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Guest Article:

Derivatives and their impact on company value

By Susan M. Mangiero, Ph.D., AVA, CFA, FRM*

part 2 of 2

As Susan says, derivatives are here to stay. In this part 2 of Susan's articles started in the March issue, she offers a list of questions that the appraiser should ask of a company that uses derivatives. — SP



Susan Mangiero

Research study results are mixed with respect to the relationship between firm value and use of derivatives to hedge.¹ Some papers support a link between shareholder wealth, managerial compensation, and derivative use. Other work suggests that highly leveraged firms are more likely to use derivatives. Meanwhile, several empirical surveys refute this notion, showing instead that larger firms (with less volatile cash flows) favor derivatives more than smaller (and arguably riskier) firms.² Increasing firm value by expanding debt capacity through the use of derivatives is another notion. Tax and accounting considerations complicate the reconciliation of theory with practice, especially since, as stated in Part 1 (March 2005 *BVU*), rules and standards vary across countries, financial products, and industries. Despite the absence of a univer-

sal consensus that explains the value of hedging in theoretical terms, a simple example is instructive.

Hedging example

Consider a hypothetical manufacturing company that borrows \$2 million from its local bank to finance the purchase of a new machine with an estimated economic life of five years. The lender charges the London Interbank Offer Rate (LIBOR) plus 100 basis points, and resets the interest rate every three months. Fearing a rise in interest rates, the company decides to enter into a five-year interest rate swap with a brokerage firm that specializes in middle market finance.

The mechanics of the swap are straightforward. The two counterparties agree on terms at the outset such as the fixed swap rate, the frequency of settlement, the LIBOR benchmark quo-

tation convention, and the prevailing law. As shown in *Exhibit 1*, and ignoring counterparty default risk, an exchange of cash flows will take place on a regular basis. The dollar differential between amounts based on the fixed swap rate and LIBOR, respectively, will change because LIBOR itself is reset every quarter. The net effect of borrowing on a variable rate basis and then entering into an interest rate swap is that the manufacturer can lock in a cost of borrowing and, by extension, better forecast expenses and earnings.³

Depending on credit spreads and yield curve conditions at any given time, a loan-swap combination can turn out to be cheaper than borrowing on a fixed-rate basis outright. An added bonus for a highly leveraged company is the fact that long-term debt ratios remain un-

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*Copyright © 2005, BVA, LLC. Dr. Susan M. Mangiero is a managing member of BVA, LLC, a valuation and risk analysis company serving attorneys and their institutional investor and business owner clients. Her new book entitled *Risk Management for Pensions, Endowments, and Foundations* (John Wiley & Sons, 2005) looks at the fiduciary and corporate governance aspects of financial risk measurement and control. Dr. Mangiero can be reached at 203-261-5519 or smm@bvallc.com.

¹ A 2004 working paper entitled "International Evidence on Financial Derivatives Usage" by S. Bartram, G. Brown, and F. Fehle summarizes the theoretical literature about the relationship between hedging and firm value.

² A discussion of firm size and risk is outside the scope of this article. However, many research papers that examine the relationship between hedging and shareholder value assume that smaller firms are riskier.

³ Transaction costs, taxes, and accounting impact are ignored in this example.

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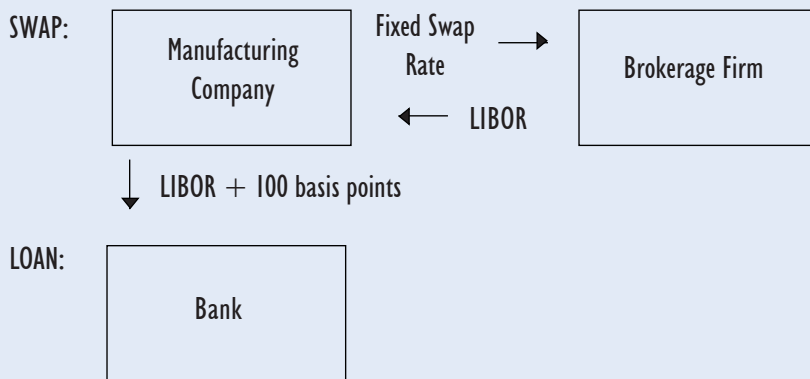
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Derivatives and their impact on company value

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EXHIBIT I: BASIC FIXED-FLOATING INTEREST RATE SWAP STRUCTURE AND LOAN



Note: Interest rate swaps can be structured in a variety of ways.

changed since the company borrows on a short-term basis.

There is no free lunch, and derivatives are no exception. Unlike a straight loan, the loan-swap combination introduces a new player, the brokerage firm counterparty, and the manufacturer has to worry about nonperformance under the terms of the swap contract. The worst thing that could happen is that the brokerage firm defaults at a time when swap fixed rates have risen above the originally agreed-upon level. Two things can occur. The manufacturer can find a replacement and end up making fixed-rate payments to the new counterparty but at a higher rate. Alternatively, the manufacturing company could continue to make payments based on the original fixed swap rate but make up the difference by paying an up front lump sum to the replacement counterparty.

Even in the absence of default, a swap may cost the manufacturer money. Suppose the company sells the machine after a few years, uses the

proceeds to repay its loan in full, and therefore chooses to exit the swap by selling its position to a third party. In the event that swap rates have since fallen, the manufacturer will have to sell its swap position at a loss since a new fixed rate payer would never agree to a higher rate than what is available in the open market. Additionally, lower swap rates may induce buyer's remorse later on with the manufacturing company concluding that the swap restricted its flexibility to refinance the equipment at a lower rate.⁴

While not discussed as part of this example, accounting and tax factors do influence financial decision making. In the aftermath of FAS 133, *Accounting for Derivative Instruments and Hedging Activities*, surveys show that more than a few companies have opted to execute simpler transactions or stop using derivatives altogether rather than bear the costs associated with compliance.⁵

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⁴ This is analogous to buying car insurance and concluding, after the fact, that the insurance was unnecessary after living through an accident-free year.

⁵ A company that must comply with FASB Statement No. 133, *Accounting for Derivative Instruments and Hedging Activities*, has to undertake a series of steps that ultimately provides some information about the impact of derivatives on earnings and cash flow. These steps include (a) the identification of FASB-defined derivatives, (b) their valuation on a regular basis, (c) valuation of any hedged exposures on a regular basis, (d) the use of formal tests to gauge FASB-defined hedge effectiveness, and (e) making transition adjustments, as necessary. While not perfect, many would agree that FAS 133 compliance offers some insight about derivative use and impact on financial health relative to having no published information at all. Not all companies and financial institutions comply with FAS 133, or they comply by providing as little information as possible.

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Derivatives and their impact on company value

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Information gathering

Evaluating the impact of derivatives on the past, current, and expected future financial performance of an organization requires care in asking the right questions.⁶ This is somewhat problematic for an appraiser who is wholly unfamiliar with derivative instruments since their structures—and related impact on company earnings and cash flow—can vary considerably.

An obvious starting point is to ask whether an organization employs derivatives. For those that do, requesting a copy of the trade documentation for *each* transaction is critical. The goal is to understand details such as face value, determination of cash flow amounts, which counterparty does what and when, settlement structure, counterparty credit quality, prevailing regulation, and termination provisions.⁷

Exhibit 2 presents a partial list of questions to ask about a derivative instrument used for hedging purposes. It is far from exhaustive and depends on things such as the type of derivative instrument, purpose (full or partial hedge), transaction size (absolute and proportional), trading venue (exchange-traded versus OTC), and relevant regulations. Some appraisers may decide that working with a derivatives specialist is more cost-effective than going it on their own.

EXHIBIT 2: SOME QUESTIONS TO ASK ABOUT EACH DERIVATIVE HEDGE TRANSACTION

- What is the type of derivative instrument being used to hedge?
- What alternatives were considered and why?
- What is the exposure being hedged?
- What is the organization's motivation for entering into this transaction?
- When does the derivative transaction expire?
- What is the face value of the derivative transaction?
- What does the contract require the company or financial institution to do?
- What percent of the exposure is initially hedged?
- How often does an organization change the size of the hedge, if at all?
- On what basis is a derivative position modified?
- What is the opportunity cost associated with the hedge?
- What are the expected periodic payment amounts?
- How are the expected cash outlay amounts determined?
- What is the frequency of cash outlays?
- Is settlement net or gross?
- How is the derivative instrument valued, by whom, and how often?
- For any up front payments, how were they financed?
- How does the business or financial institution account for use of derivatives?
- What financial ratios are affected by the derivative transaction?
- What is the credit quality of the counterparty?
- What is the basis of legal remedy?

Brave, new world

Derivatives are here to stay. Their real impact on an organization's reported financials and economic performance cannot be ignored. In fact, some experts suggest that a hallmark of things to come is an increasing emphasis on

financial engineering. If true, derivatives will dominate the landscape in an even bigger way. Those who remain uninformed about their effect on earnings and cash flow will find themselves losing ground. **BVU**

⁶ Discounted cash flow analysis is a forward-looking approach. Under certain conditions, it makes sense to look back in time and/or review current data. However, it is important to recognize that the impact of derivative use on company performance is not necessarily linear over time.

⁷ See www.isda.org for examples of master documents for many types of derivative transactions.