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# PREFACE

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Throughout the nineties, we have seen the synergistic union of mathematics, finance, the computer, and the global economy. Currency markets trade two trillion dollars per day, and sophisticated financial derivatives such as options, swaps, and quantos are commonplace.

Since the appearance of the Black-Scholes formula in 1973, the financial community has embraced an abundant and ever-expanding array of mathematical tools and models. Enrollment in courses presenting these applications of mathematical finance has exploded at schools everywhere. It is driven by the attraction of the material, coupled with enormous employment demand. We expect that the twenty-first century will see even greater growth in these areas, following Kurzweil's law of accelerating returns. The practical analysis of a broad range of market transactions and activities has converted many market devotees to this mode of thinking.

This textbook explains the basic financial and mathematical concepts used in modeling and hedging. Each topic is introduced with the assumption that the reader has had little or no previous exposure to financial matters or to the activities that are common to major equity markets. Exercises and examples illustrate these topics. Often an exercise or example uses real market data.

## **To the Instructor**

A complete, well-balanced course at the undergraduate level can be based on Chapters 2, 3, 5, 6, 7, 8, and 9. An instructor might touch only briefly on Chapter 1 as an introduction to the financial terminology and to strategies that are employed in trading equity shares. You might wish to return to Chapter 1 repeatedly as you progress through the textbook; the chapter is always there as a convenient reference for market transactions and terminology.

Most undergraduate students seem to be very comfortable with computers, and they appear to pick up the ins and outs of software packages such as Maple™, *Mathematica*™, and Microsoft® Excel very quickly. Each instructor will have to evaluate the proficiency of his or her own students in this area. For example, we have found that Excel is readily available on the Indiana University campus and that students are comfortable in preparing data and reports using this software.

## Acknowledgments

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## How to Reach Us

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A web site for this book is maintained at <http://www.indiana.edu/~iubmtc/mathfinance/>.

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