

21世纪国际经济与贸易系列教材



北京市高等教育精品教材立项项目


国际商务谈判

理论案例分析与实践

INTERNATIONAL
BUSINESS NEGOTIATION
THEORY CASES SIMULATION

● 白 远 著

(英文版)

 中国人民大学出版社

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Preface

PURPOSE OF THIS BOOK

In establishing standards to account for derivatives transactions and hedging activities, the Financial Accounting Standards Board (FASB) has created a detailed and complex system of accounting rules. This set of regulations presents challenges to many accountants who tend to have only limited exposure to derivatives and to be somewhat unprepared to address the conceptual issues presented by complex hedging transactions. The purpose of the book is to provide a framework to allow accountants and businesspeople not only to understand the accounting issues related to derivatives and hedging but also to become familiar with the mechanics and uses of common types of derivatives, particularly in hedging applications.

This book is suitable for use at the undergraduate level as part of an advanced accounting course, an accounting theory course, an omnibus-style current accounting topics course, or similar courses offered in Masters of Accounting, 150-hour, or MBA programs. The book could also serve as the basis for an independent study course at the undergraduate or graduate level.

A word of caution is in order. Although users of this book will be able to develop a basic understanding of common types of derivatives and of the accounting issues related to using common derivatives in hedging applications, many theoretical and practical problems arising in this area are well beyond the scope of this book. As of this writing, the FASB's Derivatives Implementation Group (DIG) had issued nearly 200 Issues Summaries. Each of these represents a response to a complex problem that practicing accountants concluded could not be resolved without the involvement of the DIG experts. Because of the immense variety of derivatives types and the myriad uses that creative businesspeople find for them, it is likely that even after reading this book, an accountant will face issues in practice for which the solution is not immediately clear.

OVERVIEW

The book is organized into six chapters:

- Chapter 1 introduces the idea of hedging and explains the mechanics of several basic types of derivatives commonly used in hedging applications.
- Chapter 2 provides initial exposure to the derivatives accounting framework under which the required accounting is determined by the designation of derivatives as either fair value or cash flow hedges. Each accounting variation is illustrated using a single type of derivative, commodity futures contracts.

- Chapter 3 deals with accounting for hedging applications using interest rate swaps, one of the most commonly used derivatives for managing interest rate risk. The material in the chapter primarily deals with plain vanilla interest rate swaps, although nongeneric swaps are covered briefly.
- Chapter 4 focuses on other interest rate hedging, including hedging involving interest rate futures, interest rate options, caps, and floors. This chapter also provides exposure to the design of effective hedges using duration methods.
- Chapter 5 addresses foreign-currency hedging, probably the most widely practiced hedging activity for US companies. Coverage includes the uses of currency forward contracts and options to hedge exposed foreign currency assets and liabilities, committed and forecasted foreign currency transactions, and net investments in foreign operations.
- Chapter 6 introduces various topics, including accounting for embedded derivatives, disclosure requirements, auditing issues, and international accounting rules.

USING THE BOOK

Prerequisites

Significant effort has gone into reducing the amount of prior knowledge required for the comprehension of the material in this text. In particular, the accountant with minimal prior exposure to topics in finance should not be seriously disadvantaged because finance concepts are explained when they are first used. Knowledge of some basic material is assumed, however, including concepts from financial accounting and the ability to make present value calculations. Familiarity with Microsoft Excel spreadsheet functions are also useful because they are referred to in certain parts of the text and in some end-of-chapter problems to simplify calculations.

Pedagogical Conventions

Because of the potential complexity of the material in the derivatives and hedging areas, a number of simplifying conventions have been adopted in presenting the material included in the book, including these:

- *Focus on common derivatives types.* A large number of exotic derivatives types are used today, and more are continually being invented. No attempt has been made to include encyclopedic coverage of every type of derivative. Instead, the text focuses on derivatives types that are most commonly encountered in practice, including futures, swaps, forwards, and options. By understanding the applications and accounting requirements for these basic types of derivatives, the accountant will have a suitable foundation from which to analyze more complex derivatives when he or she encounters them in practice.
- *Account terminology.* Every derivative must be shown at estimated fair value, which means that the primary issue in accounting for derivatives is

whether the change in fair value should be recognized in earnings immediately or deferred and recognized in earnings later. To emphasize this issue and to eliminate potentially confusing account titles, an account called “Earnings” is used when an entry that affects earnings is made. In practice, of course, more descriptive income statement account names would be used.

- *Shortcut method.* The “shortcut” accounting method allowed by the accounting rules greatly simplifies the accounting for interest rate swaps. The swap examples in the text make the assumption that the swaps qualify for the shortcut method. Although the text discusses the accounting when swaps fail to qualify for the shortcut method, none of the examples illustrates the accounting for this situation. There are two reasons for this. First, the computations required in accounting for swaps that do not qualify for the shortcut method are complex, and the additional complexity is not justified by any incremental conceptual insights. Second, as discussed in Chapter 6, swaps that fail to qualify for the shortcut method produce unpredictable earnings volatility, so companies tend to minimize the use of such swaps. This means that most, if not all, swaps encountered in practice qualify for the shortcut method.

Additional Resources

Additional resources available or planned to support the use of the book include:

- Solutions Manual with detailed solutions to end-of-chapter questions, exercises, and problems.
- Text Website (www.mhhe.com/trombley) with links to online resources including articles, tutorials, glossaries, and other materials.

《衍生与套期会计》出版说明

我国财政部在 2006 年 2 月公布了 38 项新的《企业会计准则》，其中包括有关金融工具中衍生工具的几个准则，内容复杂，要求水平高，对我国财会人员的理解执行会有一定难度。立信会计出版社选择了美国亚利桑那大学副教授特朗布利所写的《衍生与套期会计》一书，与麦格劳—希尔公司合作以影印改编形式在中国国内出版。

本书的出版，对我国财会人员及会计专业学生理解《企业会计准则》中有关金融衍生工具的准则有一定作用。

本书的第一个特点是精选案例，讲解相关会计处理。本书对美国财务会计准则 #133《衍生工具及套期会计》作了具体解释。本书收录了 23 个案例，重点讲解了利率互换、利率期货期权、外汇衍生及套期，演示了全程计算及分录。这些案例比 #133 准则附录中的 31 个例子更复杂和充实，可以据以更好地揣摩衍生工具及套期会计处理的来龙去脉。

本书的第二个特点是它涉及了几个在我国会计书籍中从未谈到的衍生工具的会计，例如长期期货的久期、期货期权、上升型利率下互换的计价等等，颇有启发之处。

由于本书篇幅小，但是定位高，对缺乏期货、期权等实践的中国读者来说，尚需有一些前期铺垫。本社在 2006 年出版的由纪洪天等编写的《衍生工具会计》是这方面的一本初、中级读物，可以为阅读本书提供入门阶梯。

本书适合大学会计等专业本科生、研究生使用，可作为衍生与套期会计课程的教材，也可作为高级会计、会计理论等课程的补充教材。

本书在编辑过程中，得到会计专家纪洪天教授的审核和指导，在此向纪先生表示衷心的感谢。

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教师服务信箱: instructorchina@mcgraw-hill.com

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Chapter One

Introduction to Derivatives and Hedging

Learning Objectives

After completing this chapter, you should:

1. Be able to explain the three characteristics that define a derivative.
2. Be able to describe the two fundamental derivative types, options and forward contracts.
3. Be conceptually familiar with the mechanics of futures contracts and swaps.
4. Understand the use of derivatives in investing.
5. Understand the use of derivatives for hedging in risk management.
6. Be able to explain the concept of hedging.

In 1986, the Financial Accounting Standards Board (FASB) added a major project on financial instruments to its agenda. The project was motivated by the emergence of innovative new financial instruments used by companies for risk management and by companies and investors for speculation. Between 1990 and 2000, the FASB issued numerous accounting standards pertaining to financial instruments. The focus of this book is on understanding the use of derivative financial instruments (often referred to simply as *derivatives*), and on the required accounting for derivatives established by FASB Statement 133, *Accounting for Derivative Instruments and Hedging Activities*. The FASB issued Statement 133 in response to concerns that previously issued standards were inconsistent and frequently did not result in timely recognition of the consequences of using derivatives. In Statement 133, the FASB required that all derivatives be included on the balance sheet at fair market value and established detailed accounting rules regarding the change in value of derivatives from period to period.

DANGEROUS DERIVATIVES IN THE NEWS

During the 1990s, several instances of catastrophic losses resulting from trading derivatives received widespread attention in the financial press. The effect of these well-publicized events has been to give derivatives a nasty reputation as a dangerous and risky type of security. Is this reputation justified? To decide, we examine the details of three events that captured headlines: the Orange County bankruptcy, the collapse of Barings Bank, and the Long-Term Capital Management crisis. Although they are unusual, these events illustrate some of the major issues surrounding uses of derivatives.

The Orange County Bankruptcy

The Orange County Investment Pool (OCIP) acted as a mutual fund for local government agencies. In addition to money invested by Orange County, California, OCIP managed investments from 37 cities, 60 school districts, 11 water districts, and a number of Orange County subagencies such as the Orange County Transportation Authority. In total, these governmental entities had invested nearly \$7.5 billion in OCIP as of November 1994. Robert Citron, the elected treasurer of Orange County, managed OCIP.

From 1991 to 1993, OCIP earned returns on invested funds in excess of 9 percent. In contrast, funds invested by the State of California investment pool were earning less than 6 percent during this same period. Citron's extraordinary success in producing high returns earned him accolades as one of the finest financial managers in government, and he won reelection easily in 1994.

Later it was learned that a large part of Citron's success had resulted from using derivatives to gamble on falling interest rates. In particular, OCIP used reverse repurchase agreements (repos) and inverse floating-rate notes ("inverse floaters"), both of which increase in value if interest rates fall. From late 1990 to late 1993, the Federal Reserve Board of Governors (the Fed) reduced the Federal Funds rate from 8 percent to 3 percent in an extended series of cuts designed to reduce the impact of a recession that began in late 1990. By correctly betting on falling interest rates during this period, Citron produced impressive returns for OCIP.

By early 1994, however, the economic recovery was complete, and the Fed began a series of rate increases. On February 4, 1994, the Fed increased the Fed Funds rate from 3 percent to 3.25 percent. This increase was followed by six additional tightening actions, and by the end of 1994, the rate had risen to 6.25 percent. In this rising interest rate environment, the derivative-based strategy that had earlier produced such impressive returns resulted in large losses. In addition, since the strategy that OCIP employed involved leverage (use of borrowed money), these losses were magnified to gigantic proportions. Total losses reached \$1.7 billion by the end of 1994.

In the aftermath of the meltdown of OCIP, Orange County declared bankruptcy. Robert Citron resigned and was later indicted and convicted of securities fraud,

sentenced to one year in jail, and fined \$100,000. The role of derivatives in the Orange County scandal contributed to the development of a bad reputation for these financial instruments. The central cause of the Orange County disaster, however, was not derivatives per se but instead a poor understanding of the risks to which the OCIP had exposed itself and an imprudent use of large amounts of leverage to magnify the effect of interest rate changes. In essence, OCIP made a large bet on the direction of interest rate movements that was inconsistent with the conservative investment approach considered appropriate for government investments. It is also clear that the supervision of Robert Citron by the Orange County Board of Supervisors was ineffective in that the supervisors did not understand the high degree of risk to which OCIP was exposed.

Collapse of Barings Bank

Barings Bank was one of the oldest British merchant banks. Operating continuously for 233 years, Barings had once provided financing to the United States to complete the Louisiana Purchase. On February 26, 1995, Barings collapsed in bankruptcy after incurring losses of \$1.4 billion on derivatives trading.

The losses resulted from trading Nikkei 225 stock index futures and index options (two types of derivatives that will be described later). Starting in late 1993, Nick Leeson, a 28-year-old trader working for Barings on the floor of the Singapore stock exchange, engaged in unauthorized trading in these derivatives, eventually taking a large position in Nikkei 225 index futures. To trade futures, a stock exchange requires the trader to make a margin deposit covering a fraction of the value of the contracts traded to cover losses if the prices of the futures contracts move adversely. If the futures price changes significantly, the exchange can demand additional margin deposits. Leeson raised the money to make the initial margin payments (as well as payments for additional margin calls) by selling put and call options on the Nikkei index. The selling of put and call options at the same time, referred to as a *short straddle*, is advantageous to the seller if the value of the underlying index does not change very much because the options expire without being exercised and the seller keeps the initial selling price (called the *option premium*). For accounting purposes, Leeson concealed the existence of these derivatives positions in an error account that was apparently never reconciled.

The net effect of all this trading was that Barings would enjoy gains if the Nikkei rose or remained the same but would incur losses if the Nikkei declined because the futures would fall in value (creating losses) and the put options that had been sold would rise in value. In early 1995 the Nikkei declined by more than 15 percent, leading to losses so large that Leeson could no longer generate enough cash to make the margin payments. Leeson fled Singapore and was finally arrested in Germany after the magnitude of the losses became known and Barings collapsed. He was eventually extradited to Singapore, where he was convicted of defrauding the Singapore exchange and of deceiving Barings' auditors and was sentenced to six and one-half years in prison. Because the \$1.4 billion losses exceeded the value of Barings' stockholders'

equity, Barings' shares became worthless, and the claims of Barings' creditors were settled for less than 5 percent of their face value.

Since the losses that led to Barings' bankruptcy were incurred through derivatives trading, the Barings disaster contributed to the unsavory reputation of derivatives. It is clear, however, that the main culprit in this case was an internal control failure. Nick Leeson had trading authority as well as access to the accounting records, allowing him to conceal his activities from his superiors. Simple separation of operations from the accounting for those operations (one of the fundamental concepts of internal control) would have prevented this event. Furthermore, it is clear from published explanations of the events leading up to the Barings bankruptcy that senior managers of Barings in Singapore, Japan, and London had only an incomplete knowledge of the nature of the derivatives markets in which Leeson was trading (see, e.g., *Rogue Trader*, Leeson's own account of the events published in 1996 by Little, Brown and Company). As in the case of Orange County, a single manager gambled and lost. However, in both cases, the absence of effective supervision was certainly a contributing factor.

Long-Term Capital Management Crisis

Long-Term Capital Management (LTCM) was a hedge fund formed in late 1993 by former Salomon Brothers executive John Meriwether and other principals, including Nobel prize-winning financial economists Robert Merton and Myron Scholes.

The term *hedge fund* is somewhat deceptive because it brings to mind hedging. As we will see later, *hedging* is a procedure designed to reduce risk. Hedge funds, on the other hand, do not focus on reducing risk. Instead, they attempt to identify and exploit market mispricing by assuming risky positions involving derivative and nonderivative securities.

The trading principle on which hedge funds operate is called *arbitrage*, which involves identifying two identical or nearly identical financial instruments, one of which is overpriced and one of which is underpriced. By purchasing the underpriced instrument and selling the overpriced instrument and then waiting for the prices of the two instruments to converge before reversing the transaction, the hedge fund is able to capture a profit.

A type of mispricing that a hedge fund might try to exploit arises in the period between the announcement of a merger transaction and the day the merger is actually consummated. As an example, assume that Firm A announced it will acquire Firm B by issuing one share of Firm A common stock for each share of Firm B common stock. After this announcement, Firm A shares sell for \$10 and Firm B shares sell for \$9, up from a premerger announcement price of \$7. A hedge fund might exploit this situation by buying Firm B shares for \$9 and selling short Firm A shares by (1) borrowing Firm A shares and (2) selling these borrowed Firm A shares for \$10. When the merger is finally executed, the Firm B shares held by the hedge fund are exchanged for Firm A shares, which the hedge fund then delivers to close out the short position (i.e., the borrowed shares are *repaid*). The hedge fund