Dangers of Corporate Derivative Transactions
by David Shimko

Executive Summary

• Derivatives can be extremely effective risk management tools when used correctly.
• Used incorrectly, derivatives can cost firms hundreds of millions of dollars and damage the hard-won reputations of firms and managers.
• Most derivative debacles could have been avoided had appropriate checklists been followed and corrective action taken.
• Successful derivative transactions require significant analysis, senior management understanding and judgment, and due skepticism regarding advice from conflicted counterparties.

Overlooked Risks

It’s easy for managers to overlook risks. Financial risk managers may ignore nonfinancial risks. Business managers responsible for a particular line item (such as costs) may downplay risks unrelated to their particular line item. Firms often manage their risks compartmentally—for example: the treasury department for foreign exchange and interest rates; the procurement department for commodity purchases; and the insurance department for catastrophic risks.

By its nature, any derivatives transaction introduces an enterprise-wide risk, even if it has a narrow purpose. Therefore, derivatives transactions must be analyzed and managed systematically to ensure consistency with corporate objectives, suitability of the transaction, and avoidance of unintended consequences of the process.

Many soft risks can be avoided by following the steps on this derivatives transaction checklist:
• Verify consistency with risk policy and corporate objectives. Has the risk policy been updated to reflect current business strategy?
• Consider the impact of potentially offsetting risks on the balance sheet.
• Examine legal and regulatory requirements to assure compliance.
• Anticipate possible future legal and regulatory changes.
• Simulate possible outcomes of the derivative transaction under many scenarios.
• Establish the correct accounting treatment.
• Ensure the accounting treatment has the desired result in all scenarios.
• Understand when the desired accounting treatment cannot be attained.
• Make sure the firm has the personnel and systems to trade, monitor, and report derivatives activity.
• Communicate objectives to all stakeholders.
• Plan communication strategies for alternative future outcomes.
• Anticipate reputational risk due to possible adverse outcomes.
• Predetermine performance measurement criteria.
• Undertake review by audit committee (some firms will have a risk management committee).
• In the absence of sufficient internal expertise, seek outside evaluation.
• Determine in advance how ongoing valuations and risk assessments will be performed.
• Provide updated performance reports referencing communicated objectives.
• Study exit strategies in the event that conditions change materially.
• Consider personal political risk to managers under different outcome scenarios.

Failure to Reduce Risk

Although a derivative usually meets its narrow goal of reducing a particular risk, it is often the case that the derivatives transaction fails to reduce corporate risk materially. Indeed, some may actually increase the overall net risk profile.
For example, many firms hedge their foreign exchange risk carefully, perhaps not realizing that foreign exchange risk may be a very small part of the overall corporate risk profile. In many cases, tacit speculation occurs under the guise of hedging, particularly if the trading activity gets hedge accounting treatment.

More generally, derivative transactions supported by a particular department will likely reduce departmental risk but may not reduce the overall risk of the firm. For example, a large software firm may want to hedge its interest rate risk, without realizing that the interest rate risk pales in comparison to the business risks of software development and sales.

The only remedy for this problem is to build a firm-wide risk model, even if it is approximate in many ways, to understand the impact of a particular derivatives strategy on the firm. The firm-wide risk model should include market, credit, operational, and event risks in order to be as complete as possible. With this kind of model in place, the benefits of risk management can be more precisely measured in order to compare the benefits to the costs. The following steps may be added to the checklist above:

- Build a model of the firm that simulates all material risks.
- Overlay the proposed derivative on the firm model.
- Test cash margin requirements, credit exposures, and accounting outcomes from the model.
- Document courses of action for select scenarios.

Creation of New Risks with Derivatives

There is a kind of law of conservation of risk in the universe. Risk is neither created nor destroyed, merely transformed into different risks. Hedging market risk creates margin risk if hedging is done on exchanges, and it creates counterparty risk if it is done over-the-counter. Hedging also creates operational risks if the hedger is ill-prepared to manage the unanticipated consequences of hedging. In this section we will describe the three major risks created by derivative transactions.

**Market risk.** Hedging creates incremental market risk in many different scenarios. For example, most hedgers cannot hedge their risk perfectly—a corn farmer in Vermont may hedge with Illinois corn futures, exposing the farmer to fluctuations in corn value between Vermont and Illinois. Market risk is also created when the hedger overhedges, such as when an oil producer hedges planned production from a well to find out that the well does not end up producing oil. Finally, market risk is created when the underlying risk profile of the company changes and its derivative contract does not. For example, the size of an exposure to counterparty default will generally vary with changes in market prices. If the company hedges counterparty risk but the exposure doubles, it is no longer hedged.

**Credit risk.** Hedging creates credit risk whenever a specific counterparty is involved. This may be a bank party to an OTC derivatives trade, or it may be an insurance company. A company’s own credit may be impaired by hedging if hedging creates future cash margin requirements that compromise the company (see box).

**Operational risk.** The large number of soft risks may be inferred from the list above. Here we emphasize that even a firm that hedges may find it does not have the valuation, validation, monitoring, reporting and execution skills to maintain derivative strategies. In some cases, strategies were designed poorly because of the unfamiliarity of the analysts with the risks they were modeling. Particularly when a company chooses to reverse a particular strategy, it is prone to losing significant sums due to trading with sophisticated counterparties.

Several of the world’s largest and most successful companies have suffered derivative disasters of one form or another. One such listing is the “Wheel of Misfortune” on a website provided by Sungard (see Table 1 and More Info section).

**Table 1. Disasters cited in Sungard’s “Wheel of Misfortune”**

<table>
<thead>
<tr>
<th>Credit risk</th>
<th>Market risk</th>
<th>Operational risk</th>
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<td>Allied Irish Banks</td>
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| Bank of Credit and Commerce International | • | • |
| Bankers Trust | • | • |
| Bankgesellschaft Berlin | • | • |
| Barings | • | • |
| Bausch and Lomb | • | • |
| California power crisis 2000–2001 | • | • |
| Cendant | • | • |
| Confederation Life | • | • |
| Continental Illinois | • | • |
| Credit Lyonnais | • | • |
| Daiwa | • | • |
| First National Bank of Keystone | • | • |
| HIH Insurance | • | • |
| Lloyd’s | • | • |
| Long-Term Capital Management | • | • |
| Metallgesellschaft (MG) | • | • |
| Morgan Grenfell | • | • |
| NatWest Markets | • | • |
| Orange County | • | • |
| Power Company of America (PCA) | • | • |
| US savings and loan crisis | • | • |

These debacles are documented on Sungard’s website. The most important thing for the CFO is to be aware of the dangers in order to manage them. Derivatives comprise a specialized subfield of financial management requiring specialized skills. A CFO with analytic support from people experienced in derivative transactions and risk management stands a better chance of executing derivative strategies successfully than one who does not have this support.

Fitch Release on SemGroup Energy Partners LP

Corporate CFOs often enter derivative transactions with the best of intentions, but leave them as unintended consequences develop. As an example, in 2008, SemGroup suffered significant financial distress as a result of its hedging activities.

“The downgrades and Watch Negative status reflect liquidity pressures related to the sustained elevated level of crude oil prices and SemGroup’s ability to continue its marketing and storage businesses in the current price environment. Spot prices for WTI crude at Cushing, OK have increased by as much as 43% since April 1, 2008. SemGroup hedges a large percentage of its inventories and would be required to post additional margin to increase the collateral support for its hedging program. Specifically, Fitch is concerned that the company may not have sufficient available capacity from its bank facilities to meet requests for additional margin. SemGroup is a privately held midstream energy partnership focused primarily on providing
gathering, transportation, processing, and marketing services for crude oil and refined products in the US Midcontinent region and Canada.” (July 17, 2008)

Case Study

We consider the case of a US-based petroleum refinery seeking to reduce its net income variations with a strategy using either exchange-traded or OTC derivatives. What are the problems the refinery may have?

• It may not consider all risks in its derivatives strategy. For example, the risk of plant failure due to operational failures may end up not being factored into the analysis, causing the refinery to over-hedge.
• A transaction designed to reduce the risk surrounding crude oil purchases may actually end up increasing risk for the refinery. This happens because the margin between crude and crude products becomes more variable if costs are hedged but revenues are not.
• New risks may be introduced by hedging. If the refinery hedges on a futures exchange, it is subject to cash margin calls it may not have anticipated. If the refinery transacts on the OTC market, it can expect to take additional risk due to potential counterparty failure.
• As the refiner’s risk profile changes, the derivative strategy may be discovered to be inappropriate. For example, if refinery margins shrink and become negative, it may make more sense for the refinery to stop producing rather than continuing to produce at a loss for the purpose of honoring a delivery contract, especially if the delivery requirement can be arranged elsewhere more cheaply. Clearly, the refinery must consider its entire risk profile if it seeks to manage one of its risks.

Making It Happen

The checklist items given earlier would surely need to be completed in an exhaustive derivatives analysis. The most important steps for minimizing derivative dangers are summarized below:

• Risk Policy. Risk policy must be consistent with shareholder and board preferences, and with corporate strategy generally. Risk governance must be clear; risk control must be independent; and standards for derivatives performance need to be articulated precisely in advance of the transaction.
• Risk Measurement. Risk must be measured in the context of the entire firm and reported in terms familiar to managers.
• Scenario analysis. The derivative outcomes should be analyzed under many different scenarios to ensure the firm has created a contingency plan for management of the transaction under these scenarios.
• Suitability. It should be determined that the type of transaction and its terms are suitable for the company, given its level of experience and expertise.
• Performance. Performance must be consistent with policy goals, rather than just the profit or loss of the hedge program in isolation.

Regrets Expressed by CFOs Who Have Hedged with Derivatives

To understand the dangers of corporate derivatives transactions, it is useful to share the personal experiences of CFOs who have hedged using derivatives. While there are many success stories, here are some paraphrased quotes from CFOs that have not been as successful:

“When we make money on the hedge, we are told we are doing our jobs. When we lose money on the hedge, we are responsible. Management should realize the purpose of the hedge is to reduce risk, not make money.”

“Are we really hedging, or are we speculating under the guise of hedge accounting treatment?”

“We had no idea how bad the margin requirements could get. This trade may bankrupt us.”

“Is this risk really material to our business? We spend 80% of our time hedging 20% of our risk, exactly the wrong way around.”
Conclusion

Unfortunately, many CFOs have nowhere to turn but to their counterparties for advice. This is like asking the wolf to guard the sheep. The counterparty has a position of conflict and, even if qualified, should not advise a corporation on derivatives strategy.

Another problem CFOs have is that senior management expect them to have the skills necessary to evaluate and execute derivative transactions, even though this is a highly specialized subfield of financial management. Yet, the best source of advice is an independent adviser who is familiar with the company’s risk policies and profile, and familiar with the markets and instruments under consideration for the hedge.

It is tempting to think that a financial executive need only read a textbook on derivatives to be effective, but this could not be further from the truth. In fact, unscrupulous counterparties can take advantage of executives whose knowledge is textbook-oriented.

Nothing beats practical experience. Nevertheless, there are some excellent textbooks where the financial executive should begin. These are listed in the More Info section.

More Info

Books:


Notes


See Also

Thinkers

- John C. Cox
- Stephen A. Ross

Finance Library

- Options, Futures, and Other Derivatives

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