

## BOOK REVIEWS

*The ART of Risk Management: Alternative Risk Transfer, Capital Structure, and The Convergence of Insurance and Capital Markets*, by Christopher Culp, 2002, New York: John Wiley and Sons

Reviewer: Nicos A. Scordis, St. John's University

Christopher Culp's book *The ART of Risk Management* explains that ART (Alternative Risk Transfer) programs represent the attempts of the insurance industry to provide synthetic debt capital or equity capital to their commercial clients. His target audience is corporate financial officers, and with this audience in mind, Culp does not set out to extend the knowledge frontier. Rather he brings together in one volume, what others have said on the subject of risk financing. Culp collects his material from diverse sources. He references books authored by academics and practitioners, scholarly journal articles, monographs published by the insurance industry, "expert" testimony by ART practitioners, and of course he draws from his own post-Ph.D. management consulting career. The strength of the book for the academic reader, however, is in the detailed (but easy to follow) description of many of the synthetic capital transactions that are shaping the ART landscape. And public details for some of these transactions are only available in this book.

The first eight of the book's twenty-six chapters review the nature and role of capital in financing the operations of a firm. There is an extensive analysis of the conditions that lead to capital structure irrelevancy, a discussion of optimal capital structure theories, and examples of how to price different forms of capital. A summary of empirical evidence for and against these theories rounds up the discussion. The notation, however, wantonly proliferates. For example, the cost of debt capital is  $\rho$ , the cost of equity capital is  $e$ , the combined weighted average cost of them is  $\lambda$ , the number of shares outstanding is  $\eta$  and  $\beta$  depending on which chapter the reader encounters it either the number of bonds outstanding or the systematic risk of equity. This overuse of notation makes for slow reading at times, but skipping the equations so notated does not materially handicap the reader. The discussion on optimal capital structure revolves around the familiar themes of the "trade-off" versus the "pecking-order" hypotheses. As you may recall, the trade-off hypothesis posits that a firm's capital structure is the result of balancing the tax advantages of debt against the costs of financial distress. The pecking-order hypothesis posits that a firm's capital structure is a function of its profitability relative to its investment needs, where managers use up internally generated funds first followed by debt and then by issues of equity. The "text book" material on capital structure, according to a survey of finance practitioners by Graham and Harvey (*Journal of Financial Economics*, 2001), cannot solve the capital

structure problem of corporate financial officers, the target audience for Culp. It is puzzling, therefore, why Culp takes up so much space to restate this material, but ignores emerging explanations of capital structure. For example, Hayne Leland in a series of articles starting in the 1994 *Journal of Finance* develops a theory of firm capital structure that explicitly links capital structure decisions to firm risk.

The central theme of chapters 9, 10, and 11 is whether risk management can increase the firm's expected cash flows and whether an ART program can reduce a firm's cost of capital. A risk management program can increase the firm's expected cash flow because it mitigates the management's unwillingness or inability to make optimal capital investment decisions and lowers the firm's tax bill. As Culp very nicely explains, however, manager initiated risk programs may have little to do with enhancing stakeholder value and a lot to do with managers' own interests. Managers may have an incentive to manage the cash flow of the firm because they are risk averse, or because they wish to isolate themselves from the discipline of capital markets, or because they want to enhance their reputation by separating managerial-driven performance from accidental performance.

In exploring whether the capital firms raise through the use of ART techniques lowers their overall cost of capital, Culp is limited by the paucity of available empirical results. Capital asset pricing theory can be used to argue that reducing the firm's cash flow volatility also reduces its cost of capital, while option-pricing theory can be used to argue the opposite. But, these theories and the little (indirect) empirical evidence that exists do not specifically address ART techniques. Thus Culp relies on Prakash Shimpi's book *Integrating Corporate Risk Management* (New York: Texere Publishing, 2001). Shimpi adds to the weighted average cost of capital equation the cost of ART capital. Thus the firm's cost of capital equals the value weighted average of the cost of equity capital plus debt capital plus ART capital. Then through examples it is shown that the use of ART capital reduces the firm's cost of capital. Culp does not point out that Shimpi constructs his examples by using a firm's accounting return on debt, equity, and ART capital, which casts doubt to the conclusion that ART capital reduces the firm's economic cost of capital. Culp does remark, however, that Shimpi's analysis will prove useful for certain options and insurance applications but will collapse when firms turn toward derivatives and certain ART forms. So the question of how ART capital has an impact on the cost of capital of the firm remains partly unanswered.

Culp devotes the remaining portion of his book to a review of the characteristics and structures of products, other than traditional debt and equity firms can use to raise capital. The review includes banking products, derivatives, securitization of liabilities, insurance, reinsurance, and finite risk structures and integrates risk structures, captives, and contingent capital guarantees. Also, guest contributors address catastrophe-linked insurance and capital market products, weather risk transfer, patent law, financial innovation, and ART structures that facilitate mergers and acquisitions. Culp and his guest contributors provide a treasure trove of real-life examples of ART structures to accompany their review.

If for nothing else, the book is worth reading just to uncover these real-life examples, many of which are discussed and illustrated in detail. You will read, among other examples, how a utility company that struggled to raise funds for a hydroelectric project in the United States hired an insurer to guarantee repayment of the funds.

As a result, the utility company raised more money on better terms. Another insurer financed the purchase of airplanes in Canada and a management buy-out in Britain. Yet another, teamed up with a banker and promised to supply a French firm with operating cash in times of recession. I have been impressed by the scope and depth of the examples, so I will repeat that there are pages and pages of examples. After examining and critically analyzing them, the student of risk financing will develop an insight into the process of innovating and effective alternative solutions for financing a firm's exposure to risk.

***Strategy, Value, and Risk—The Real Options Approach***, by Jamie Rogers, 2002, New York: Palgrave Macmillan

Reviewer: Tapen Sinha, ING Comercial America Chair Professor of Risk Management and Insurance, Departamento Académico de Actuaría y Seguros, Instituto Tecnológico Autónomo de México (ITAM)

In the insurance industry, there are many examples of options to expand and options to abandon. Insurance companies cannot afford to ignore such options. Any serious attempt to valuation of insurance companies now entails a valuation of the embedded and expansion options.

In early 2002, the *Economist* magazine issued a scathing report on the insurance giant AIG. It claimed that by looking at "best in each line of business" and adding them up, the value of AIG should have been less than half of its market value. It claimed that as a result, AIG was severely overvalued. In a strong criticism of the *Economist* report, Bernstein ([http://www.economist.com/finance/aig\\_bernstein.pdf](http://www.economist.com/finance/aig_bernstein.pdf)) showed that the analysis by the consultant hired by the *Economist* was deeply flawed. The consultants did not take into account the expansion options of the giant AIG.

How much would such options be worth? For general insurance and life insurance businesses of the AIG, these options have values approximately equal to their embedded and franchise values. In case of financial products, the real option value was even bigger. In sum, real option value embedded in insurance companies is not little add on. It is one of the main events (see, for a practical application of a real-life takeover valuation using real options, <http://allman.rhon.itam.mx/~tapen/ArredondoSinha.PDF>). Thus, the use of real options can be quite useful for insurance industry.

The professed purpose of this little book is "provide a background to the concept and method of real options." The author, Jamie Rogers is a consultant with PricewaterhouseCoopers, New York with their financial risk management practice.

The book is divided into thirteen chapters in four parts. A brief introduction sets the stage. It talks about Schumpeter's thesis of creative destruction. With a brief discussion of value and risk, it launches the case for real options as the value for the flexibility of a project. Part I has four chapters discussing the evolution of strategy, value, and risk.

Chapter 1 (of three pages) begins with an overall view about strategy. Chapter 2 gives a four-page summary of net present value. Chapter 3 is an equally brief two-page summary of investment risk. Chapter 4 discusses three strategic case studies: one of information technology, one for energy, and one for the introduction of a new (and expensive) drug by a pharmaceutical company using discounted cash flow analysis.

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