

MISSOURI S&T MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Chapter 8

Mechanics of Options Markets

Math 5733/Econ 5337, Fall 2025 125

125

MISSOURI S&T MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Definition 8.1

- A **call** is an option to buy
- A **put** is an option to sell
- To **buy** an option means to be in a long position
- To **write** (or **sell**) an option means to be in a short position

Math 5733/Econ 5337, Fall 2025 126

126

MISSOURI S&T MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Example 8.2

- Payoff from buying a European
 - Call
 - Put
- Payoff from writing a European
 - Call
 - Put
- Profit from positions in European options

Math 5733/Econ 5337, Fall 2025 127

127

MISSOURI S&T MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Example 8.3

Suppose a stock is \$60, a European call with strike price \$70 costs \$1 and a European put with strike price \$50 costs \$3. Draw profit graphs for the following strategies (ignoring the time value of money) and determine for which stock prices the profit will be positive.

- Long positions in a call and a put.
- Long positions in three calls and two puts.
- Long stock, long put, short call.
- Long stock, two long puts, two short calls.

Math 5733/Econ 5337, Fall 2025 128

128

MISSOURI S&T MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Remark 8.4

- Assets underlying exchange-traded options:
 - Stocks (~ 1000 different ones, usually 100 shares per contract)
 - Foreign currency (size depends on currency, e.g. £31,250; 6.25 million yen)
 - Stock indices (100×index, settlement in cash)
 - Futures (option matures just before delivery period for futures)

Math 5733/Econ 5337, Fall 2025 129

129

MISSOURI S&T MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Remark 8.4 (continued)

- Stock options specifications:
 - Expiration date (Sat right after 3rd Fri of expiry month, 4:30 pm)
 - Strike price (spacing \$2.50/5/10)

Math 5733/Econ 5337, Fall 2025 130

130

Missouri S&T MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Definition 8.5

- We say that an option is **in the money** if
 - $K < S(t)$ for call
 - $K > S(t)$ for put
- and **out of the money** if
 - $K > S(t)$ for call
 - $K < S(t)$ for put
- and **at the money** if
 - $K = S(t)$.
- We may also refer to an option being **deep** in or out of the money.

Math 5730/Finan 5330, Fall 2025 111