Binomial Option Pricing: Basic Principles
Financial 5350: Computational Finance

Tyler J. Brough

Department of Finance and Economics

UtahState University

Introduction to Binomial Option Pricing

A One-Period Binomial Tree

Computing the Option Price

Computing the Option Price Continued

Computing the Option Price Continued

The Bimonial Solution

The Binomial Solution Continued

The Binomial Solution Continued

The Bimonial Solution Continued

Arbitraging a Mispriced Option

Risk-Neutral Pricing

Summary

Continuously Compounded Returns

Volatility

The Standard Deviation of Continuously Compounded Returns Continued

Constructing u and d

Constructing u and d Continued

Estimating Historical Volatility

Estimating Historical Volatility Continued

One-Period Example with a Forward Tree

A Two-Period European Call

A Two-Period European Call Continued

Pricing the Call Option

Pricing the Call Option Continued

Pricing the Call Option Continued

Many Binomial Periods

Many Bimonial Periods Continued

Many Bimonial Periods Continued

Put Options

Put Options Continued

American Options

American Options Continued

American Options Continued

American Options Continued

Options on Other Assets

Options on a Stock Index

Options on a Stock Index Continued

Options on Futures Contracts

Options on Futures Contracts Continued

Options on Futures Contracts Continued

Options on Futures Contracts Continued

Options on Commodities

Options on Bonds

Summary