

### The Volatility Smile (Wiley Finance)

By Emanuel Derman, Michael B. Miller



The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller

#### The Volatility Smile

The Black-Scholes-Merton option model was the greatest innovation of 20th century finance, and remains the most widely applied theory in all of finance. Despite this success, the model is fundamentally at odds with the observed behavior of option markets: a graph of implied volatilities against strike will typically display a curve or skew, which practitioners refer to as the smile, and which the model cannot explain. Option valuation is not a solved problem, and the past forty years have witnessed an abundance of new models that try to reconcile theory with markets.

*The Volatility Smile* presents a unified treatment of the Black-Scholes-Merton model and the more advanced models that have replaced it. It is also a book about the principles of financial valuation and how to apply them. Celebrated author and quant Emanuel Derman and Michael B. Miller explain not just the mathematics but the ideas behind the models. By examining the foundations, the implementation, and the pros and cons of various models, and by carefully exploring their derivations and their assumptions, readers will learn not only how to handle the volatility smile but how to evaluate and build their own financial models.

Topics covered include:

- The principles of valuation
- Static and dynamic replication
- The Black-Scholes-Merton model
- Hedging strategies
- Transaction costs
- The behavior of the volatility smile
- Implied distributions
- Local volatility models
- Stochastic volatility models
- Jump-diffusion models

The first half of the book, Chapters 1 through 13, can serve as a standalone textbook for a course on option valuation and the Black-Scholes-Merton model,

presenting the principles of financial modeling, several derivations of the model, and a detailed discussion of how it is used in practice. The second half focuses on the behavior of the volatility smile, and, in conjunction with the first half, can be used for as the basis for a more advanced course.

**Download** The Volatility Smile (Wiley Finance) ...pdf

**Read Online** The Volatility Smile (Wiley Finance) ...pdf

### The Volatility Smile (Wiley Finance)

By Emanuel Derman, Michael B. Miller

The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller

#### The Volatility Smile

The Black-Scholes-Merton option model was the greatest innovation of 20th century finance, and remains the most widely applied theory in all of finance. Despite this success, the model is fundamentally at odds with the observed behavior of option markets: a graph of implied volatilities against strike will typically display a curve or skew, which practitioners refer to as the smile, and which the model cannot explain. Option valuation is not a solved problem, and the past forty years have witnessed an abundance of new models that try to reconcile theory with markets.

*The Volatility Smile* presents a unified treatment of the Black-Scholes-Merton model and the more advanced models that have replaced it. It is also a book about the principles of financial valuation and how to apply them. Celebrated author and quant Emanuel Derman and Michael B. Miller explain not just the mathematics but the ideas behind the models. By examining the foundations, the implementation, and the pros and cons of various models, and by carefully exploring their derivations and their assumptions, readers will learn not only how to handle the volatility smile but how to evaluate and build their own financial models.

Topics covered include:

- The principles of valuation
- Static and dynamic replication
- The Black-Scholes-Merton model
- Hedging strategies
- Transaction costs
- The behavior of the volatility smile
- Implied distributions
- Local volatility models
- Stochastic volatility models
- Jump-diffusion models

The first half of the book, Chapters 1 through 13, can serve as a standalone textbook for a course on option valuation and the Black-Scholes-Merton model, presenting the principles of financial modeling, several derivations of the model, and a detailed discussion of how it is used in practice. The second half focuses on the behavior of the volatility smile, and, in conjunction with the first half, can be used for as the basis for a more advanced course.

#### The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller Bibliography

- Sales Rank: #52230 in Books
- Published on: 2016-09-06
- Original language: English

- Number of items: 1
- Dimensions: 9.10" h x 1.70" w x 5.80" l, .0 pounds
- Binding: Hardcover
- 528 pages

**<u>Download</u>** The Volatility Smile (Wiley Finance) ...pdf

**Read Online** The Volatility Smile (Wiley Finance) ...pdf

## Download and Read Free Online The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller

#### **Editorial Review**

#### From the Inside Flap

*The Volatility Smile* provides an accessible account of both the classic Black-Scholes-Merton option model and the newer extensions of the model that have been developed over the past forty years. In contrast to textbooks that accentuate formality over intuition and understanding, *The Volatility Smile* explores both the ideas and the mathematics behind the models, walking a middle line between the rigor of the academic world and the practical insights of the trading desk. Based on a clear formulation of the principles of financial modeling, *The Volatility Smile* is also a book about how to evaluate and build financial models.

Prior to the 1987 global stock market crash, the Black-Scholes-Merton option valuation model seemed to describe option markets reasonably well. Since the crash, however, equity index option markets have displayed a persistent volatility smile, in blatant disagreement with the Black-Scholes-Merton model. Quants around the world have labored over the preceding decades to extend the Black-Scholes-Merton model to accommodate this anomaly.

Good financial models begin not with mathematics but with an understanding of the behavior of securities and markets. The first half of this book therefore focuses on the theory of option valuation, a study of the Black-Scholes-Merton model, illustrations of how to make practical use of it, and a discussion of its limitations. The second half provides an analysis of the empirical behavior of the volatility smile, and a detailed account of multiple ways in which the Black-Scholes-Merton model can be extended so as to rectify its inadequacies. In particular, the book provides a detailed account of the local volatility model, stochastic volatility models, and jump-diffusion.

#### From the Back Cover

**The Black-Scholes-Merton option model was the greatest innovation of twentieth century finance,** and remains the most widely applied theory in all of finance. Nevertheless, the model is fundamentally at odds with the observed behavior of option markets: a graph of implied volatility against strike will typically display a curve or smile, which the model cannot explain.

Option valuation is not a solved problem, and the past forty years have witnessed an abundance of new ideas and models that try to reconcile theory with markets. Beginning with the principles of financial valuation, *The Volatility Smile* presents a unique and unified treatment of the Black-Scholes-Merton option model and the more advanced models that have replaced it. Celebrated author, quant, and co-originator of the local volatility model Emanuel Derman and Michael B. Miller explain not just the mathematics but the ideas behind the models. By examining the foundations, the implementation, and the pros and cons of various models, and by carefully exploring their derivations and the consequences of different assumptions, readers will learn not only how to handle the volatility smile but how to evaluate and build their own financial models. Key features:

- The principles of valuation
- The Black-Scholes-Merton model
- Hedging strategies and transaction costs
- The behavior of the volatility smile

- Static and dynamic replication of standard and exotic options
- New models: their origin, implementation, and consequences
- Local volatility
- Stochastic volatility
- Jump-diffusion

About the Author

**EMANUEL DERMAN** is a professor at Columbia University, where he directs its financial engineering program. He is the author of *My Life as a Quant* and *Models.Behaving.Badly*.

**MICHAEL B. MILLER** is the founder and CEO of Northstar Risk Corp. He is the author of *Mathematics* and *Statistics for Financial Risk Management, Second Edition.* 

#### **Users Review**

#### From reader reviews:

#### Clara Lee:

Within other case, little persons like to read book The Volatility Smile (Wiley Finance). You can choose the best book if you like reading a book. So long as we know about how is important some sort of book The Volatility Smile (Wiley Finance). You can add know-how and of course you can around the world by way of a book. Absolutely right, due to the fact from book you can know everything! From your country until foreign or abroad you may be known. About simple factor until wonderful thing you may know that. In this era, you can open a book or searching by internet device. It is called e-book. You need to use it when you feel bored to go to the library. Let's go through.

#### **Chris Gibbons:**

Reading a book to become new life style in this yr; every people loves to study a book. When you learn a book you can get a lots of benefit. When you read publications, you can improve your knowledge, mainly because book has a lot of information upon it. The information that you will get depend on what sorts of book that you have read. In order to get information about your research, you can read education books, but if you want to entertain yourself you are able to a fiction books, these kinds of us novel, comics, and also soon. The The Volatility Smile (Wiley Finance) provide you with new experience in reading a book.

#### **Charles Adams:**

Many people spending their time period by playing outside with friends, fun activity having family or just watching TV the entire day. You can have new activity to invest your whole day by reading a book. Ugh, do you think reading a book can actually hard because you have to accept the book everywhere? It alright you can have the e-book, delivering everywhere you want in your Mobile phone. Like The Volatility Smile (Wiley Finance) which is finding the e-book version. So , try out this book? Let's find.

#### Julio Huntsman:

What is your hobby? Have you heard that question when you got learners? We believe that that query was given by teacher with their students. Many kinds of hobby, All people has different hobby. And you know that little person including reading or as reading become their hobby. You should know that reading is very important in addition to book as to be the thing. Book is important thing to include you knowledge, except your personal teacher or lecturer. You get good news or update about something by book. A substantial number of sorts of books that can you take to be your object. One of them is The Volatility Smile (Wiley Finance).

### Download and Read Online The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller #J5F18ZSTPOK

### **Read The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller for online ebook**

The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller books to read online.

# Online The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller ebook PDF download

The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller Doc

The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller Mobipocket

The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller EPub

J5F18ZSTPOK: The Volatility Smile (Wiley Finance) By Emanuel Derman, Michael B. Miller