal approach is a “build-up” methodology. The reporting entity starts with a single position and allocates the net credit risk adjustment. The next position is selected and the next allocation is performed. This process continues on an iterative basis. The allocations may differ based on the order of derivatives an entity selects. This method is not generally used in practice and has not been further illustrated in the examples.

8.2.4.2 Portfolio-level credit risk adjustment

Example FV 8-14 demonstrates the application of the relative fair value credit adjustment approach.

EXAMPLE FV 8-14

Application of the relative fair value credit adjustment approach

Company E holds three derivative positions with Counterparty Q as of the reporting date. The fair values prior to any credit risk adjustment are as follows:

Derivative	Amount	Classification
Derivative 1	\$(1,000)	Liability
Derivative 2	1,500	Asset
Derivative 3	(2,000)	Liability
	\$(1,500)	Net liability

The companies have a master netting arrangement that applies to all three positions. All contracts are due within one year. Based on available CDS information, the risk of default associated with Company E is 10% and Counterparty Q's risk of default is 5%. As the derivatives are in a net liability position, Company E calculates the credit risk adjustment using its own default risk and determines that a portfolio level credit risk adjustment of \$150 is required on the net liability position.

To allocate this adjustment for financial reporting purposes, Company E considers the impact of using two acceptable methods of applying the relative fair value approach. Note that only part of the total allocation is demonstrated for each method and for simplicity purposes, the example assumes a severity rate of 100% (i.e., a 0% recovery).

Under the relative fair value approach, how might Company E allocate the total credit risk adjustment to Derivative 1 in its portfolio?

Analysis

Relative fair value – Method 1: The total credit risk adjustment of \$150 is allocated to each of the derivatives in the portfolio, based on the relative value of each derivative to the net position with the counterparty. For example, the allocation to Derivative 1 is calculated as follows:

Derivative 1	\$(1,000)
Divided by net position	(1,500)
Allocation percentage	66.66%
Multiplied by total credit risk adjustment	150
Allocated credit risk adjustment	\$100

Relative fair value – Method 2: The total credit risk adjustment is allocated to only those derivatives in the same position as the net position based on their relative fair values (in this case, only to the liabilities). For example, the allocation to Derivative 1 is calculated as follows:

Derivative 1	\$(1,000)
Divided by total liability position	(3,000)
Allocation percentage	33.33%
Multiplied by total credit risk adjustment	150
Allocated credit risk adjustment	\$50

Example FV 8-15 demonstrates application of a relative credit risk adjustment approach.

EXAMPLE FV 8-15

Application of relative credit risk adjustment approach

Company E holds three derivative positions with Counterparty Q as of the reporting date. The fair values prior to any credit risk adjustment are as follows:

Derivative	Amount	Classification
Derivative 1	\$(1,000)	Liability
Derivative 2	1,500	Asset
Derivative 3	(2,000)	Liability
	\$(1,500)	Net liability

The companies have a master netting arrangement that applies to all three positions. All contracts are due within one year. Based on available CDS information, the risk of default associated with Company E is 10% and Counterparty Q's risk of default is 5%. As the derivatives are in a net liability position, Company E calculates the credit risk adjustment using its own default risk and determines that a portfolio level credit risk adjustment of \$150 is required on the net liability position.

To allocate this adjustment for financial reporting purposes, Company E considers the impact of using the relative credit approach. Note that only part of the total allocation is demonstrated for each method and for simplicity purposes, the example assumes a severity rate of 100% (i.e., a 0% recovery).

Under the relative credit risk adjustment approach, how might Company E allocate the total credit risk adjustment to Derivative 1 in its portfolio?

Analysis

Applying the relative credit risk adjustment, the total credit risk adjustment for each derivative is calculated on a standalone basis. For example, the standalone credit risk adjustment for Derivative 1 is calculated as (\$1,000) multiplied by 10% (the risk of default for a liability position), which results in a standalone credit risk adjustment of \$100. However, note that the standalone adjustment for Derivative 2 would be calculated by applying the risk of default for Counterparty Q, resulting in a standalone credit risk adjustment of (\$75).

The net credit risk adjustment of \$150 is allocated to each derivative based on its relative standalone credit adjustment. The allocation to Derivative 1 is calculated as follows:

Derivative 1—Standalone credit risk	\$100
Divided by total credit risk adjustment for all derivatives on a stand-alone basis (a)	225
Allocation percentage	44.44%
Multiplied by total credit risk adjustment	150
Allocated credit risk adjustment	\$67

(a) Sum of the standalone credit risk adjustments for Derivative 1 (\$100), Derivative 2 (-\$75), and Derivative 3 (\$200).

For comparative purposes, the overall results for each of the methods detailed in Example FV 8-14 and Example FV 8-15 are depicted below:

	Relative fair value — method 1	Relative fair value — method 2	Relative credit adjustment
Derivative 1	\$ 100	\$ 50	\$67
Derivative 2	(150)	—	(50)
Derivative 3	200	100	133
Total adjustment	\$ 150	\$150	\$150
Net asset adjustment	\$(150)	—	\$ (50)
Net liability adjustment	\$ 300	\$150	\$200

8.2.4.3 *Balance sheet classification*

A reporting entity may apply one of the methods above for purposes of determining the credit risk adjustment to individual derivative instruments. However, the method may also need to reflect the fact that the derivative instruments may have short- and long-term components. The presence of collateral will also need to be considered.

Example FV 8-16 demonstrates the allocation of the relative fair value approach between current and long term.

EXAMPLE FV 8-16

Allocation of the relative fair value approach between current and long term

Company E holds three derivative positions with Counterparty Q as of the reporting date. Company E's derivative positions extend over multiple years. The fair values of these positions prior to any credit risk adjustment are as follows:

	Current	Long-term	Total
Derivative 1	\$ 500	\$(1,500)	\$ (1,000)
Derivative 2	1,500	—	1,500
Derivative 3	(1,000)	(1,000)	(2,000)
Net position	\$1,000	\$(2,500)	\$ (1,500)

Note that the time value of money in the calculation of the credit risk adjustment has been ignored for purposes of this example and credit risk is assumed to be independent of time to simplify the presentation.

The companies have a master netting arrangement that applies to all three positions. Based on available CDS information, the risk of default associated with Company E is 10% and Counterparty Q's risk of default is 5%. As the derivatives are in a net liability position, Company E calculates the credit risk adjustment using its own default risk and determines that a portfolio level credit risk adjustment of \$150 is required on the net liability position. Company E has elected gross presentation of derivative assets and liabilities under ASC 815-10-45 and is required to allocate the adjustment to the individual current and long-term positions following a rational and consistent allocation methodology.

If Company E selects the relative fair value approach—method 1, how might a net adjustment of \$100 attributable to Derivative 1 be allocated to its current- and long-term portions?

Analysis

Using the relative fair value approach—method 1, a net adjustment of \$100 attributable to Derivative 1 could be allocated to the current- and long-term portions as follows:

Derivative 1 – current position	\$500
Divided by net position	(1,500)
Allocation percentage	(33.33)%
Multiplied by total credit adjustment	150
Allocated credit adjustment	\$(50)
Derivative 1 – long-term	\$(1,500)
Divided by net position	(1,500)
Allocation percentage	100%
Multiplied by total credit adjustment	150
Allocated credit adjustment	\$150

The overall result for each of the positions applying this methodology is as follows:

	Current	Long-term	Total
Derivative 1	\$ (50)	\$150	\$ 100
Derivative 2	(150)	—	(150)
Derivative 3	100	100	200

	Current	Long-term	Total
Total adjustment	\$(100)	\$250	\$ 150
Net asset adjustment	\$(200)	—	\$(200)
Net liability adjustment	\$ 100	\$250	\$ 350

Even though these calculations may become very complicated in the case of a large portfolio with multiple agreements, we believe that allocation to the individual derivatives (or a methodology that materially approximates such allocation) is necessary to comply with the reporting requirements of ASC 820 and ASC 815.

8.2.4.4 Allocation between the income statement and OCI

In some cases, a reporting entity will have derivatives designated in cash flow hedging relationships and derivatives reported at fair value through the income statement with the same counterparty. The methodologies outlined above should also be applied in determining the appropriate allocation of the adjustment between net income and other comprehensive income.

8.3 Credit risk adjustments and the fair value hierarchy

A significant credit risk adjustment may impact the overall classification of the measurement in the fair value hierarchy. This may be influenced by the type and source of data that is used to determine the credit risk adjustment. In determining whether the credit risk adjustment is observable, reporting entities need to consider what information is being used by market participants to price credit.

Different sources of information may be used to determine an adjustment for credit risk, including CDS rates, credit spreads, and historical default rates. CDS quotes and credit spreads may be either directly observable or derived from market observable data. However, reporting entities should use caution when obtaining a quote for a CDS or credit spread that is indirect (e.g., for a similar entity) or indicative. The quotes should be assessed to determine how closely they match the CDS price or credit spread for the actual asset or liability, and may require an adjustment to appropriately reflect market participant assumptions. Finally, historical default rates generally are not considered to be market-based given the lag in incorporating market trends.

For discussion of the fair value hierarchy, see FV 4.5.