Options: Basic Types and Trades

Financial Mathematics Clinic

SLAS – University of Kent

1. Introduction

2. Glossary

3. Options

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2 Glossary

3 Options

These slides are (mainly) aimed to

- Undergraduate students.
- Postgraduate students doing Financial Mathematics for the first time.

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Objective

- Learn the principles and the differences among the basic types and trades of options.

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Glossary

- *Bearish strategy*. Financial trades built on the assumption that the price of an asset will drop.
- *Bullish strategy*. Financial trades built on the assumption that the price of an asset will increase.
- *Premium (of an option)*. Current market price of the option.
- *European option*. A financial instrument that can only be exercised at maturity.

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The Basics

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  Financial instruments.

- How do they work?

  The owner has the right (**not the obligation**) to sell/buy the underlying asset at a specified price (*strike*) at a certain time (or times).

- What kind of assets?

  Anything! Commodities, rates of interest, stocks, currencies, etc.

Types

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- A *call* is an option that gives the owner the right to buy the underlying asset.
- A *put* is an option that gives the owner the right to sell the underlying asset.

Long call

- We buy the call (we have the right to buy the underlying asset).

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- We exercise the option if the price is higher than the strike (K).

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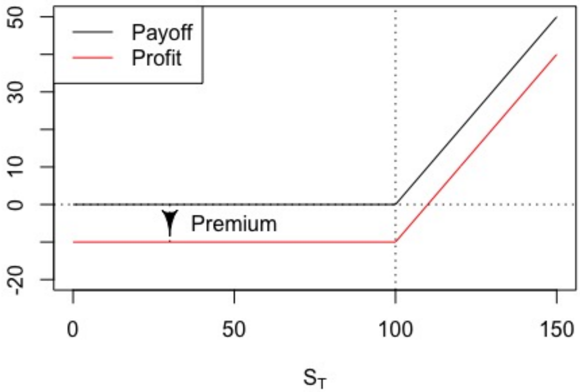
- Bullish strategy.
- We exercise the option if the price is higher than the strike (K).
- The maximum loss would be the premium.

Basic Trades

- E.g. for European option with K=100 and premium=10, the payoff and profit graph is:



Long put

- We buy the put (we have the right to sell the underlying asset).

Long put

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- Bearish strategy.

Long put

- We buy the put (we have the right to sell the underlying asset).
- Bearish strategy.
- We exercise the option if the price is lower than the strike.

Long put

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- Bearish strategy.
- We exercise the option if the price is lower than the strike.
- The maximum loss would be the premium.

Basic Trades

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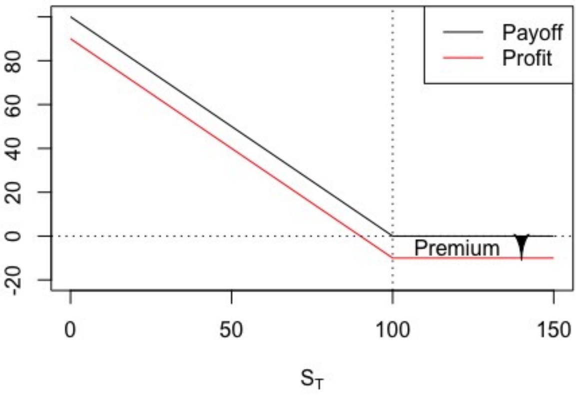

Short call

- We sell the call (we might be obligated to sell the underlying asset).

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- There's no limit on the possible loss!

Short call

- We sell the call (we might be obligated to sell the underlying asset).
- Bearish strategy.
- There's no limit on the possible loss!
- It is possible that we don't own the underlying asset.

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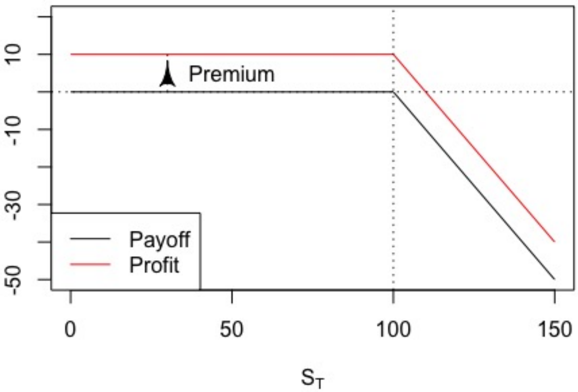

Short put

- We sell the put (we might be obligated to buy the underlying asset).
- Bullish strategy.
- The maximum loss occurs if the stock drops to 0 (it can be really high!).

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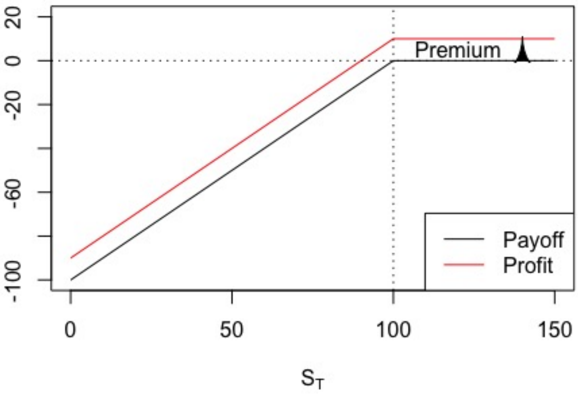

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QUESTIONS?