

CHAPTER 10

HOW TO DELTA HEDGE

1. Take the How to Hedge spreadsheet on the CD and rewrite using VB, C++, or other code. Now modify the code to do the following.
 - (a) Allow for arbitrary fixed period between rehedges. Observe how the hedging error varies with this period.
 - (b) Incorporate bid-offer spread on each transaction in the underlying.
 - (c) As above but now for the delta hedging of an entire portfolio of vanilla options of varying type, strikes and expiration.

Write the code so that you can perform many thousands of simulations, and output statistical properties of the hedging error.

You should find that the standard deviation of hedging error is approximately proportional to the square root of the time between rehedges. Bid-offer spread will have a big impact on the P&L for a hedged option as you hedge more and more frequently. You should find that on average total transaction costs will be inversely proportional to the square root of time between rehedges. The adventurous should modify the code so that you only hedge when the delta moves by a specified amount. This is a common hedging strategy used in practice.

