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## **MEASUREMENTS OF FAIR VALUE IN ILLIQUID (OR LESS LIQUID) MARKETS**

### **Objective**

The objective of this paper is to discuss issues associated with the measurement of fair value under existing generally accepted accounting principles (GAAP) in the context of illiquid (or less liquid) market conditions that currently exist in many segments of the credit markets. The paper articulates certain existing requirements of GAAP literature related to the specific issues discussed, with the intention of helping preparers and auditors understand the application of existing GAAP in the context of illiquid market conditions.

### **Background – Origins of the Liquidity Crisis**

In recent months, there has been a sharp rise in the rate of delinquency and default by subprime mortgage loan borrowers. This has occurred most frequently when the borrower on an adjustable-rate loan is unable to make the higher payments required after an interest-rate adjustment, and is unable to either refinance the loan or sell the home for an amount sufficient to pay off the mortgage. Moreover, several hundred billion dollars of adjustable-rate subprime mortgage loans are expected to “reprice” over the 15- to 18-month period beginning in October 2007. As a consequence, many industry observers expect that the rates of default – and foreclosure – will continue to increase sharply. The difficulties arising from increasing defaults have been further compounded by declining real estate prices, especially in geographic areas that have a large volume of subprime mortgage loans. In many areas, rising foreclosures have contributed to the declining prices of residential real estate. The rising level of defaults, combined with the falling price of the related real estate collateral, has resulted in significant increases in credit losses, and fear by investors that those losses will continue to grow for the foreseeable future.

### **Market Reaction**

Most subprime loans were ultimately financed by investors who purchased securities backed by the underlying subprime mortgage loans. These securities vary widely in terms of their exposure to loss from defaults on the underlying loans. The level of defaults has, in many cases, exceeded the model-based projections originally used to structure and assign ratings to securities backed by subprime mortgage loans, and has led to a significant number of downgrades. As a result of the uncertainty in the marketplace arising from current conditions, investors and lenders have largely retreated from investments in assets backed by subprime mortgage loans, creating a so-called “liquidity crisis.” With a sharply reduced number of investors in the marketplace willing to provide funding, many subprime mortgage lenders have been forced to cease originations of new mortgages, and holders of existing loans and mortgage-backed securities have experienced sharp declines in their value. Lenders that are still making new loans have significantly tightened their underwriting standards, making it more difficult for existing borrowers to refinance.

## **Contagion Effect – Spread of Illiquidity to Other Markets**

In recent weeks, the “liquidity crisis” has spread to other corners of the credit markets. Investors have pulled back from investments in collateralized bond obligations (many of which are backed by subordinated mortgage-backed securities backed by subprime mortgage loans), high-yield “junk” bonds, debt issued in leveraged buyout transactions, and even short-term asset-backed commercial paper. It is not possible at this time to predict how long investors will stay on the sidelines or which markets will be most affected, but it is not unreasonable to expect – especially for subprime mortgage-related assets – that current conditions could persist for an extended period of time until the uncertainty is reduced, that is, when it becomes clear that defaults have peaked and real estate prices have bottomed out.

## **Valuation Issues**

The purpose of this paper is to discuss existing guidance on measurement of fair value, most of which is contained in Statement of Financial Accounting Standards No. 157, *Fair Value Measurements* (FAS 157). Although much of the discussion in this paper is written in the context of assets backed by subprime mortgage loans, the GAAP principles discussed herein regarding the measurement of fair value are equally applicable to the measurement of the fair value of other assets (such as unsecuritized assets<sup>1</sup>), not just those backed by subprime mortgage loans.

Assets backed by subprime mortgage loans (and other assets affected by the market disruptions) are held by all types of entities – including, but not limited to, commercial and investment banks, insurance companies, investment companies such as mutual funds and hedge funds, pension and employee-benefit plans, and university endowment funds. In short, these assets can be found in investment portfolios across the spectrum. These assets may be held either directly, or indirectly, such as through an investment company such as a mutual fund or a hedge fund.

Investors in a variety of assets have experienced severe price volatility as a result of the increased credit risk and the reduced liquidity in the marketplace. That volatility has given rise to questions about how to measure the fair value of subprime mortgage-related assets, as well as other assets affected by the illiquidity in today’s market. Fair value is an essential component of many accounting principles that underlie companies’ financial reporting, not only when fair value is the primary basis of accounting – such as for trading accounts and held-for-sale portfolios – but also for purposes of measuring and reporting asset impairment, and for making disclosures about fair value.

## **Entities That Have Not Adopted FAS 157**

FAS 157 defines fair value, establishes a framework for measuring fair value, and expands disclosures about fair value measurement. However, while certain clarifications have been made to the definition of fair value, the definition of fair value in FAS 157 is not conceptually different than the definition found in previous accounting literature in that it remains an exchange price notion with a focus on the assumptions marketplace participants would use in the pricing the asset or

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<sup>1</sup> Note that certain valuation issues related to unsecuritized assets (i.e., mortgage loans), such as the evaluation of the “principal” or “most advantageous” market (par. 8 of FAS 157) or the “unit of valuation,” are beyond the scope of this paper.

liability. Although the guidance in FAS 157 will change certain measurement practices for these assets (e.g., application of the guidance on “principal market” and “most advantageous market”), it is expected that, with respect to the valuation issues discussed in this paper, differences arising solely from whether or not an entity has adopted FAS 157 will be limited. This paper does not assert that entities who have not adopted FAS 157 must follow the specific requirements of that statement. However, because FAS 157 explains the concept of exchange price and the use of marketplace assumptions – both of which are found in pre- 157 GAAP – FAS 157 contains useful and relevant measurement guidance even for entities who have not yet adopted it.

With respect to disclosures, the specific disclosure requirements of FAS 157 apply only to entities who have adopted FAS 157. However, entities who have not adopted FAS 157 should consider the need to make disclosures under other existing pronouncements (for example, SOP 94-6, *Disclosures of Risk and Uncertainties*) in situations where fair value measurements have a significant effect on the financial statements. Where fair values have been measured using significant unobservable inputs, entities may wish to consider disclosures similar in spirit to those found in FAS 157.

### **Definition of Fair Value**

FAS 157 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” (FAS 157, par. 5). FAS 157 elaborates as follows:

A fair value measurement assumes that the asset or liability is exchanged in an orderly transaction between market participants to sell the asset or transfer the liability at the measurement date. An orderly transaction is a transaction that assumes exposure to the market for a period prior to 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). The transaction to sell the asset or transfer the liability is a hypothetical transaction at the measurement date, considered from the perspective of a market participant that holds the asset or owes the liability. Therefore, the objective of a fair value measurement is to determine the price that would be received to sell the asset or paid to transfer the liability at the measurement date (an exit price) (FAS 157, par. 7).

### **Illiquid Markets Vs. Forced Sales**

Questions have arisen about whether current market prices are consistent with the definition of fair value in FAS 157, or whether current market prices are more indicative of distressed sales. It is important to distinguish between an imbalance between supply and demand (e.g., fewer buyers than sellers, thereby forcing prices down) and a “forced” or “distressed” transaction referred to in FAS 157, paragraph 7. The U.S. Securities and Exchange Commission addressed illiquid market conditions in a 2004 accounting and auditing enforcement release. In that release, the Commission concluded that the registrant had violated generally accepted accounting principles by using a definition of fair value that assumed that supply and demand were in reasonable balance when, in fact, GAAP defines fair value as the amount at which an asset could be bought or sold in a current transaction. The Commission concluded that the registrant should have considered current market conditions, such as imbalances in supply and demand, when determining the then-current market value. Specifically, the Commission objected to the practice of ignoring prices quoted by external pricing sources and taking a “longer view” of the market (i.e., a view that assumes equilibrium will occur and facilitate transacting at more “rational” prices).

As discussed in FAS 157, paragraph 7, if orderly transactions are occurring between market participants in a manner that are usual and customary for transactions involving such assets, then those transactions are not “forced” sales. The fact that transaction volume in a market is significantly lower than in previous periods does not necessarily mean that these are forced or distressed sales. Moreover, decreased volumes in a market do not necessarily mean the market has become inactive. Persuasive evidence is required to establish that an observable transaction is a forced or distressed transaction. It is not appropriate to assume that all transactions in a relatively illiquid market are forced or distressed transactions. Because the objective of a fair value measurement is to determine the price that would be received to sell the asset at the measurement date (an exit price) – such a measurement, by definition, requires consideration of current market conditions, including the relative liquidity of the market. It would not be appropriate to disregard observable prices, even if that market is relatively thinner as compared to previous market volume. Even if the volume of observable transactions is not sufficient to conclude that the market is “active,” such observable transactions would still constitute Level 2 inputs that must be considered in the measurement of fair value. See below for discussion of *Active Markets* and *Application of the Fair Value Hierarchy*.

### **Active Markets**

As discussed below under *Application of the Fair Value Hierarchy*, an active market has sufficient transaction volume such that quoted market prices are the most reliable measure of fair value, i.e., the price that would be received at the current measurement date to sell an asset in an orderly transaction. Markets with a reduced transaction volume under current conditions are still considered active if transactions are occurring frequently enough on an ongoing basis to obtain reliable pricing information. FAS 157 generally *requires* that quoted prices from active markets (“Level 1 inputs”) be used as the measurement of fair value whenever they are available<sup>2</sup>. If a market is not considered active due to transaction volume that is insufficient to produce reliable pricing information, then observable transactions in that market still are considered Level 2 inputs, which also cannot be ignored when measuring fair value.

### **Market Participants**

Market participants are defined as buyers and sellers for the asset that are independent of the reporting entity, knowledgeable about the asset and transaction, and are able and willing to transact. They are motivated to transact but not forced to do so. Consistent with the “exit price” concept in paragraph 7, the fair value of an asset should be determined based on the assumptions that *market participants* would use in pricing the asset [emphasis added] (FAS 157, par. 10-11).

Concepts Statement 7, par. 26, explains that markets are systems that transmit information in the form of prices. An observed market price encompasses the consensus view of all marketplace participants about an asset’s utility, future cash flows, the uncertainties surrounding those cash flows, and the amount that marketplace participants demand for bearing those uncertainties (CON 7, par. 26).

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<sup>2</sup> See FAS 157, paragraphs 25-26 for limited exceptions to this requirement.

### **Application of the Fair Value Hierarchy**

Given the uncertainties surrounding default rates and real estate prices, it is possible that current market conditions may persist for some time. Notwithstanding current market conditions, there continues to be, for many mortgage-backed securities backed by subprime mortgage loans, quoted prices and observable transactions for identical assets, albeit at volumes far less than in the recent past. If the market is considered active, even if transaction volumes are lower than in the past, FAS 157 states that the quoted price (a “Level 1 input”) provides the most reliable evidence of fair value and shall be used to measure fair value whenever available (FAS 157, par. 24). The use of Level 2 or Level 3 inputs is generally not permitted when Level 1 inputs are available.<sup>3</sup>

If quoted prices are not available for the identical asset, then entities should determine whether “Level 2 inputs” are available, including quoted prices for similar assets in active markets, or for identical or similar assets in markets that are *not* active, that is, markets in which there are few transactions for the asset, the prices are not current, price quotations vary substantially, or in which little information is released publicly. Level 2 inputs also include inputs that are derived principally from or corroborated by observable market data by correlation or other means (market-corroborated inputs). For example, the pricing indicated by the ABX credit derivative index for subprime mortgage bonds may be a Level 2 input when used as an input to the valuation of a security backed by subprime mortgage loans. Adjustments to Level 2 inputs will vary depending on factors specific to the asset, including the extent to which the inputs relate to items that are comparable to the asset, and the volume and level of activity in the markets within which the inputs are observed. An adjustment that is significant to the fair value measurement in its entirety might render the measurement a Level 3 measurement (FAS 157, par. 28-29).

Level 3 inputs are unobservable inputs for the asset. Unobservable inputs shall be used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset (or similar assets) at the measurement date. However, the fair value measurement objective remains the same, that is, to obtain an exit price in the principal market from the perspective of a market participant that holds the asset. Therefore, unobservable inputs shall reflect the reporting entity’s own expectations about the assumptions that *market participants* would use in pricing the asset in a current transaction (including assumptions about risk), even if the market participant assumptions are different than the reporting entity’s own expectations. The reporting entity may not ignore information about market participant assumptions that is reasonably available without undue cost and effort (FAS 157, par. 30).

### **Use of Valuation Models**

When quoted market prices in an active market do not exist, entities often employ valuation techniques, typically discounted cash flow models that utilize Level 2 and Level 3 inputs. For financial instruments such as mortgage-backed securities backed by subprime mortgage loans, an entity must consider what information is available about some or all of the assumptions that marketplace participants would use in assessing the current fair value of an asset at the reporting date.

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<sup>3</sup> Information about pricing and information sources can be found in sources such as a research study entitled *An Analysis and Description of Pricing and Information Sources in the Securitized and Structured Finance Markets: The Bond Market Association and The American Securitization Forum*, October 2006. The purpose of the research study was to understand and describe pricing and information sources. The study was not intended to and does not offer comparisons about the relative quality, adequacy or effectiveness of the pricing and information sources.

Some observers of current market conditions have asserted that market pricing is irrational, and they have suggested that entities should instead default to a model-based measurement that is based on the economic “fundamentals” of the asset. However, FAS 157 states that the use of an entity’s own assumptions about future cash flows is compatible with an estimate of fair value, *as long as there are no contrary data indicating the marketplace participants would use different assumptions. If such data exist, the entity must adjust its assumptions to incorporate that market information* [emphasis added] (FAS 157, par. C85, and CON 7, par. 38).

As discussed under *Application of the Fair Value Hierarchy* above, the use of unobservable inputs is appropriate only to the extent that observable inputs are not available. However, the fair value measurement objective remains the same, that is, to obtain an exit price in the principal market from the perspective of a market participant that holds the asset. Unobservable inputs shall reflect the assumptions that market participants would use in pricing the asset in a current transaction (including assumptions about risk). The reporting entity may not ignore information about market participant assumptions that is reasonably available without undue cost and effort.

The footnotes to FAS 157 elaborate on the concept that valuation models must reflect current market conditions. For example, footnote 15 states that a measurement (for example, a “mark-to-model” measurement) that does not include an adjustment for risk would not represent a fair value measurement if market participants would include one in pricing the related asset or liability. Similarly, footnote 18 states that if the transaction price represents fair value at initial recognition and a pricing model will be used to measure fair value in subsequent periods, the model should be calibrated so that the model value at initial recognition equals the transaction price.

For example, when using a valuation model to measure the fair value of securities backed by subprime mortgages (when quoted prices are not available), assumption such as prepayment speeds, default rates and discount rates often are key inputs. To the extent that default rate assumptions can be derived from transaction prices observable for similar securities and/or credit default swaps, such data should be used. An additional adjustment, such as a liquidity adjustment, or higher discount rate, might be necessary to ensure the model reflects current market conditions. To test whether the model reflects current market conditions, the model can be applied to similar securities for which price information is available. If the model appropriately reflects current market conditions, it should produce approximately the market price. The parameters and assumptions used in those valuations should also be used, with adjustments where appropriate, to value similar securities where a market price is not currently available. Valuation models that utilize *historical* default data, or an entity’s own default assumptions, rather than assumptions that marketplace participants would use, are not appropriately utilizing *market participant* assumptions, even if the default assumptions are “stressed.”

To summarize, in most cases, the use of a valuation model is acceptable only when quoted prices in active markets are not available. If a valuation model is used, the objective of the measurement is to obtain the exit price at the current measurement date from the perspective of the seller. If market data exists about the assumptions that marketplace participants would use in pricing the asset, including observable market prices for similar assets (whether or not in active markets), as well as other Level 2 inputs, that information must be incorporated into the entity’s assumptions. Finally, any significant unobservable assumptions, including significant adjustments to Level 2 inputs, likely render the entire measurement a Level 3 measurement. FAS 157 includes extensive disclosure requirements in connection with Level 3 measurements. As mentioned above, entities who have not adopted FAS 157 should consider the need to make disclosures under other existing pronouncements (for example, SOP 94-6, *Disclosures of Risk and Uncertainties*) in situations where fair value measurements have a significant effect on the financial statements. Where fair values have been measured using significant unobservable inputs, entities may wish to consider disclosures similar to those found in FAS 157.