

## Capturing the Value of Flexibility |

By Martha Amram and Keith M. Howe

In the past few years, a new phrase has swept the strategy and corporate finance fields: real options. The interest has been sparked by an increased awareness of uncertainty in our economic environment as well as a desire to link the two disciplines with a richer strategic perspective. Several recent articles in *Strategic Finance* have introduced the concept of real options.

But, in practice, the real-options method often has been hard to implement. The language of options may be new to the nonfinance managers involved in strategic decision making and the math too dense for managerial consumption. But the notion of strategic options—of downstream flexibility—remains compelling.

In this column, we first lay out a framework that identifies when and where a real-options analysis can be used to complement the more traditional capital budgeting or project plan based on discounted cash flow (DCF). We then introduce a way to better understand or “see” the nature of the growth opportunity so that managers can fine-tune the option-based strategic perspective.

### Options Create Future Flexibility

Strategic options have a particular structure: Pay now, decide later. Think about buying an option on a stock. Purchasing the option contract gives the buyer the right to

decide whether to exercise the option at a specified point in time. For example, you might buy a call option on IBM. At the time this column was written, IBM’s stock price was \$74, and an option that gave a buyer the right to buy IBM shares at \$80 at the end of 60 days was selling

for 62 cents. Pay 62 cents now, and obtain the right to decide whether to buy IBM shares later.

A number of strategic investments have the same flavor. Take real estate. You might delay developing a nightclub property until you’re certain that the adjacent hotel is a success.

Pay now (buy the property), and decide later (develop or not). Another industry rich with options is oil exploration. Acquire exploration rights (pay now), and start exploration if oil prices rise to a sufficiently high level (decide later). In both examples the property owner is following a *flexible* or *contingent* strategy, one in which a future decision depends on an uncertain variable.

In contrast, the valuation of most strategic projects is done using discounted cash flow. In a DCF analysis, you

**...a real-options analysis can be used to complement the more traditional capital budgeting...**

establish the revenue or operating profit forecast and then determine the optimal fixed capital spending given that forecast. The strategic direction is fixed; the DCF analysis contemplates no deviation from plan. The DCF contains a *fixed* or *predetermined* strategy. Yet managers of strategic projects know that it never works like that. Strategic projects change over time, and unfolding events trigger new decisions. Managers want a way to line up their quantitative analysis with how they really manage projects—hence the interest in real options.

### Sometimes Flexibility Is Valuable

One of the most common mistakes in applying real options is to assume that all flexibility is valuable. Figure 1, which plots the value of a strategic project over time, illustrates when flexibility is valuable and when it isn't. At the left, at the start of the project, the value is within the shaded

range. Within this range, the project value may fluctuate, but there's no need to modify the strategic plan. The original DCF analysis remains correct.

From the spot marked "Today," the project may take two paths. With Path B, the project value rises but stays within the range anticipated in the DCF analysis, and the fixed investment strategy remains optimal. With Path A, however, the project value rises to a level that wasn't anticipated in the DCF. Once this high level of value is reached, a company should take the expansion opportunity. For example, the DCF may have anticipated one million units of sales for a new toy, but the toy became a raging success, and two million units have been sold. Expansion now becomes the optimal strategy. The probability of this outcome and the extra value it adds weren't contemplated in the DCF.

The possibility of Path A introduces a strategic option to the project

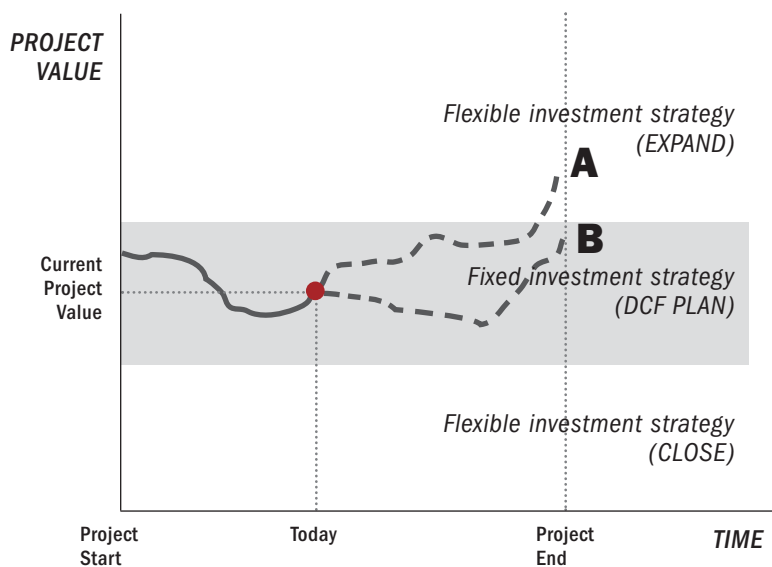
and demonstrates how flexibility can add value. (Similarly, in a bad scenario, the option to shut down and cut losses also adds value.) But not all flexibility adds value. Inside the shaded range, the fixed plan is optimal. Deviations from the fixed plan will cause a loss in value. In their rush to embrace flexibility, managers forget about those other projects, the ones that changed 20 times—with enormous cost overruns—before their painful completion. Thus, to implement real options, it's important to understand what determines the boundary between the application of DCF and the need for an options analysis. What sets the size of the shaded area in Figure 1?

### A New Look at Growth Opportunities

What drives the value of flexibility? One important factor is uncertainty. When uncertainty is large, then it is more likely that the project value will wander into the flexible strategy regions. The level of uncertainty is a characteristic of the growth opportunity and its economic environment. Hence, to understand the strategic option, you must look deeper at the structure of the growth opportunity.

Martha Amram, one of the authors of this column, has written a book (*Value Sweep: Mapping Corporate Growth Opportunities*, HBS Press, 2002, [www.valuesweep.com](http://www.valuesweep.com)) in which she argues that we need a new language—a common vocabulary to describe growth opportunities. In it, she provides an initial glossary. One important distinction in the language of growth opportunities is the nature of risk and the nature of strategic investment.

Figure 1



A key question for managers is: Which types of risks are driving your project value? To understand the value of a flexible strategy, managers need to dig a bit deeper into the nature of the growth opportunity itself, asking about the drivers of project value. A common framework and a common vocabulary about the structure of growth help all parties to agree on the exercise of strategic growth options.

## Getting Started with Real Options

Step by step, we think real options can be made much more simple—and much more useful to managers. Figure 1 provides a good starting point. It shows how both DCF and real options are needed in strategic valuations. Also, without crunching a number, the figure sparks managers to ask questions about how their project might need more than a fixed investment strategy and what triggers the option-laden contingent strategy. This form of real-options thinking can be used by managers across many functions and is one of the first steps in corporate adoption of this powerful tool. The result of including strategic options in our analysis toolkit is not only a new way of thinking but is also a new set of questions to be asked. For example, what are the major sources of uncertainty? What's the magnitude of the uncertainty, and what drives it? Where are the decision points? Are there opportunities to increase upside potential?

In sum, instead of being overwhelmed by the numbing technical detail, we believe that it makes more sense to focus on the key concepts and the questions that flow naturally

from an options analysis. Keep the numbers simple. Tell a strong story about when and where the flexibility of the strategic option will be used. ■

*Martha Amram, Ph.D., is an independent consultant and advisor. In addition to being the author of Value Sweep (2002), she's the co-author of*

*Real Options (1998). You can reach her at [martha@valuesweep.com](mailto:martha@valuesweep.com).*

*Keith M. Howe, Ph.D., is the William M. Scholl Professor of Finance in the Kellstadt Graduate School of Business at DePaul University and co-editor of the Journal of Applied Finance. You can reach him at [khowe@depaul.edu](mailto:khowe@depaul.edu).*