Options

MATTHEW ADNER

UNION COLLEGE STUDENT INVESTMENT FUND

But First!

Buying

Selling

Selling Short

Buying to Cover

What is a Derivative?

A financial contract whose value is derived from some other asset called “the underlying”

Options

Deliverable

Type (Call or Put)

Strike Price

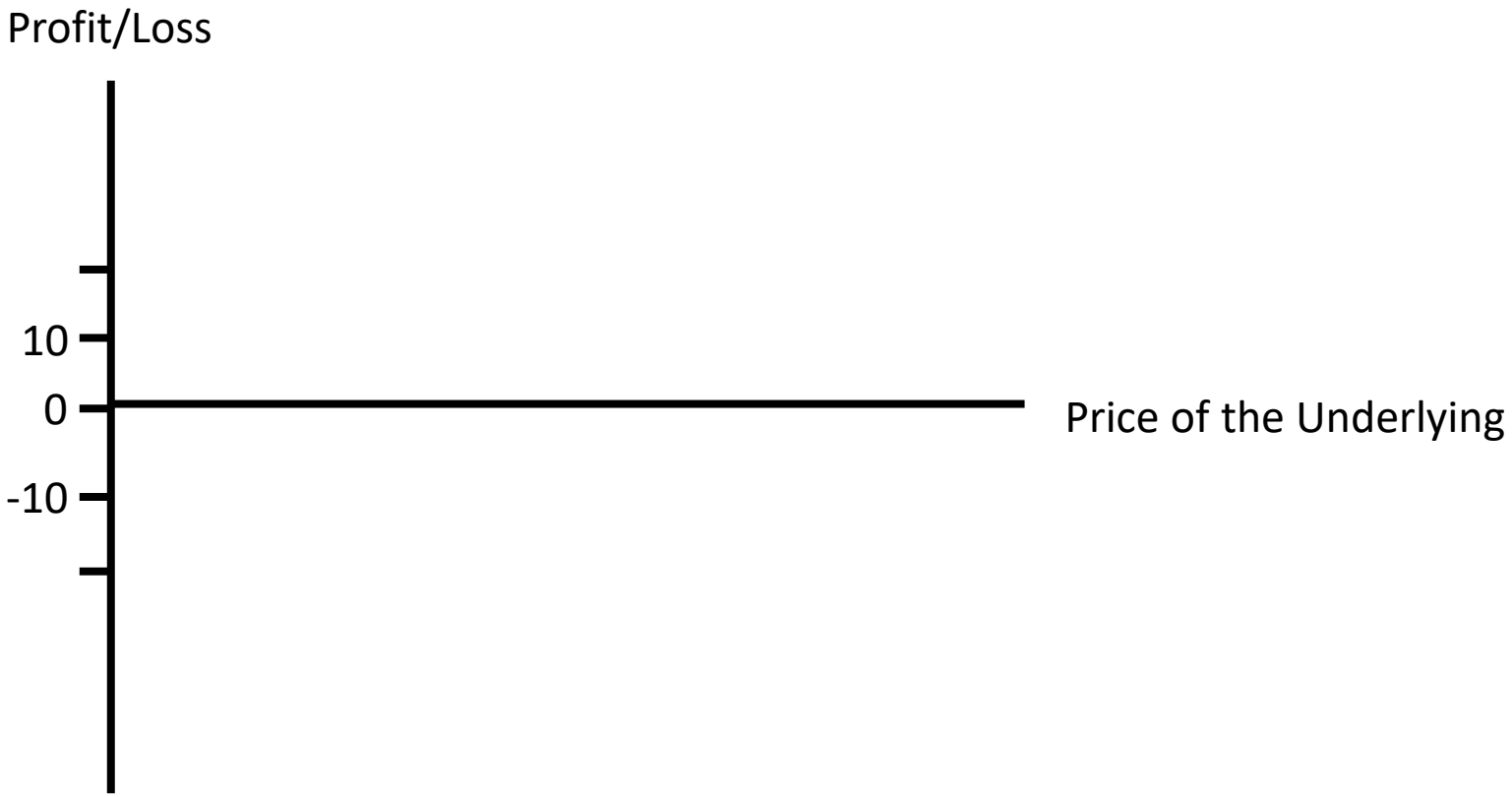
Expiration Date

Option Premium (Price)

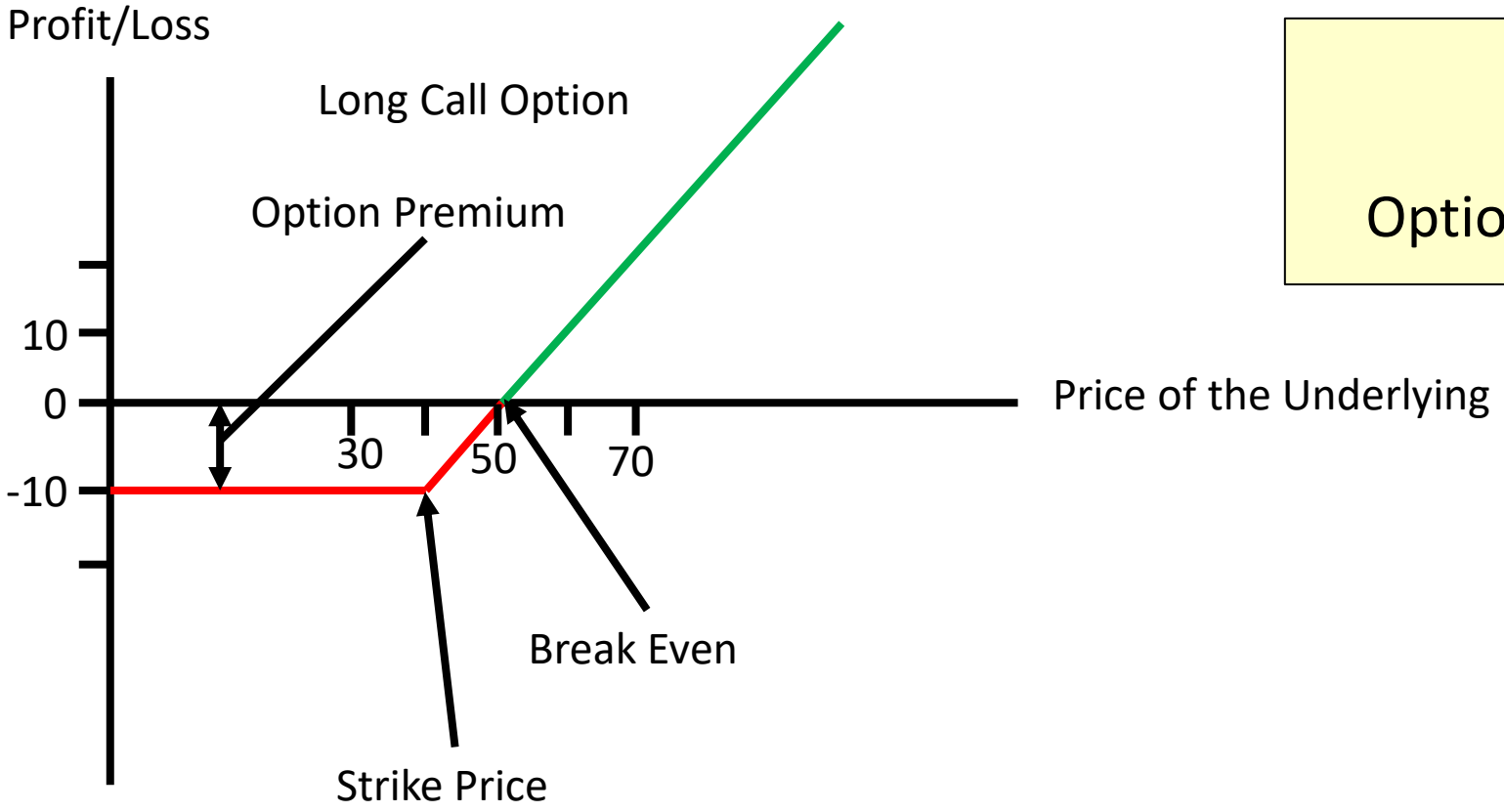
QUESTION FOR YOU

Call Option
Deliverable: 10 Dollar Bill
Strike Price: $5
Option Premium (Price): ???

Options

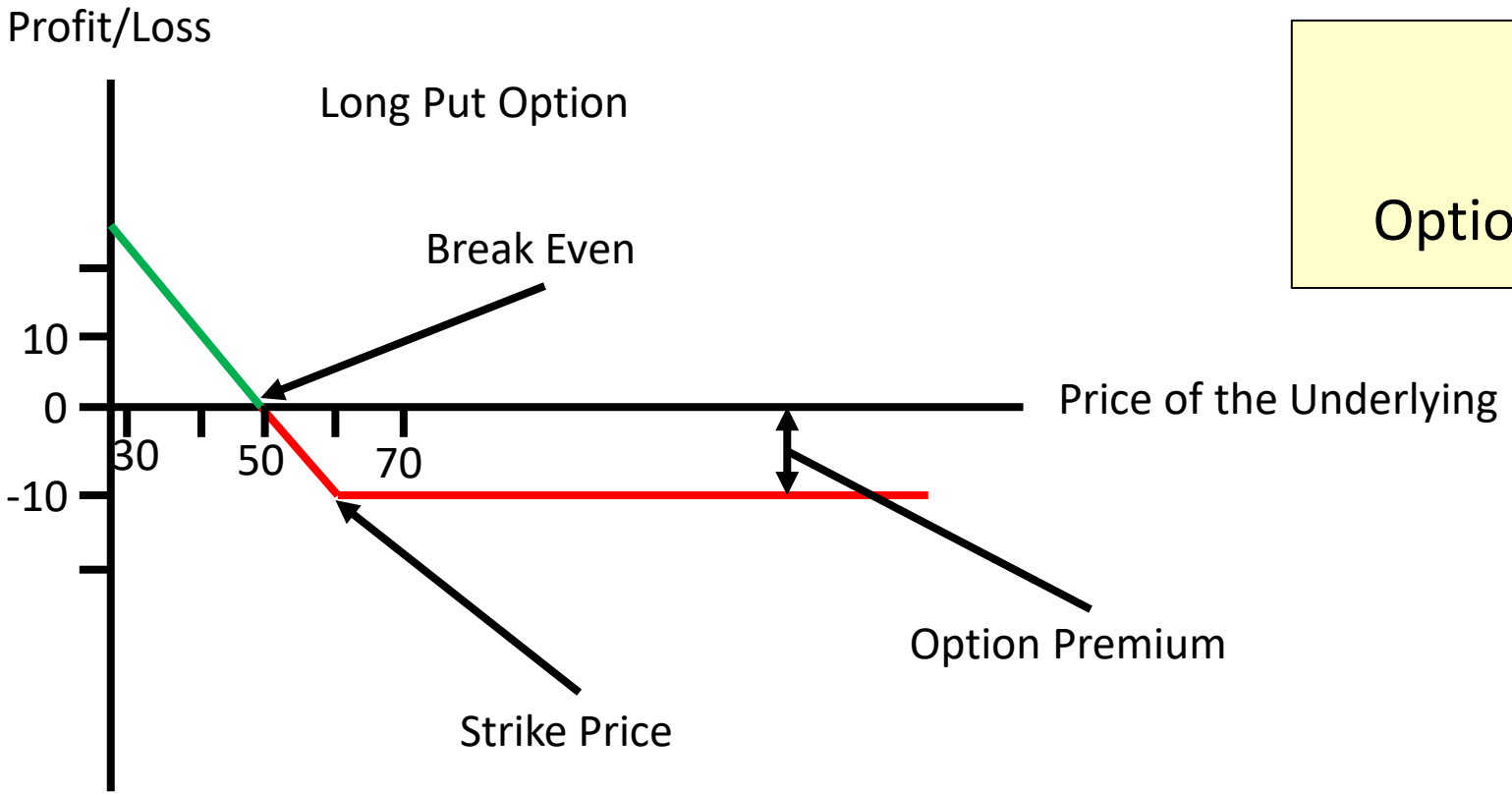


Call Options



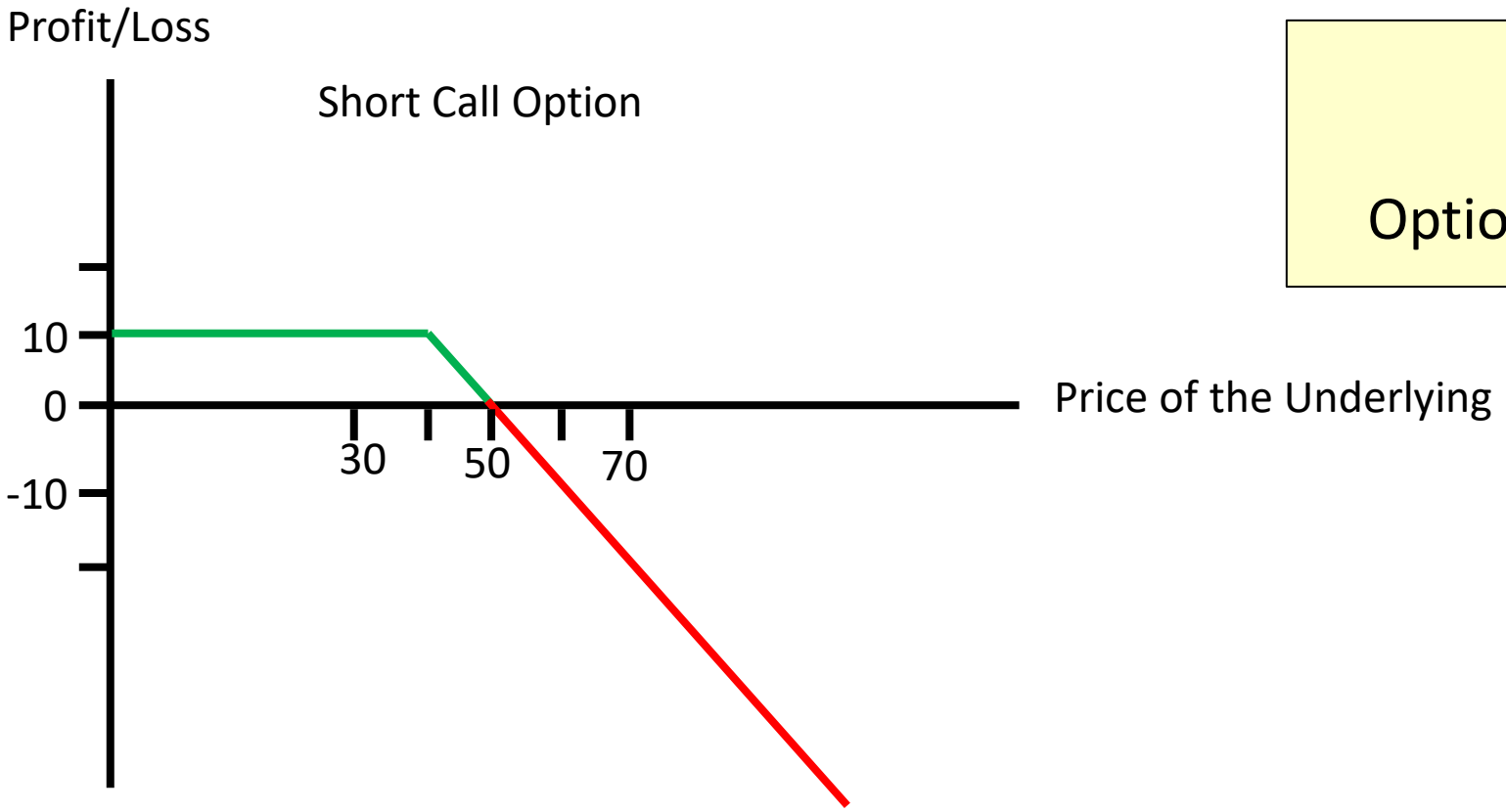
Call Option
Strike Price: $40
Option Premium (Price): $10

Put Options



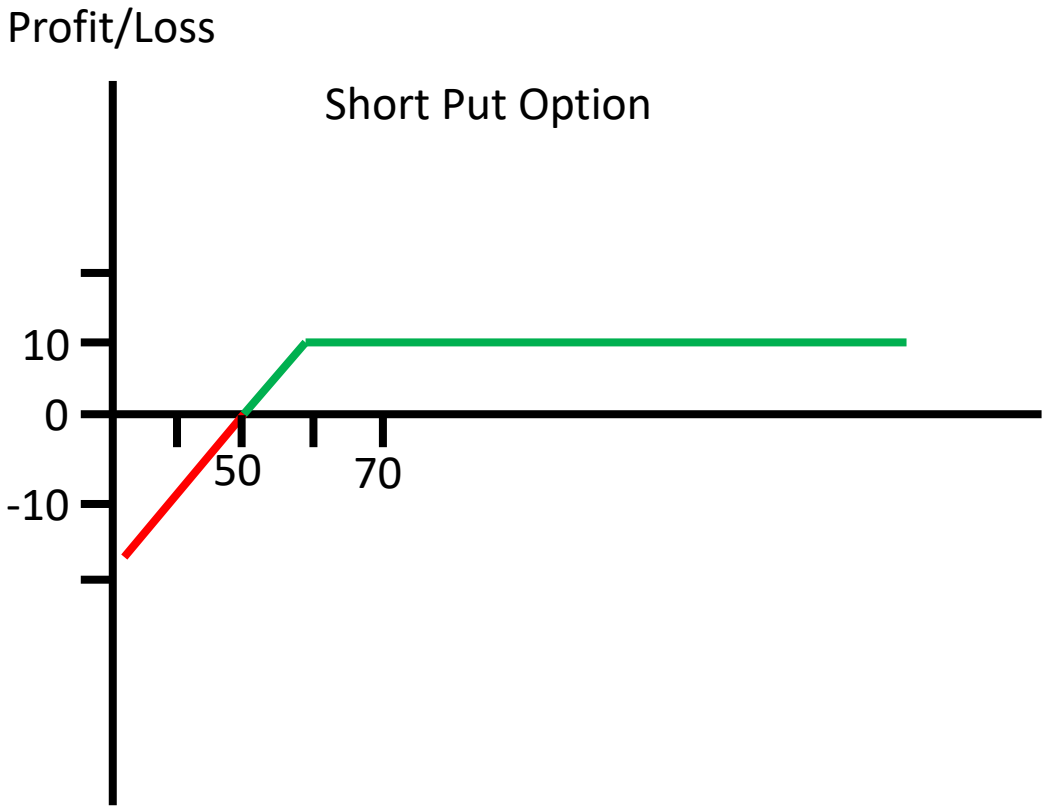
Put Option
Strike Price: $60
Option Premium (Price): $10

Selling Call Options



Call Option
Strike Price: $40
Option Premium (Price): $10

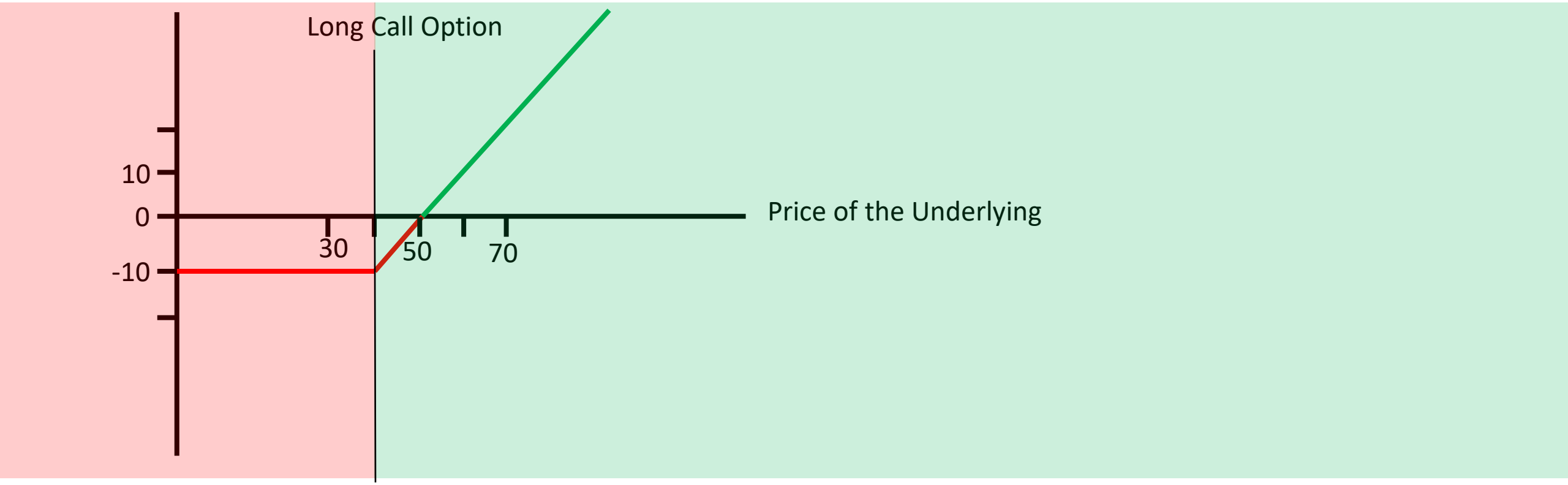
Selling Put Options



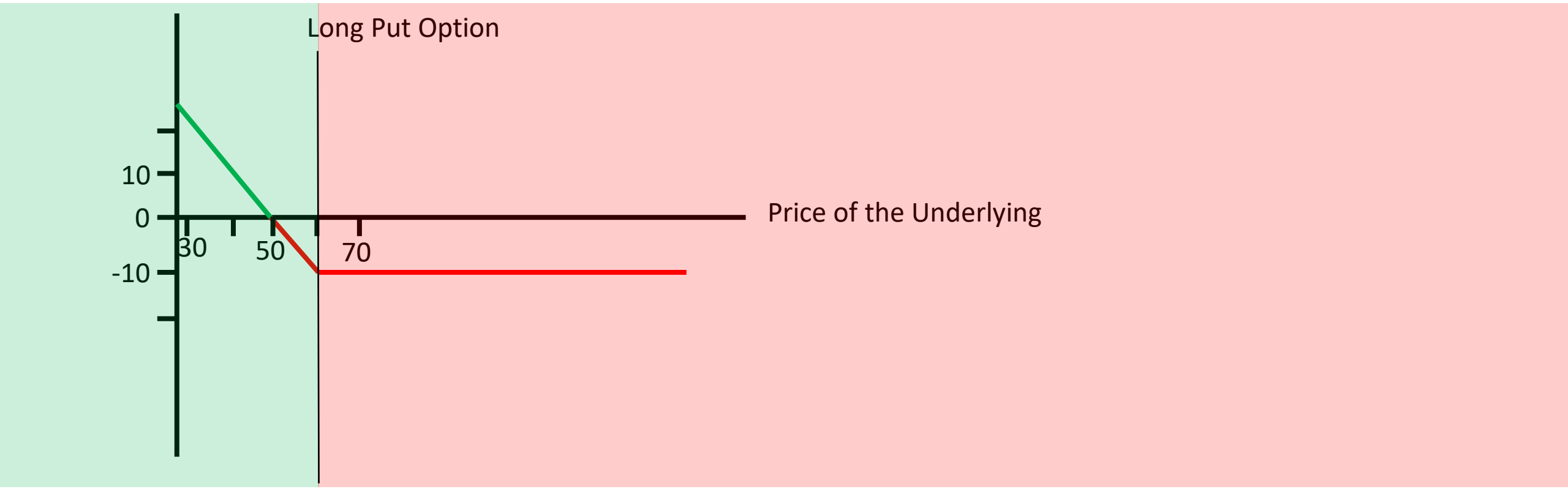
Put Option
Strike Price: $60
Option Premium (Price): $10

In the Money vs Out of the Money (ITM/OTM)

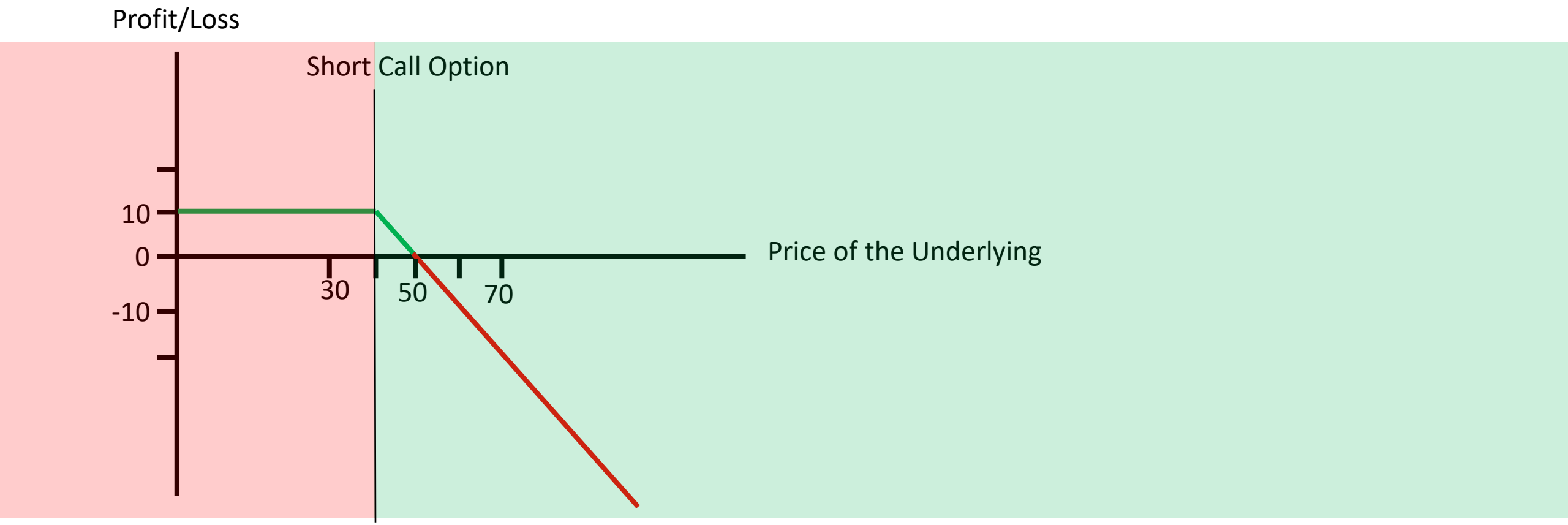
Call Options ITM/OTM



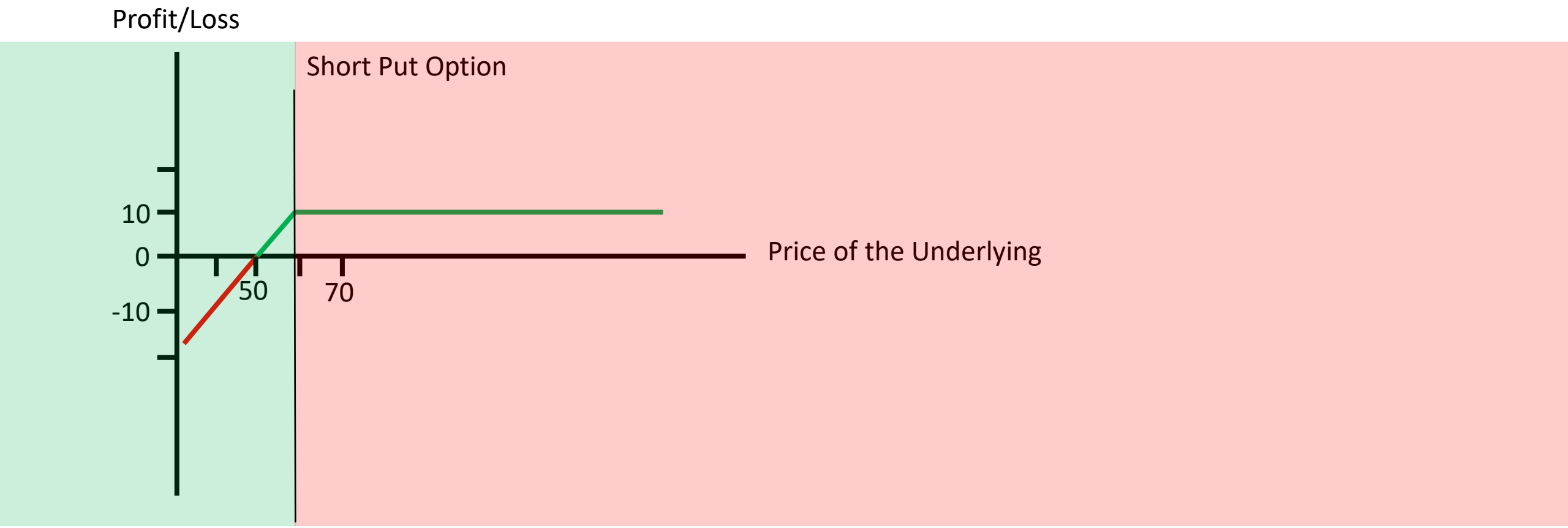
Put Options


Profit/Loss
Long Put Option
10
0
-10
30
50
70
Price of the Underlying

Selling Call Options



Selling Put Options



Leverage

Pricing

GOOG: $2 GOOGL: $1

Call Option A		Call Option B
100 Shares of GOOG	>	100 Shares of GOOGL
Strike Price: $2		Strike Price: $1
Time To Expiration: 6 months		Time To Expiration: 6 months

Pricing

GOOG: $2 GOOGL: $1

Call Option A		Call Option B
100 Shares of GOOG	=2*	100 Shares of GOOGL
Strike Price: $2		Strike Price: $1
Time To Expiration: 6 months		Time To Expiration: 6 months

Pricing

AAPL: $1

Call Option A		Call Option B
100 Shares of AAPL		100 Shares of AAPL
Strike Price: $1	<	Strike Price: **$.90**
Time To Expiration: 6 months		Time To Expiration: 6 months

Pricing

AAPL: $1

Call Option A		Call Option B
100 Shares of AAPL		100 Shares of AAPL
Strike Price: $1	<	Strike Price: $1
Time To Expiration: 6 months		Time To Expiration: **18 months**

Reminder: These are American options
(You can exercise on or before expiration)

Pricing

AAPL: $1 NVDA: $1

Call Option A	<	Call Option B
100 Shares of AAPL		100 Shares of **NVDA**
Strike Price: $1		Strike Price: $1
Time To Expiration: 18 months		Time To Expiration: 18 months

Sources

forbes.com/advisor/investing/derivatives/

cmegroup.com

investopedia.com

youtube.com/@PBoyle/videos

https://workplace.schwab.com/learning-center

Book: Option Volatility and Pricing: Advanced Trading Strategies and Techniques, 2nd Edition by Sheldon Natenberg

Questions?

LinkedIn
Let’s Connect!

The presentation was cut off here due to time constraint

Options Strategies

- Covered Call
- Married Put
- Collar
- Strangle
- Straddle
- A Ton of Others

Covered Call

Selling Calls + Owning the Underlying

Covered Call

Selling Calls + Owning the Underlying

Profit/Loss of the Underlying at Expiration:

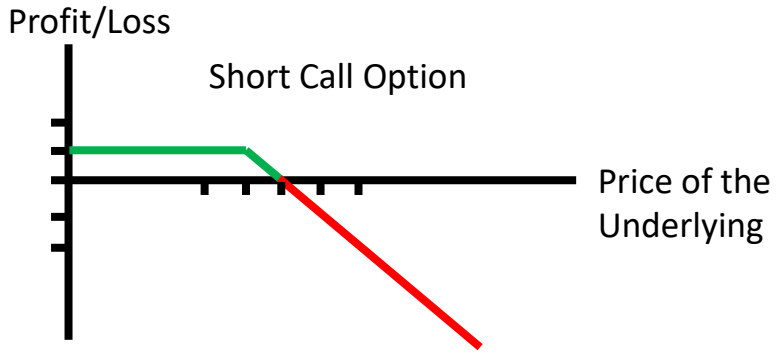
$$f(\text{expirationPrice}) = \text{expirationPrice} - \text{costBasis}$$

Covered Call

Selling Calls + Owning the Underlying

Profit/Loss of Selling Call Option at Expiration:

$$f(expirationPrice) = \begin{cases} optionPremium & \text{if } expirationPrice < strikePrice \\ -expirationPrice + optionPremium + strikePrice & \text{if } expirationPrice > strikePrice \end{cases}$$



Covered Call

Selling Calls +

Owning the Underlying

$$f(expirationPrice) = \begin{cases} optionPremium + expirationPrice - costBasis & \text{if } expirationPrice < strikePrice \\ optionPremium + strikePrice - costbasis & \text{if } expirationPrice > strikePrice \end{cases}$$

optionPremium = $10

costBasis = $45

strikePrice = $50

Covered Call

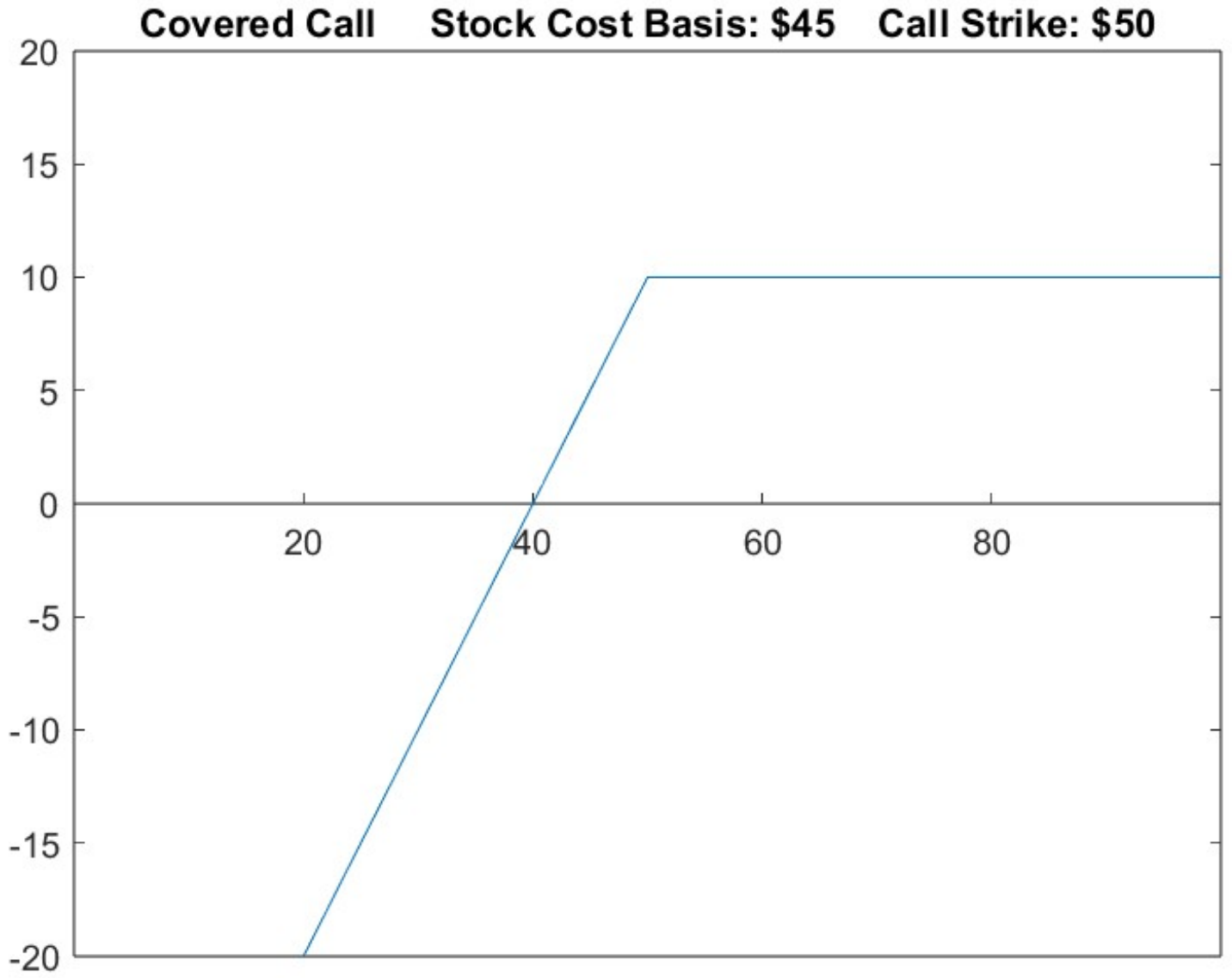
Selling Calls +

Owning the Underlying

optionPremium = $10

costBasis = $45

strikePrice = $50



$$f(expirationPrice) = \begin{cases} optionPremium + expirationPrice - costBasis & \text{if } expirationPrice < strikePrice \\ optionPremium + strikePrice - costbasis & \text{if } expirationPrice > strikePrice \end{cases}$$

Option Collar

Owning the Underlying

Selling Calls

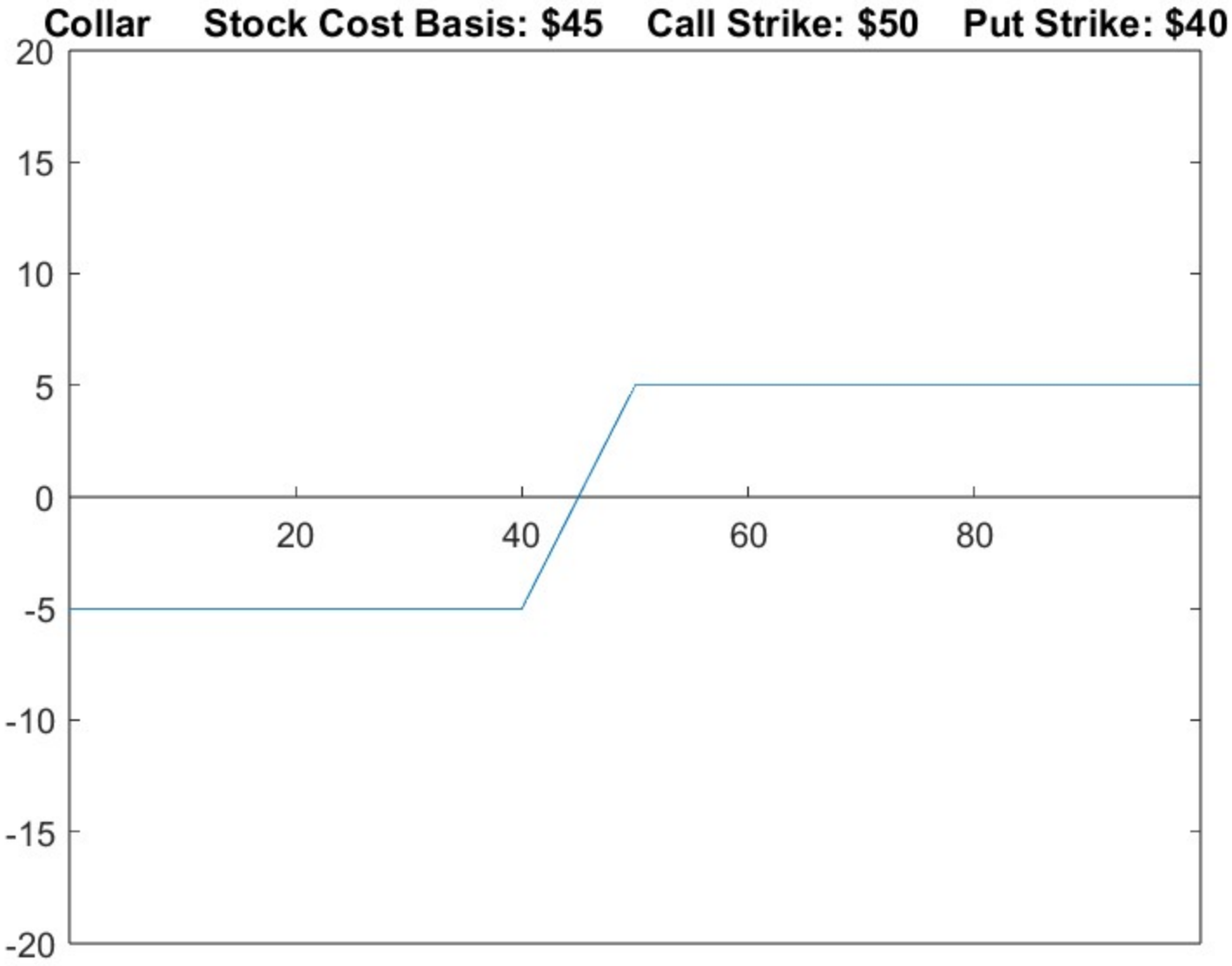
\+ Buying Puts

Option Collar

Covered Call

\+ Buying Puts

Option Collar

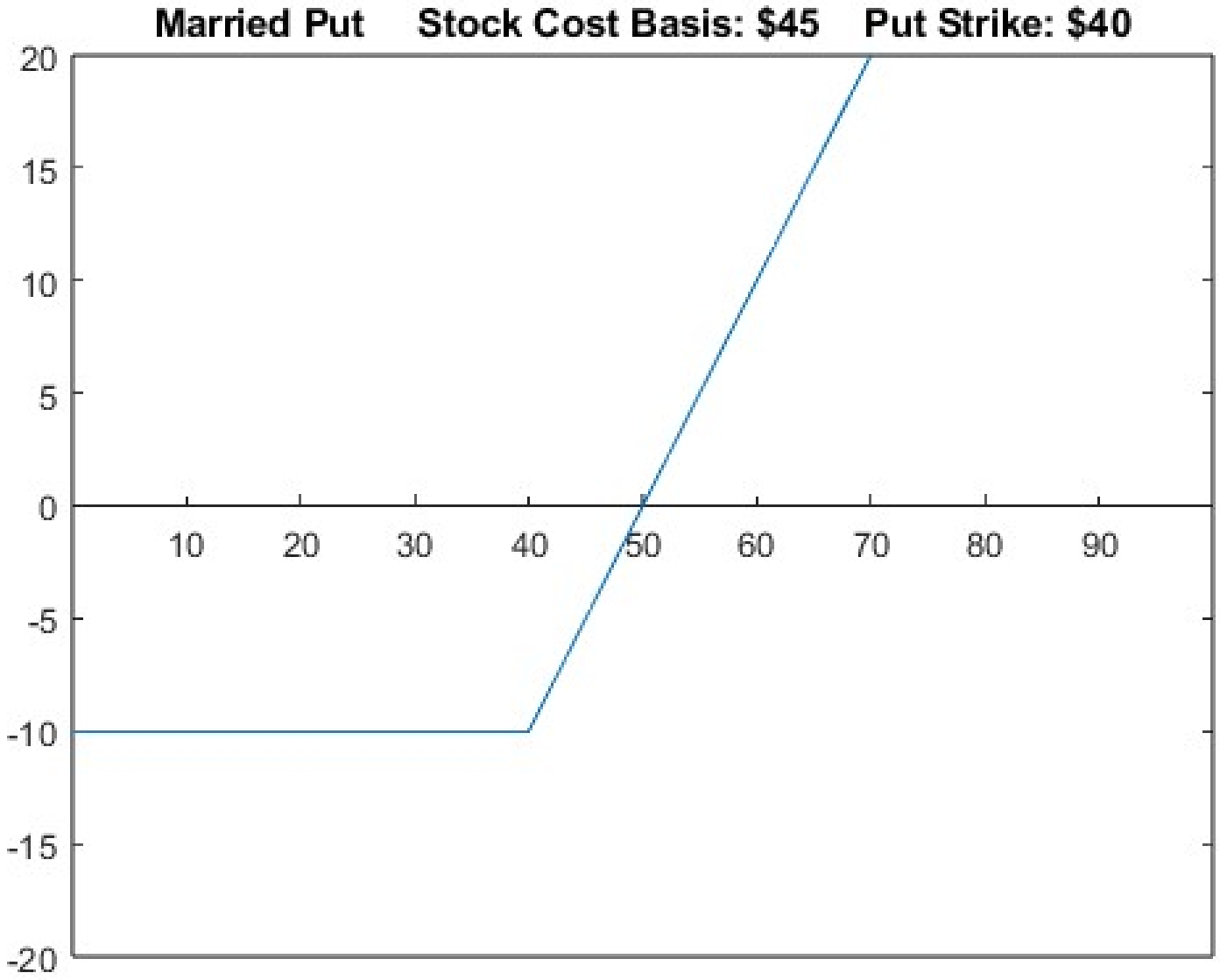


Married Put

Owning the Underlying

\+ Buying Puts

Married Put



Who Invests in Derivatives?

Hedgers

Speculators

Arbitragers

Questions?

MATLAB Files

LinkedIn
Let’s Connect!