Illustration of Traditional Financial Instrument

To illustrate the accounting for a traditional financial instrument, assume that Hale Company purchases 1,000 shares of Laredo Inc. common stock for $100,000 on January 2, 2000. These securities are classified as ***trading securities*** because they are held with the intent of selling them after a short period of time. The entry to record the investment on January 2, 2000, is as follows:

**January 2, 2000**

Trading Securities 100,000

Cash 100,000

On March 31, the price of Laredo stock has increased by $20 per share, and therefore the fair value of Hale’s investment in Laredo is now $120,000. Because trading securities are reported at fair value with unrealized holding gains or losses reported in income, the following adjusting entry is made on March 31, 2000:

**March 31, 2000**

Securities Fair Value Adjustment (Trading) 20,000

Unrealized Holding Gain or Loss—Income 20,000

On April 1, 2000, Hale sold its holdings of Laredo shares for $120,000 and made the following entry:

**April 1, 2000**

Cash  120,000

Trading Securities  100,000

Gain on Sale of Securities 20,000

At the end of the reporting period on June 30, 2000, Hale Co. makes the following entry to eliminate the Securities Fair Value Adjustment (Trading) account (assuming it has no other trading securities):

**June 30, 2000**

Unrealized Holding Gain or Loss—Income 20,000

Securities Fair Value Adjustment (Trading) 20,000

In Illustration 26-3, we summarize the amounts reported in income for the Hale investment in the Laredo Inc. financial instrument.

**ILLUSTRATION 26-3**

|  |  |  |
| --- | --- | --- |
| Date | Transaction | Income (Loss) Effect |
| March 31, 2000 | Increase in fair value of Laredo Inc. stock | $ 20,000 |
| April 1, 2000 | Sale of Laredo stock | 20,000 |
| June 30, 2000 | Eliminate unrealized holding gain | (20,000) |
|  | Total net income | $20,000 |

As indicated in Illustration 26-3, use of fair value accounting for this financial instrument results in $20,000 in income being reported in the first quarter (January 1– March 31), when the Laredo shares increased in value; no income is reported in the second quarter (April 1–June 30). In addition, Hale Company reported the trading security at its fair value on the balance sheet at the appropriate reporting dates.

Illustration of Derivative Financial Instrument

To illustrate the measurement and reporting of a derivative financial instrument, we examine a derivative whose value is related to the market price of Laredo Inc. common stock. Instead of purchasing the stock, Hale could realize a gain from the increase in the value of the Laredo shares with the use of a derivative financial instrument, such as a call option.[[1]](#footnote-1) A ***call option*** gives the holder the option to buy shares at a preset price (often referred to as the ***option price*** or the ***strike price***).

For example, assume Hale enters into a call option contract with Baird Investment Co., which gives Hale the option to purchase Laredo stock at $100 per share.[[2]](#footnote-2)8 If the price of Laredo stock increases above $100, Hale can exercise its option and purchase the shares for $100 per share. If Laredo’s stock never increases above $100 per share, the call option is worthless and Hale recognizes a loss.

To illustrate the accounting for a call option, assume that Hale purchased a call option contract on January 2, 2000 when Laredo shares are trading at $100 per share. The terms of the contract give Hale the option to purchase 1,000 shares (referred to as the ***notional amount***) of Laredo stock at an option price of $100 per share; the option expires on April 30, 2000. Hale purchases the call option for $400 and makes the following entry:

**January 2, 2000**

Call Option  400

Cash 400

This payment (referred to as the ***option premium***) is generally much less than the cost of purchasing the shares directly and indicates the value of the call option at this point in time. In this case, the option has a fair value greater than zero, because there is some expectation that the price of the Laredo shares will increase above the option price during the option term (this is often referred to as the ***time value*** of the option).[[3]](#footnote-3)9

On March 31, 2000, the price of Laredo shares has increased to $120 per share and the ***intrinsic value*** of the call option contract is now $20,000 to Hale. The intrinsic value is the difference between the market price and the preset option price at any point in time. That is, Hale could exercise the call option and purchase 1,000 shares from Baird Co. for $100 per share and then sell the shares in the market for $120 per share. This gives Hale a gain of $20,000 ($120,000 - $100,000) on the option contract.[[4]](#footnote-4)[[5]](#footnote-5)10 The entry to record the increase in the intrinsic value of the option is as follows:

**March 31, 2000**

Call Option 20,000

Unrealized Holding Gain or Loss—Income 20,000

A market appraisal indicates that the time value of the option at March 31, 2000 is $100.[[6]](#footnote-6)11 The entry to record this change in value of the option is as follows:

**March 31, 2000**

Unrealized Holding Gain or Loss—Income 300

Call Option ($400 - $100) 300

At March 31, 2000, the call option is reported at fair value in the balance sheet of Hale Co. at $20,100.12 The unrealized holding gain increases net income for the period while the loss on the time value of the option decreases net income.

On April 1, 2000, the entry to record the settlement of the call option contract with Baird Investment Co. is as follows:

**April 1, 2000**

Cash  20,000

Loss on Settlement of Call Option 100

Call Option 20,100

Illustration 26-4 summarizes the effects of the call option contract on Hale’s net income.

**ILLUSTRATION 26-4**

|  |  |  |
| --- | --- | --- |
| Date | Transaction | Income (Loss) Effect |
| March 31, 2000 | Net increase in value of call option | $ 19,700 |
| April 1, 2000 | Settle call option | (100) |
|  | Total net income | $19,600 |

The accounting summarized in Illustration 26-4 is in accord with *SFAS No. 133*. That is, because the call option meets the definition of an asset, it is recorded in the balance sheet on March 31, 2000. Furthermore, the call option is reported at fair value with any gains or losses reported in income.

What is the difference between a traditional and derivative financial instrument? It should be recognized that a derivative financial instrument has three basic characteristics.

1. **The instrument has (1) one or more underlyings and (2) an identified payment provision.** As indicated earlier, an underlying is a specified interest rate, security price, commodity price, index of prices or rates, or other market-related variable. Payment is determined by the interaction of the underlying with the face amount or the number of shares, or other units specified in the derivative contract (these elements are referred to as notional amounts). For example, the value of the call option increased in value when the value of the Laredo stock increased. In this case, the underlying was the stock price. The change in the stock price is multiplied by the number of shares (notional amount) to arrive at the payment provision.

2. **The instrument requires little or no investment at the inception of the contract.** To illustrate, Hale Company paid a small premium to purchase the call option—an amount much less than if the Laredo shares were purchased as a direct investment.

3. **The instrument requires or permits net settlement.** As indicated in the call option example, Hale could realize a profit on the call option without taking possession of the shares. The feature is referred to as net settlement and serves to reduce the transaction costs associated with derivatives.

**ILLUSTRATION 26-5**

|  |  |  |
| --- | --- | --- |
| Feature | Traditional Financial Instrument(Trading Security) | Derivative Financial Instrument(Call Option) |
| Payment provision | Stock price times the number of shares | Change in stock price (underlying) times number of shares (notional amount) |
| Initial investment | Investor pays full cost | Initial investment is less than full cost |
| Settlement | Deliver stock to receive cash | Receive cash equivalent, based on changes in stock price times the number of shares |

Illustration 26-5 summarizes the differences between a traditional and derivative financial instrument. We use a trading security for the traditional financial instrument and a call option as an example of a derivative financial instrument.

As indicated, to make the initial investment in Laredo stock (traditional financial instrument), Hale had to pay the full cost of this stock. If Hale purchases the Laredo stock and the price increases, Hale could profit. But Hale is also at risk for a loss if the Laredo shares decline in value. In contrast, derivatives require little initial investment and most derivatives are not exposed to all risks associated with ownership in the underlying. For example, the call option contract only can increase in value. That is, if the price of Laredo stock falls below $100 per share, Hale will not exercise the option, because the call option is worthless.

Finally, unlike a traditional financial instrument, Hale could realize a profit on the call option (related to the price of the Laredo stock) without ever having to take possession of the shares. This feature is referred to as net settlement and serves to reduce the transaction costs associated with derivatives. These distinctions between traditional and derivative financial instruments explain in part the popularity of derivatives but also suggest that the accounting might be different.

Fair Value Hedge

In a ***fair value hedge,*** a derivative is used to hedge or offset the exposure to changes in the fair value of a recognized asset or liability or of an unrecognized firm commitment. In a perfectly hedged position, the gain or loss on the fair value of the derivative and that of the hedged asset or liability should be equal and offsetting. A common type of fair value hedge is the use of interest rate swaps (discussed below) to hedge the risk that changes in interest rates will impact the fair value of debt obligations. Another typical fair value hedge is the use of put options to hedge the risk that an equity investment will decline in value.

Illustration of Interest Rate Swap

To illustrate the accounting for a fair value hedge, assume that Jones Company issues $1,000,000 of 5-year 8% fixed-rate bonds on January 2, 2001. The entry to record this transaction is as follows:

**January 2, 2001**

Cash 1,000,000

Bonds Payable 1,000,000

A fixed interest rate was offered to appeal to investors, but Jones is concerned that if market interest rates decline, the fair value of the liability will increase and the company will suffer an economic loss16.

To protect against the risk of loss, Jones decides to hedge the risk of a decline in interest rates by entering into a 5-year ***interest rate swap*** contract. The terms of the swap contract to Jones are:

1. Jones will receive fixed payments at 8% (based on the $1,000,000 amount).
2. Jones will pay variable rates, based on the market rate in effect throughout the life of the swap contract. The variable rate at the inception of the contract is 6.8%.

As depicted in Illustration 26-6, by using this swap Jones can change the interest on the bonds payable from a fixed rate to a variable rate.

**ILLUSTRATION 26-6**

Jones pays variable

Rate of 6.8%

Bond investors

Jones pays fixed

Rate of 8%

Jones receives fixed

Rate of 8%

Swap Contract

Bond payable

Jones

Company

Swap

Counter-party

The settlement dates for the swap correspond to the interest payment dates on the debt (December 31). On each interest payment (settlement date), Jones and the counterparty will compute the difference between current market interest rates and the fixed rate of 8% and determine the value of the swap.17[[7]](#footnote-7) As a result, if interest rates decline, the value of the swap contract to Jones increases (Jones has a gain), while at the same time Jones’s fixed-rate debt obligation increases (Jones has an economic loss). The swap is an effective risk management tool in this setting because its value is related to the same underlying (interest rates) that will affect the value of the fixed-rate bond payable. Thus, if the value of the swap goes up, it offsets the loss related to the debt obligation.

Assuming that the swap was entered into on January 2, 2001 (the same date as the issuance of the debt), the swap at this time has no value; therefore no entry is necessary:

**January 2, 2001**

No entry required—Memorandum to note that the swap contract is signed.

At the end of 2001, the interest payment on the bonds is made. The journal entry to record this transaction is as follows:

**December 31, 2001**

Interest Expense  80,000

Cash (8% x $1,000,000) 80,000

At the end of 2001, market interest rates have declined substantially and therefore the value of the swap contract has increased. Recall (see Illustration 26-6) that in the swap, Jones is to receive a fixed rate of 8% or $80,000 ($1,000,000 x 8%) and pay a variable rate (which in this case is 6.8%) or $68,000. Jones therefore receives $12,000 ($80,000 - $68,000) as a settlement payment on the swap contract on the first interest payment date. The entry to record this transaction is as follows:

**December 31, 2001**

Cash  12,000

Interest Expense 12,000

In addition, a market appraisal indicates that the value of the interest rate swap has increased $40,000. This increase in value is recorded as follows:18[[8]](#footnote-8)

**December 31, 2001**

Swap Contract 40,000

Unrealized Holding Gain or Loss—Income 40,000

This swap contract is reported in the balance sheet, and the gain on the hedging transaction is reported in the income statement. Because interest rates have declined, the company records a loss and a related increase in its liability as follows:

**December 31, 2001**

Unrealized Holding Gain or Loss—Income 40,000

Bonds Payable 40,000

The loss on the hedging activity is reported in net income, and bonds payable in the balance sheet is adjusted to fair value. Illustration 26-7 indicates how the asset and liability related to this hedging transaction are reported on the balance sheet.

**ILLUSTRATION 26-7**

|  |
| --- |
| Jones CompanyBALANCE SHEET (Partial)December 31, 2001 |
| Current assets Swap contract | $40,000 |
| Liabilities Bonds payable | $1,040,000 |

The effect on the Jones Company balance sheet is the addition of the swap asset and an increase in the carrying value of the bonds payable. Illustration 26-8 indicates how the effects of this swap transaction are reported in the income statement.

**ILLUSTRATION 26-8**

|  |
| --- |
| Jones CompanyINCOME STATEMENT (Partial)For the Year Ended December 31, 2001 |
| Interest expense ($80,000 - $12,000) |  | $68,000 |
| Other income |  |  |
| Unrealized Holding Gain - Swap | $40,000 |  |
| Unrealized Holding Loss – Bonds Payable | (40,000) |  |
|  Net Gain (loss) |  | $0 |

On the income statement, interest expense of $68,000 is reported. Jones has effectively changed the debt’s interest rate from fixed to variable. That is, by receiving a fixed rate and paying a variable rate on the swap, the fixed rate on the bond payable is converted to variable, which results in an effective interest rate of 6.8% in 2001.19 [[9]](#footnote-9)Also, the gain on the swap offsets the loss related to the debt obligation, and therefore the net gain or loss on the hedging activity is zero.

The overall impact of the swap transaction on the financial statements is shown in Illustration 26-9.

**ILLUSTRATION 26-9**

$ 40,000

Increase in gain and

Increase in swap

asset

$ 40,000

Increase in loss and

Increase in bond payable

- $0 -

In summary, the accounting for fair value hedges (as illustrated in the Jones example) records the derivative at its fair value in the balance sheet with any gains and losses recorded in income. Thus, the gain on the swap offsets or hedges the loss on the bond payable due to the decline in interest rates. By adjusting the hedged item (the bond payable in the Jones case) to fair value, with the gain or loss recorded in earnings, the accounting for the Jones bond payable deviates from amortized cost. This special accounting is justified in order to report accurately the nature of the hedging relationship between the swap and the bond payable in the balance sheet (both the swap and the debt obligation are recorded at fair value) and the income statement (offsetting gains and losses are reported in the same period).

Cash Flow Hedge

***Cash flow hedges*** are used to hedge exposures to **cash flow risk,** which is exposure to the variability in cash flows. Special accounting is allowed for cash flow hedges. Generally, derivatives are measured and reported at fair value on the balance sheet, and gains and losses are reported directly in net income. However, derivatives used in cash flow hedges are accounted for at fair value on the balance sheet, but **gains or losses are recorded in equity as part of other comprehensive income.**

To illustrate the accounting for cash flow hedges, assume that in September 2000, Allied Can Co. anticipates purchasing 1,000 metric tons of aluminum in January 2001. Allied is concerned that prices for aluminum will increase in the next few months. To control its costs in producing cans, Allied wants to protect against possible price increases for aluminum inventory. To hedge the risk that it might have to pay higher prices for inventory in January 2001, Allied enters into an aluminum futures contract.

A ***futures contract*** gives the holder the right to purchase an asset at a preset price for a specified period of time. In this case, the aluminum futures contract gives Allied the right to purchase 1,000 metric tons of aluminum for $1,550 per ton. This price is good until the contract expires in January 2001. The underlying for this derivative is the price of aluminum. If the price of aluminum rises above $1,550, the value of the futures contract to Allied increases, because Allied will be able to purchase the aluminum at the lower price of $1,550 per ton.[[10]](#footnote-10)20

Assuming that the futures contract was entered into on September 1, 2000, and that the price to be paid today for inventory to be delivered in January—the ***spot price***—was equal to the option price, the futures contract has no value. Therefore no entry is necessary:

**September, 2000**

No entry required. Memorandum entry to indicate that the futures contract is signed.

At December 31, 2000, the price for January delivery of aluminum has increased to $1,575 per metric ton. Allied would make the following entry to record the increase in the value of the futures contract:

**December 31, 2000**

Futures Contract 25,000

Unrealized Holding Gain or Loss—Equity 25,000

([$1,575 - $1,550] x 1,000 tons)

The futures contract is reported in the balance sheet as a current asset. The gain on the futures contract is reported as part of other comprehensive income. Since Allied has not yet purchased and sold the inventory, this is an ***anticipated transaction,*** and gains or losses on the futures contract are accumulated in equity as part of other comprehensive income until the period in which the inventory is sold and earnings is affected.

In January 2001, Allied purchases 1,000 metric tons of aluminum for $1,575 and makes the following entry:21[[11]](#footnote-11)

**January, 2001**

 Aluminum Inventory  1,575,000

Cash ($1,575 x 1,000 tons) 1,575,000

At the same time, Allied makes final settlement on the futures contract and makes the following entry:

**January, 2001**

Cash 25,000

Futures Contract ($1,575,000 - $1,550,000) 25,000

Through use of the futures contract derivative, Allied has been able to fix the cost of its inventory. The $25,000 futures contract settlement offsets the amount paid to purchase the inventory at the prevailing market price of $1,575,000, so that the net cash outflow is at $1,550 per metric ton, as desired. In this way, Allied has hedged the cash flow for the purchase of inventory, as depicted in Illustration 26-10.

**ILLUSTRATION 26-10**

**=**

*Actuald Cash Flows*

Actual cash paid $1,575,000

Less: Cash received

 On futures contract (25,000)

Final cash paid $1,550,000

*Anticipated Cash Flows*

Wish to fix cash paid

for inventory at $1,550,000

There are no income effects at this point. The gain on the futures contract is accumulated in equity as part of other comprehensive income until the period when the inventory is sold and earnings is affected through cost of goods sold.

For example, assume that the aluminum is processed into finished goods (cans). The total cost of the cans (including the aluminum purchases in January 2001) is $1,700,000. Allied sells the cans in July 2001 for $2,000,000. The entry to record this sale is as follows:

**July 2001**

Cash   2,000,000

Sales Revenue 2,000,000

Cost of Goods Sold 1,700,000

Inventory (Cans) 1,700,000

Since the effect of the anticipated transaction has now affected earnings, Allied makes the following entry related to the hedging transaction:

**July 2001**

Unrealized Holding Gain or Loss—Equity 25,000

Cost of Goods Sold 25,000

The gain on the futures contract, which was reported as part of other comprehensive income, now reduces cost of goods sold. As a result, the cost of aluminum included in the overall cost of goods sold is $1,550,000 and the futures contract has worked as planned to manage the cash paid for aluminum inventory.

1. Hale could use a different type of option contract—a ***put option***—to realize a gain if it speculates that the Laredo stock will decline in value. A put option gives the holder the option to sell shares at a preset price. Thus, a put option **increases** in value when the underlying asset **decreases** in value. [↑](#footnote-ref-1)
2. Baird Investment Company is referred to as the counter-party. Counter-parties frequently are investment bankers or other entities that hold inventories of financial instruments. [↑](#footnote-ref-2)
3. This cost is estimated using option-pricing models, such as the Black-Scholes model. The fair value estimate is affected by the volatility of the underlying stock, the expected life of the option, the risk-free rate of interest, and expected dividends on the underlying stock during the option term. [↑](#footnote-ref-3)
4. In practice, Hale generally does not have to actually buy and sell the Laredo shares to settle the option and realize the gain. This is referred to as the ***net settlement*** feature of option contracts. [↑](#footnote-ref-4)
5. The decline in value reflects both the decreased likelihood that the Laredo shares will continue to increase in value over the option period and the shorter time to maturity of the option contract. [↑](#footnote-ref-5)
6. The total value of the option at any point in time is equal to the intrinsic value plus the time value. [↑](#footnote-ref-6)
7. 17 The underlying for an interest rate swap is some index of market interest rates. The most commonly used index is the London Interbank Offer Rate, or LIBOR. In this example, we assumed the LIBOR is 6.8%. [↑](#footnote-ref-7)
8. 18 Theoretically, this fair value change reflects the present value of expected future differences in variable and fixed interest rates. [↑](#footnote-ref-8)
9. 19 Similar accounting and measurement will be applied at future interest payment dates. Thus, if interest rates increase Jones will continue to receive 8% on the swap (records a loss) but will also be locked into the fixed payments to the bondholders at an 8% rate (records a gain). [↑](#footnote-ref-9)
10. 20 As with the earlier call option example, the actual aluminum does not have to be exchanged. Rather, the parties to the futures contract settle by paying the cash difference between the futures price and the price of aluminum on each settlement date. [↑](#footnote-ref-10)
11. 21In practice, futures contracts are settled on a daily basis; for our purposes we show only one settlement for the entire amount. [↑](#footnote-ref-11)