

## Case 11-2(a)

### Fair Value Hierarchy

Family Finance Co. (FFC), a commercial bank located in South Carolina, has a December 31 year-end. FFC invests in a variety of securities to enhance returns, managing its investment portfolio in an effort to earn returns greater than interest paid on bank deposits and other liabilities. As of December 31, 2010, FFC's investments primarily consist of (1) collateralized debt obligation (CDO) securities, (2) investment-grade bonds (i.e., bonds with a Standard & Poor's (S&P's) rating of BBB or above or equivalent credit rating), (3) equity securities of nonpublic companies, (4) agency securities, (5) mortgage-backed securities (MBSs), (6) auction-rate securities (ARSs), and (7) derivative instruments. In addition, FFC uses "plain vanilla" derivatives to economically hedge its cash flow risk because of variable interest rates associated with its corporate debt. All cash payments made under these instruments are in U.S. dollars.

FFC accounts for all of its securities at fair value with changes in fair value reflected either in earnings (for trading securities) or other comprehensive income (OCI) (for available-for-sale securities). FFC accounts for all of its hedges and other derivative instruments at fair value; changes in fair value are reflected in earnings.

Facts related to specific securities and derivatives owned by FFC are described below.

#### **Instrument 1. Collateralized Debt Obligation**

On June 1, 2010, FFC invested in an S&P AA-rated tranche of a CDO. The underlying collateral for the CDO is a pool of U.S. Treasury and corporate bonds. Before September 30, 2010, FFC was able to determine the fair value of the CDO by using a market-based valuation technique that relies on inputs such as quoted prices in active markets for similar CDO securities and requires only insignificant adjustments for differences between the CDO security held by FFC and similar CDO securities.

However, since September 30, the market for CDO securities has experienced a significant decrease in the volume and level of activity. This was made apparent by the following two factors:

- Significant widening of the bid-ask spreads in the brokered markets in which the CDO securities trade. The widening of the bid-ask spreads continued throughout Q4 2010.
- Progressively significant decrease in the volume of trades compared with historical levels in Q4. No recent transactions have taken place.

After evaluating the significance and relevance of the factors above, FFC determined that (1) there has been a significant decrease in the volume and level of activity, (2) the CDO's market was not active, and (3) significant adjustments to observed market transactions of similar CDO securities are required to determine fair value as of the measurement date (December 31, 2010) given the lack of recent and relevant

transactions. FFC determined that any adjustments made to the observed market transactions would be based on management's assumptions regarding market values.

In addition, FFC also determined that an income approach valuation technique (present value technique) that maximizes the use of relevant observable inputs and minimizes the use of unobservable inputs will be more representative of fair value than would the market approach valuation technique used on prior measurement dates (June 30 and September 30, 2010). Specifically, FFC uses the below-mentioned discount rate adjustment technique to determine fair value.

FFC determined that the appropriate discount rate for the contractual cash flows of the CDO security is 24 percent, after considering the following:

- The implied rate of return on September 30, 2010 (the last date on which FFC determined the market to be active for the CDO security), was 15 percent. Since September 30, FFC estimates that credit spreads have widened by approximately 200 basis points and liquidity risk premiums have increased during that period by approximately 500 basis points. Other risks (e.g., interest rate risk) have not changed. FFC has estimated that an indication of an appropriate rate of return for the CDO security is 22 percent. In making that determination, FFC considered all available market information (e.g., quoted prices that are not current for the same or similar CDO securities, analyst or rating agency reports, current level of interest rates, and information on performance of underlying collateral) that could be obtained without undue cost and effort.
- Two nonbinding indicative quotes for the CDO security from brokers implied rates of return of 25 percent and 29 percent. The indicative quotes are based on the brokers' proprietary models that use hypothetical assumptions instead of actual transactions.

FFC concluded that 24 percent is the point within the range of relevant inputs that is most representative of fair value, given that there were multiple indications of the appropriate rate of return that market participants would consider relevant in estimating fair value. Accordingly, FFC determined that the risk-adjusted discount rate appropriately reflects the entity's estimate of the assumptions that market participants would use to estimate the selling price of the asset in an orderly transaction as of the measurement date under current market conditions.

## **Instrument 2. Mortgage-Backed Security**

On September 1, 2010, FFC invested in an S&P AA-rated tranche of a privately issued pass-through MBS (i.e., nonagency) with a stated maturity of 30 years. The underlying collateral for the MBS is subprime mortgages on residential properties.

On September 30, 2010, FFC determined the fair value of the MBS using a market approach valuation technique based on inputs that did not require a significant adjustment. These inputs included quoted prices in active markets for similar MBSs with insignificant adjustments for differences between the MBS held by FFC and similar securities.

In Q4, the market for the MBS became increasingly volatile with some periods of declining activity. The volatility was evidenced through fluctuating bid-ask spreads. However, FFC concluded that (1) there were observable transactions for the MBS or similar MBSs and (2) the prices for those transactions were current and therefore did not reduce their relevance to the fair value measurement. On the basis of the evidence, FFC determined that the observed transactions were orderly and that the adjustments to the observed transactions required to determine fair value for its MBS are insignificant on the measurement date.

As an alternative, FFC considered using a theoretical pricing model (i.e., an income approach). Theoretical pricing models must take into account the relationship between interest rates and loan prepayment speeds. Mortgage prepayments are usually made because either a home is sold or the homeowner is refinancing to a new mortgage, presumably with a lower interest rate. Since these two sources of risk (interest rate and prepayment) are linked, this relationship must be factored into the model. FFC recognized the inherent complexity in using an appropriate mathematical model for valuing its MBS.

Because the pricing model would require the use of significant assumptions, FFC determined the fair value for its MBS by using only the observed market transactions referenced above.

### **Instrument 3. Auction-Rate Security**

During 2007, FFC acquired ARSs, whose underlying assets are student loans that have a term of 20 years, with the interest rate reset on the basis of “Dutch” auctions<sup>1</sup> that generally occur every 28 days. The ARSs were initially marketed to FFC as cash equivalents because the rate-setting mechanism of ARSs is designed primarily to provide liquidity and economic characteristics similar to those of short-term investments. Although ARSs are designed to exhibit behavior similar to that of short-term investments, when demand for ARSs decrease and there is insufficient interest in the Dutch auction, a failed auction occurs and investors are unable to liquidate their positions through the auction process.

During Q4 2010, demand for ARSs (with student loans as underlying assets) significantly decreased as investor confidence in these investment products and the performance of the underlying loans diminished. The lack of demand resulted in numerous auction failures and a limited secondary market for these securities. As a result of the failed auctions in Q4, FFC received the maximum interest rate on its ARSs. (The maximum interest rate is predefined in the ARS agreement and is higher than the rate FFC would have otherwise received if sufficient demand for the ARSs existed during the auctions.) FFC anticipates that the failed auctions may persist and the company’s investment in ARSs will continue to pay the maximum interest rate. The auctions continue to be conducted as scheduled.

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<sup>1</sup> The interest rate on an ARS is determined through a “Dutch” auction process. Refer to the Appendix, “Pricing and Valuation of Securities: Introduction to Common Types of Securities,” Section 9, *Auction Rate Security*, for additional details on the Dutch auction process.

In prior periods, FFC used a market approach based on observable market transactions to fair value its ARS, which had resulted in a fair value approximating the securities' par value. However, because of the continued deterioration in liquidity for the segment of the ARS market backed by student loans, FFC did not observe any market transactions during Q4 2010. As a result, as of December 31, 2010, FFC used a discounted cash flow model (i.e., an income approach) to value its ARS holdings. FFC believes that the discounted cash flow model is a widely accepted method for measuring the fair value of ARS investments in the current environment. Certain inputs to the valuation model that are significant to the overall valuation are not market based, including estimates of future coupon rates if auction failures continue, prepayment speed assumptions, credit risk assumptions (including performance of underlying collateral), and illiquidity discounts.

#### **Instrument 4. Equity Investment in a Nonpublic Company**

In 2009, FFC invested in the common stock of Company X, a privately held clothing retailer that operates in a niche market of the baby clothing industry. Quoted prices are not available for X's stock.<sup>2</sup> Most of X's competitors are either privately held or subsidiaries of larger publicly traded clothing retailers. Company X is similar to two other organizations whose shares are thinly traded in an observable market.

In determining an appropriate approach for measuring the fair value of its equity investment in X, FFC considered the following factors to establish whether a single or a multiple valuation technique should be adopted:

- *Availability and reliability of data* — FFC had sufficient data to support both the income and market approaches.
- *Comparative levels of the alternative approaches in the fair value hierarchy* — When using a market approach to measure the fair value of its investment in X, FFC would need to make significant entity-specific adjustments to observable market transactions (i.e., risk-adjustments for illiquidity, uncertainty of X's stock in relation to its comparables, and other adjustments to reflect business model differences between X and its comparables). Similarly, when measuring fair value using an income approach (on the basis of discounted cash flows), FFC would be required to use significant entity-specific assumptions in forecasting X's future cash flows.
- *Views of market participants on the relevance of valuation techniques* — Through discussions with valuation specialists, FFC believes that market participants use multiple techniques (income and market approaches) to determine bid prices for similar investments. FFC also used both approaches in 2009 when pricing its investment in X.

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<sup>2</sup> Note that the security does not have a readily determinable fair value and thus is not in the scope of ASC 320, *Investments — Debt and Equity Securities*. However, FFC has elected the fair value option for the security in accordance with ASC 825, *Financial Instruments*, and thus accounts for the investment at fair value with changes in fair value recorded through earnings.

Considering this information, in 2009 FFC determined that it would use both market and income approaches (weighted equally) to measure the fair value of its investment in X. FFC has applied a consistent approach during 2010.

#### **Instrument 5. Interest Rate Swap**

In January 2009, FFC executed a “plain-vanilla” over-the-counter (OTC) fixed-for-float interest rate (IR) swap as an economic hedge of its cash flow variability to changes in London Interbank Offered Rate (LIBOR) on its six-year variable-rate term note. The terms of the IR swap require FFC to pay a fixed rate and receive a floating rate (three-month LIBOR). The IR swap net cash settles on a quarterly basis. If the fixed rate exceeds the floating rate, FFC makes a net payment to the counterparty, and if the floating rate exceeds the fixed rate, FFC receives a net payment from the counterparty. As of the measurement date (December 31, 2010), the remaining life of the IR swap was four years.

FFC uses an income approach (i.e., a discounted cash flow model), which is widely accepted for valuing IR swaps. Key inputs into the valuation model are the LIBOR yield curve and an adjustment, if any, for nonperformance risk, which is the risk that a party to the contract will not satisfy its obligation (i.e., a credit valuation adjustment (CVA)). FFC obtained a quoted LIBOR yield curve for the entire term of the IR swap. In addition, FFC concluded that no CVA was necessary on the basis of (1) the creditworthiness of both FFC and the IR swap counterparty and (2) credit enhancements related to the IR swap by virtue of the International Swap Dealers Association agreement between FFC and the IR swap counterparty.

An active OTC market exists for IR swaps having the same underlying (three-month LIBOR) and tenor (five years) as FFC’s IR swap.

#### **Instrument 6. Fuel Swap — Gasoline**

In January 2010, FFC entered into a four-year fixed-for-float OTC fuel swap. The terms of the fuel swap require FFC to pay a fixed price and receive a floating price from the counterparty according to the monthly average of a U.S. unleaded gasoline price published on the last day of the month by an independent source. The fuel swap settles annually on the last business day of each calendar year. If the fixed price exceeds the floating price (i.e., the 12-month average of the immediately preceding 12 months’ (January through December) published unleaded gasoline prices), FFC makes a net payment to the counterparty; if the floating price exceeds the fixed price, FFC receives a net payment from the counterparty. As of the measurement date (December 31, 2010), the remaining life of the fuel swap was three years.

FFC uses an income approach (i.e., a discounted cash flow model), which is widely accepted for valuing fuel swaps. Key inputs into the valuation model are the forward U.S. unleaded gasoline price curve and a CVA, if any.

An inactive OTC market exists for fuel swaps having the same underlying (U.S. unleaded gasoline) and tenor (three years) as FFC’s fuel swap. FFC was able to obtain an independently quoted U.S. unleaded gasoline forward price curve for one of the three

years remaining under the swap. For the last two years of the swap, FFC uses a forward curve obtained from a third-party pricing service. The third-party pricing service constructs the forward curve by using a proprietary model that incorporates fundamental economic factors such as physical constraints (e.g., capacity of current and future refining plants) and projected global supply and demand. As of the measurement date, the third party has not observed U.S. unleaded gasoline swap transactions with tenors beyond one year. In addition, FFC has calculated a CVA (and the counterparty was recently downgraded by S&P).

**Required:**

Determine the appropriate classification in the fair value hierarchy for each of the instruments referenced in the case as of December 31, 2010. Provide support from appropriate authoritative guidance. Consider the following:

- FFC's determination of whether the respective markets for the instruments were active or inactive and whether there was a significant decrease in the volume and level of activity for the instruments.
- The valuation techniques (market approach, income approach, or both) used by FFC.
- The classification in the fair value hierarchy for each input into the fair value measurement and how those classifications affect classification in the fair value hierarchy of the entire instrument.