## Trading around a position using covered calls

## Money and Investing

- Trading around a position using covered calls

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Additional caution: My peers call me Maddog


## Agenda

- Introduction
- Option Basics
- Covered Calls
- Trading Examples
- Comparison of Approaches


## Introduction High Level Strategic View



## Introduction

Market Composition

| 12 | Sectors |  | $\begin{array}{ll} \bar{\pi} & \text { U } \\ \frac{0}{0} & 0 \\ \hline \end{array}$ | $\begin{aligned} & \mathscr{y} \\ & \stackrel{y}{0} \\ & \tilde{0} \\ & \frac{\delta}{00} \\ & \frac{0}{0} \end{aligned}$ |  |  | $\begin{aligned} & \text { 合 } \\ & \stackrel{4}{4} \end{aligned}$ |  |  | $\stackrel{y}{\sum_{\S}}$ |  |  | $\frac{y}{5}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 102 | Industries | 11 | 7 | 1 | 12 | 8 | 4 | 10 | 4 | 25 | 11 | 6 | 3 |
| 14,387 | Stocks | 2,032 | 635 | 90 | 479 | 406 | 1,054 | 3,674 | 1,243 | 2,296 | 1,990 | 226 | 262 |
| 1 |  | 207 | 105 | 90 | 70 | 37 | 57 | 122 | 708 | 78 | 224 | 11 | 164 |
| 2 |  | 26 | 37 |  | 28 | 49 | 83 | 23 | 158 | 101 | 34 | 43 | 71 |
| 3 |  | 62 | 84 |  | 45 | 27 | 712 | 52 | 33 | 369 | 38 | 48 | 27 |
| 4 |  | 23 | 42 |  | 44 | 15 | 202 | 22 | 344 | 76 | 49 | 20 |  |
| 5 |  | 23 | 159 |  | 91 | 175 |  | 127 |  | 296 | 347 | 38 |  |
| 6 |  | 1,045 | 197 |  | 25 | 12 |  | 183 |  | 38 | 28 | 66 |  |
| 7 |  | 48 | 11 |  | 43 | 79 |  | 2,252 |  | 66 | 266 |  |  |
| 8 |  | 384 |  |  | 15 | 12 |  | 43 |  | 49 | 17 |  |  |
| 9 |  | 81 |  |  | 12 |  |  | 649 |  | 75 | 129 |  |  |
| 10 |  | 92 |  |  | 83 |  |  | 201 |  | 19 | 272 |  |  |
| 11 |  | 41 |  |  | 15 |  |  |  |  | 345 | 586 |  |  |
| 12 |  |  |  |  | 8 |  |  |  |  | 57 |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  | 41 |  |  |  |
| 14 |  |  |  |  |  |  |  |  |  | 102 |  |  |  |
| 15 |  |  |  |  |  |  |  |  |  | 65 |  |  |  |
| 16 |  |  |  |  |  |  |  |  |  | 46 |  |  |  |
| 17 |  |  |  |  |  |  |  |  |  | 33 |  |  |  |
| 18 |  |  |  |  |  |  |  |  |  | 26 |  |  |  |
| 19 |  |  |  |  |  |  |  |  |  | 50 |  |  |  |
| 20 |  |  |  |  |  |  |  |  |  | 11 |  |  |  |
| 21 |  |  |  |  |  |  |  |  |  | 119 |  |  |  |
| 22 |  |  |  |  |  |  |  |  |  | 16 |  |  |  |
| 23 |  |  |  |  |  |  |  |  |  | 62 |  |  |  |
| 24 |  |  |  |  |  |  |  |  |  | 57 |  |  |  |
| 25 |  |  |  |  |  |  |  |  |  | 99 |  |  |  |

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## Introduction <br> Basic premise

- You're familiar with typical buying, holding and selling stocks
- Portfolio performance can be improved over that typical approach through the use of options
- You can set up positions where you are paid to:
$\pi$ Hold your stock as you're accustomed to, or
$\pi$ Sell your stock at a profit
- The risk is that you give up the potential opportunity of making more money


## Introduction <br> Understanding stock transactions

- Profit (loss) from a "buy stock" transaction
入 You're "long stock"
$\pi$ i.e., you bought stock with the intent to sell it in the future at a higher price to make a profit

Buy low, sell high


## Introduction <br> Understanding stock transactions

- Profit (loss) from a "sell stock" transaction
л You're "short stock"
入 i.e., you sold stock that you didn't have with the intent to buy it back in the future at a lower price to make a profit
Sell high, buy low



## Money and Investing <br> Options

- What is an option?
$\pi$ An option is a contract that gives the holder of the option the right, but not the obligation, to buy or sell an asset at a specific price on or before a specific date
$\pi$ For example:
- Option on a piece of property for sale
$\pi$ Not the focus of this discussion
- Stock options

ォ Subject of discussion today

- with focus on selling calls


## Money and Investing Types of options

- American option
$\pi$ An option that can be exercised anytime up to and including expiration date
- The type traded in our markets
- European option
$\pi$ An option that can only be exercised on the expiration date
- Bermuda options ...certain dates ...
- Asian options ...
- Exotic options ...
- ...all kinds of options; most of which we don't care about


## Money and Investing Option lingo

- Strike price; also called exercise price
$\pi$ The price the underlying stock may be bought or sold
- Premium
$\pi$ The cost of the option to the buyer
$\pi$ A credit to the seller
- Expiration date
$\pi$ The date the option expires. The last day the option can be exercised
- Typically up to 9 months (longer out...leaps)
- The $3^{\text {rd }}$ Friday of the month
- Exercising the option (option is assigned)
$\pi$ When the underlying stock is bought or sold


## Money and Investing Specific types

- Call option
$\pi$ Option that provides the buyer the right, but not the obligation, to buy at the strike price on or before the expiration date
$\pi$ Buyers of call options profit when the stock price rises above the strike price, plus the premium they paid for the option
$\pi$ Sellers of call options profit when the stock price remains below the strike price


## Money and Investing Call Options "hockey sticks"



Sell Call


## Money and Investing Specific types

- Put options
$\pi$ Options that provides the buyer the right, but not the obligation, to sell at the strike price on or before the expiration date
$\lambda$ Buyers of put options profit when the stock price drops below the strike price, minus the price they paid for the option
$\pi$ Sellers of put options profit when the stock remains above the strike price


## Money and Investing Put Options "hockey sticks"




## Money and Investing <br> Option Rights and Obligations

| Initiator | Call option | Put option |
| :---: | :---: | :---: |
| Option buyer <br> (holder, Iong in <br> options) | Right to buy <br> stock at strike <br> price | Right to sell <br> stock at strike <br> price |
| Option seller <br> (writer, short <br> in options) | Obligation to <br> sell stock at <br> strike price | Obligation to <br> buy stock at <br> strike price |

## Money and Investing <br> Options

- Price

л Price $=$ intrinsic value + time value - fees
$\pi$ Intrinsic value $=$ The amount by which an option is "in the money"

- Call: stock price - strike price
- Put: strike price - stock price
$\pi$ Time value $=$ the portion of the option price that is in excess of the intrinsic value, due to the amount of volatility in the stock; sometime referred to as premium. Time value is positively related to the length of time remaining until expiration


## Money and Investing <br> Time value decay



## Money and Investing Option Value

- The value of an option at expiration is a function of the stock price and the strike price
- Just the intrinsic value; there is no time value

Example - Option values given a strike price of $\$ 85$

| Stock Price | $\$ 60$ | $\$ 70$ | $\$ 80$ | $\$ 85$ | $\$ 90$ | $\$ 100$ | $\$ 110$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Call Value | $\$ 0$ | $\$ 0$ | $\$ 0$ | $\$ 0$ | $\$ 5$ | $\$ 15$ | $\$ 25$ |
| Put Value | $\$ 25$ | $\$ 15$ | $\$ 5$ | $\$ 0$ | $\$ 0$ | $\$ 0$ | $\$ 0$ |

## Money and Investing Example of a call option

- Suppose a call option has an strike price of $\$ 30$ and a premium of $\$ 4$ (no time value or fees)

| Strike price | Premium | Stock price at expiration | Call holder's payoff | Holder | Writer |
| :---: | :---: | :---: | :---: | :---: | :---: |
| \$30 | \$4 | \$0 | \$0 | -\$4 | \$4 |
| \$30 | \$4 | \$10 | \$0 | -\$4 | \$4 |
| \$30 | \$4 | \$15 | \$0 | -\$4 | \$4 |
| \$30 | \$4 | \$20 | \$0 | -\$4 | \$4 |
| \$30 | \$4 | \$25 | \$0 | -\$4 | \$4 |
| \$30 | \$4 | \$30 | \$0 | -\$4 | \$4 |
| \$30 | \$4 | \$35 | \$5 | \$1 | -\$1 |
| \$30 | \$4 | \$40 | \$10 | \$6 | -\$6 |
| \$30 | \$4 | \$45 | \$15 | \$11 | -\$11 |
| \$30 | \$4 | \$50 | \$20 | \$16 | -\$16 |

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## Money and Investing profit (loss) of Call Option at Expiration

## Call Example



## Money and Investing Trading Strategies with Options

- Protective Put

〕 Strategy for "portfolio insurance"

- Covered Call

л Strategy for "undisciplined sell, cash flow"

- Straddle

7 Strategy for "profiting from high volatility"

- Bull Spread

त Like covered call but limits loss risk

- Butterfly Spread

〕 Strategy for "profiting from low volatility"

## Money and Investing Summary of profit (loss) Graphs

Stock
Transactions



Call Option
Transactions



Put Option
Transactions



## Money and Investing <br> Covered Call - Strategy for "undisciplined sell"

## Typical Covered Call Set-up Example



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## Possible Outcomes

- Stock goes down
$\pi$ Your loss is $\$ 2$ less than if you hadn't sold the call
- Stock remains the same (or goes up to just below the strike price of $\$ 35$
$\pi$ Your gain is $\$ 2$ more than if you hadn't sold the call
- Stock goes up and exceeds the strike price of $\$ 35$
$\pi$ Option is assigned and you must sell your stock at \$35
$\pi$ Your gain is $\$ 7$ per share
- $\$ 2$ premium from the sold option
- \$5 from the stock sale


## WIN WIN WIN

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## Other things to know

- Options can be traded just like stocks
- Options provide significant leverage and are volatile
$\pi$ Returns range from $100 \%$ loss to very significant gains (1,000\%)
- Each option represents 100 shares of stock
$\pi$ E.g. selling 5 options grants the buyer the right to buy 500 shares of your stock at the strike price
- Most ( $\sim 2 / 3$ ) options expire worthless
$\pi$ This is very advantageous for option writers
$\pi$ I liken this to being the "house" at a casino
- Many probable small gains
- No probable large wins
- It has been my experience that whenever l've been forced to sell stock at a profit, I was able to buy it back later at a lower price


## Trading examples

- Excel to show

л Covered call trade setup

- Buy stock
- Sell call

7 1 of 2 outcomes

- Option expires
$\pi$ gain premium only
- Option is exercised
$\pi$ gain premium and profit


## Trading example 1

| Trade set-up |  |  | price | com | (cost) premium |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | qty | security |  |  |  |  |
| Buy stock | 100 | AEM | \$ 70.50 | \$ 7 | \$ $(7,057)$ |  |
| sell option | 1 | AEM Feb11 75.00 call | \$ 0.85 | \$ 8 | \$ 77 |  |
| Gain if option expires |  |  |  |  | Gain |  |
|  |  |  |  |  | \$ 77 | 1.1\% |
| Gain if option is exercised |  |  | price | com | receive |  |
|  | qty | security |  |  |  |  |
| Sell stock | 100 | AEM | \$ 75.00 | \$ 36 | \$ 7,464 |  |
|  |  |  |  |  | Gain |  |
|  |  |  |  |  | \$ 484 | 6.9\% |

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## Trading example 2

| Trade set-up |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | qty | security | price | com | (cost) premium |  |
| Buy stock | 100 | GOLD | \$ 79.50 | \$ 7 | \$ $(7,957)$ |  |
| sell option | 1 | GOLD SEPT11 87.50 call | \$ 3.00 | \$ 8 | \$ 292 |  |
| Gain if option expires |  |  |  |  | Gain |  |
|  |  |  |  |  | \$ 292 | 3.7\% |
| Gain if option is exercised |  |  |  |  |  |  |
|  | qty | security | price | com | receive |  |
| Sell stock | 100 | GOLD | \$ 87.50 | \$ 36 | \$ 8,714 |  |
|  |  |  |  |  | Gain |  |
|  |  |  |  |  | \$ 1,049 | 13.2\% |

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## Trading example 3

| Trade set-up |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | qty | security | price | com | (cost) premium |  |
| Buy stock | 300 | MRK | \$ 32.00 | \$ 7 | \$ $(9,607)$ |  |
| sell option | 3 | MRK OCT11 35.00 call | \$ 1.09 | \$ 11 | \$ 316 |  |
| Gain if option expires |  |  |  |  | Gain |  |
|  |  |  |  |  | \$ 316 | 3.3\% |
| Gain if option is exercised |  |  |  |  |  |  |
|  | qty | security | price | com | receive |  |
| Sell stock | 300 | MRK | \$ 35.00 | \$ 36 | \$ 10,464 |  |
|  |  |  |  |  | Gain |  |
|  |  |  |  |  | \$ 1,173 | 12.2\% |

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## Trading example 4

| Trade set-up |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | qty | security |  | price | com | (cost) <br> premium |  |
| Buy stock | 2000 | NAT | $\$$ | 22.52 | $\$$ | 7 | $\$(45,047)$ |
| sell option | 20 | NAT OCT11 25.00 call | $\$$ | 0.55 | $\$$ | 32 | $\$$ |

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## Trading example 5

| Trade set-up |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | qty | security | price | com | (cost) premium |  |
| Buy stock | 500 | SLV | \$ 32.99 | \$ 7 | \$ $(16,502)$ |  |
| sell option | 5 | SLV JUN11 36.00 call | \$ 1.45 | \$ 13 | \$ 712 |  |
| Gain if option expires |  |  |  |  | Gain |  |
|  |  |  |  |  | \$ 712 | 4.3\% |
| Gain if option is exercised |  |  |  |  |  |  |
|  | qty | security | price | com | receive |  |
| Sell stock | 500 | SLV | \$ 36.00 | \$ 36 | \$ 17,964 |  |
|  |  |  |  |  | Gain |  |
|  |  |  |  |  | \$ 2,174 | 13.2\% |

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## Trading examples

- Excel to show
$\pi$ Actual trades
- Buy stock
- Sell call
- Buy back call
- Option expires
- Option is exercised (assigned)


## Results with covered calls

| Symbol | Description | Commission | Amount | comments |
| :---: | :---: | :---: | :---: | :---: |
| AEM | BOUGHT 150 SHARES OF AEM AT \$70.50 | (\$7.00) | (\$10,582.00) | buy stock |
| AEM | BOUGHT 50 SHARES OF AEM AT \$61.98 | (\$7.00) | (\$3,106.00) | buy stock |
| AEM 75.00 FEB 11 C | SOLD TO OPEN 1 CONTRACT OF OPTION AEM 110219C00075000 AT \$0.85 | (\$8.26) | \$76.74 | sell call |
| AEM 75.00 FEB 11 C | OPTION EXPIRED -1 CONTRACTS OF AEM 110219C00075000 | \$0.00 | \$0.00 | option expired |
| $\underline{A B X}$ | BOUGHT 250 SHARES OF ABX AT \$46.1599 | (\$7.00) | (\$11,546.98) | buy stock |
| ABX 50.00 FEB 11 C | SOLD TO OPEN 2 CONTRACTS OF OPTION ABX 110219C00050000 AT \$0.65 | (\$9.51) | \$120.49 | sell call |
| ABX | AS OF: SOLD 200 SHARES OF ABX AT \$50.00 | (\$17.20) | \$9,982.80 | forced to sell stock |
| ABX 50.00 FEB 11 C | OPTION ASSIGNED : 2 CONTRACTS OF ABX 110219C00050000 | \$0.00 | \$0.00 | option assigned |
| ABX | BOUGHT 200 SHARES OF ABX AT \$49.86 | (\$7.00) | (\$9,979.00) | bought back stock |
| ABX 60.00 JAN 12 C | SOLD TO OPEN 2 CONTRACTS OF OPTION ABX 120121C00060000 AT \$3.05 | (\$9.52) | \$600.48 | sell call |
| ABX 60.00 JAN 12 C | BOUGHT TO CLOSE 2 CONTRACTS OF OPTION ABX 120121 C 00060000 AT \$2.65 | (\$9.50) | (\$539.50) | buy back call |
| NUE 43.00 JUL 11 C | Sold to Open 10c @ \$1.11 (9:30 AM) | (\$19.53) | \$1,090.47 | sell call |
| NUE 43.00 JUL 11 C | Bought to Close 10c @ \$0.80 (1:30 PM) | (\$19.50) | (\$819.50) | buy back call |
| GOLD | BOUGHT 100 SHARES OF GOLD AT \$79.50 | (\$7.00) | (\$7,957.00) | buy stock |
| GOLD 87.50 SEP 11 C | SOLD TO OPEN 1 CONTRACT OF OPTION GOLD SEP 1187.50 C AT \$3.00 | (\$8.26) | \$291.74 | sell call |
| MRK | BOUGHT 300 SHARES OF MRK AT $\$ 32.00$ | (\$7.00) | (\$9,607.00) | buy stock |
| MRK 35.00 OCT 11 C | SOLD TO OPEN 3 CONTRACT OF OPTION MRK OCT 1135.00 C AT \$1.09 | (\$10.76) | \$316.24 | sell call |
| NAT | BOUGHT 2000 SHARES OF NAT AT \$22.52749 | (\$7.00) | (\$45,058.48) | buy stock |
| NAT 25.00 OCT 11 C | SOLD TO OPEN 3 CONTRACT OF OPTION NAT OCT 11 25.00 C AT \$0.55 | (\$10.76) | \$316.24 | sell call |
| SLV | BOUGHT 500 SHARES OF SLV AT \$32.9999 | (\$7.00) | (\$16,506.95) | buy stock |
| SLV 36.00 JUN 11 C | SOLD TO OPEN 5 CONTRACTS OF OPTION SLV JUN 11 \$36.00 C AT \$1.45 | (\$13.27) | \$711.73 | sell call |
| SLV 36.00 JUN 11 C | OPTION EXPIRED -3 CONTRACTS OF OPTION SLV JUN 11 \$36.00 C | \$0.00 | \$0.00 | option expired |
|  |  | Amount sum | (\$102,195.48) |  |

## Results without covered calls

| Symbol | Description | Commission | Amount | comments |
| :---: | :---: | :---: | :---: | :---: |
| AEM | BOUGHT 150 SHARES OF AEM AT \$70.50 | (\$7.00) | (\$10,582.00) | buy stock |
| AEM | BOUGHT 50 SHARES OF AEM AT \$61.98 | (\$7.00) | (\$3,106.00) | buy stock |
|  |  |  |  |  |
|  |  |  |  |  |
| ABX | BOUGHT 250 SHARES OF ABX AT \$46.1599 | (\$7.00) | (\$11,546.98) | buy stock |
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|  |  |  |  |  |
| GOLD | BOUGHT 100 SHARES OF GOLD AT \$79.50 | (\$7.00) | (\$7,957.00) | buy stock |
|  |  |  |  |  |
| MRK | BOUGHT 300 SHARES OF MRK AT \$32.00 | (\$7.00) | (\$9,607.00) | buy stock |
|  |  |  |  |  |
| NAT | BOUGHT 2000 SHARES OF NAT AT \$22.52749 | (\$7.00) | (\$45,058.48) | buy stock |
|  |  |  |  |  |
| SLV | BOUGHT 500 SHARES OF SLV AT \$32.9999 | (\$7.00) | (\$16,506.95) | buy stock |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  | Amount sum | (\$104,364.41) |  |

## Comparison of Approaches

- Results with Buy and Hold Approach
л Paid \$104,364.41 to own
- 200 shares of $\operatorname{AEM}$
- 250 shares of $A B X$
- 100 shares of GOLD
- 2000 shares of NAT
- 500 shares of SLV
- Results with Covered Call Options Approach
$\pi$ Paid \$104,364.41 to own the same shares
- 200 shares of AEM
- 250 shares of $A B X$
- 100 shares of GOLD
- 2000 shares of NAT
- 500 shares of SLV

7 Collected $\$ 2,168.93$ in premiums

## Comparison of Approaches

- Results with Buy and Hold Approach
л Paid $\$ 104,364.41$ to own
- 200 shares of AEM
- 250 shares of $A B X$
- 100 shares of GOLD
- 2000 shares of NAT
- 500 shares of SLV
- Results with Covered Call Options Approach
$\pi$ Paid \$104,364.41 to own the same shares
- 200 shares of AEM
- 250 shares of ABX
- 100 shares of GOLD
- 2000 shares of NAT
- 500 shares of SLV

7 Collected $\$ 2,168.93$ in premiums

## Covered calls enhanced account by 2.1\% over the same Buy and Hold account

## Money and Investing Parting Thoughts

- What does it take?
$\pi$ Time to continue to educate yourself
$\pi$ Time to manage your trades
л Positive attitude
- Belief in yourself that you can do it
$\pi$ Separation of emotion from trading decisions
$\pi$ Learning from your mistakes
$\pi$ Tenacity to continue


## The End

## Additional info and other strategies

## Money and Investing

Option Intrinsic Value and profit (loss) Summary

|  | Call Option | Put Option |
| :---: | :---: | :---: |
| Intrinsic Value | $\operatorname{Max}(0, S-X)$ | $\operatorname{Max}(0, X-S)$ |
| Holder Profit | $\operatorname{Max}(0, S-X)-$ Premium | $\operatorname{Max}(0, X-S)-$ Premium |
| Writer Profit | $-(\operatorname{Max}(0, S-X)-$ Premium $)$ | $-(\operatorname{Max}(0, X-S)-$ Premium $)$ |


| Holder $=$ Buyer | $S=$ Sell Price |
| :--- | :--- |
| Writer $=$ Seller | $X=$ Strike Price |


|  | Call Option | Put Option |
| :---: | :---: | :---: |
| In-the-money | $\mathrm{S}>\mathrm{X}$ | $\mathrm{S}<\mathrm{X}$ |
| At-the-money | $\mathrm{S}=\mathrm{X}$ | $\mathrm{S}=\mathrm{X}$ |
| Out of-the-money | $\mathrm{S}<\mathrm{X}$ | $\mathrm{S}>\mathrm{X}$ |

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## Money and Investing Components of the Option Price

1 - Underlying stock price
2 - Strike price
3 - Time to expiration
4 - Volatility of the stock return
5 - Risk-free rate of interest

## Money and Investing Determinants of Option Value

| When there is an increase in: | Value of Call | Value of Put |
| :---: | :---: | :---: |
| Underlying stock price | increases | decreases |
| strike price | decreases | increases |
| Time to expiration | increases | increases |
| Volatility of stock return | increases | increases |
| Risk-free rate of interest* | increases | decreases |

* If interest rate increases, the present value of the strike price (that's what you're paying for when you buy an option) decreases; therefore value of call increases.


## Money and Investing <br> Covered Call - Strategy for "undisciplined sell, cash flow"

নbuy (or already own) the stock
$\pi$ Sell (write) call option on stock (collect premium)

| Stock price | Profit from <br> Long Stock | Profit from <br> 50 Call <br> Sold at $\$ 5$ | Profit from <br> Covered <br> Call |
| :---: | :---: | :---: | :---: |
| $\$ 25$ | $(\$ 25)$ | $\$ 5$ | $(\$ 20)$ |
| $\$ 30$ | $(\$ 20)$ | $\$ 5$ | $(\$ 15)$ |
| $\$ 35$ | $(\$ 15)$ | $\$ 5$ | $(\$ 10)$ |
| $\$ 40$ | $(\$ 10)$ | $\$ 5$ | $(\$ 5)$ |
| $\$ 45$ | $(\$ 5)$ | $\$ 5$ | $\$ 0$ |
| $\$ 50$ | $\$ 0$ | $\$ 5$ | $\$ 5$ |
| $\$ 55$ | $\$ 5$ | $\$ 0$ | $\$ 5$ |
| $\$ 60$ | $\$ 10$ | $(\$ 5)$ | $\$ 5$ |
| $\$ 65$ | $\$ 15$ | $(\$ 10)$ | $\$ 5$ |
| $\$ 70$ | $\$ 20$ | $(\$ 15)$ | $\$ 5$ |
| $\$ 75$ | $\$ 25$ | $(\$ 20)$ | $\$ 5$ |

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## Money and Investing <br> Covered Call - Strategy for "undisciplined sell"

## Covered Call



Stock Price

## Money and Investing Example of a put option

- Suppose a put option has an strike price of $\$ 24$ and a premium of $\$ 5$ (no time value or fees)

| Strike price | Premium | Stock price <br> at <br> expiration | Call <br> holder's <br> payoff | Holder | Writer |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\$ 30$ | $\$ 4$ | $\$ 0$ | $\$ 0$ | $-\$ 4$ | $\$ 4$ |
| $\$ 30$ | $\$ 4$ | $\$ 10$ | $\$ 0$ | $-\$ 4$ | $\$ 4$ |
| $\$ 30$ | $\$ 4$ | $\$ 15$ | $\$ 0$ | $-\$ 4$ | $\$ 4$ |
| $\$ 30$ | $\$ 4$ | $\$ 20$ | $\$ 0$ | $-\$ 4$ | $\$ 4$ |
| $\$ 30$ | $\$ 4$ | $\$ 25$ | $\$ 0$ | $-\$ 4$ | $\$ 4$ |
| $\$ 30$ | $\$ 4$ | $\$ 30$ | $\$ 0$ | $-\$ 4$ | $\$ 4$ |
| $\$ 30$ | $\$ 4$ | $\$ 35$ | $\$ 5$ | $\$ 1$ | $-\$ 1$ |
| $\$ 30$ | $\$ 4$ | $\$ 40$ | $\$ 10$ | $\$ 6$ | $-\$ 6$ |
| $\$ 30$ | $\$ 4$ | $\$ 45$ | $\$ 15$ | $\$ 11$ | $-\$ 11$ |
| $\$ 30$ | $\$ 4$ | $\$ 50$ | $\$ 20$ | $\$ 16$ | $-\$ 16$ |

## Money and Investing profit (loss) of Put Option at Expiration

## Put Example



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## Money and Investing <br> Protective Put - Strategy for "portfolio insurance"

7buy (or already own) the stock
7buy put option on stock

| Stock price | Profit from <br> Stock <br> Purchased <br> at \$50 | Profit from <br> 50 Put <br> Purchased <br> at \$3 | Profit from <br> Protective <br> Put |
| :---: | :---: | :---: | :---: |
| $\$ 25$ | $(\$ 25)$ | $\$ 22$ | $(\$ 3)$ |
| $\$ 30$ | $(\$ 20)$ | $\$ 17$ | $(\$ 3)$ |
| $\$ 35$ | $(\$ 15)$ | $\$ 12$ | $(\$ 3)$ |
| $\$ 40$ | $(\$ 10)$ | $\$ 7$ | $(\$ 3)$ |
| $\$ 45$ | $(\$ 5)$ | $\$ 2$ | $(\$ 3)$ |
| $\$ 50$ | $\$ 0$ | $(\$ 3)$ | $(\$ 3)$ |
| $\$ 55$ | $\$ 5$ | $(\$ 3)$ | $\$ 2$ |
| $\$ 60$ | $\$ 10$ | $(\$ 3)$ | $\$ 7$ |
| $\$ 65$ | $\$ 15$ | $(\$ 3)$ | $\$ 12$ |
| $\$ 70$ | $\$ 20$ | $(\$ 3)$ | $\$ 17$ |
| $\$ 75$ | $\$ 25$ | $(\$ 3)$ | $\$ 22$ |

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## Money and Investing <br> Protective Put - Strategy for "portfolio insurance"

## Protective Put



## Money and Investing <br> Straddle - Strategy for profiting from high volatility

7buy call, and
7buy put with the same strike price and expiration date as the call option

Stock price \begin{tabular}{c|c|c|c|}

\hline | Profit from |
| :---: |
| 50 Call |
| uurchased |
| at $\$ 3$ | \& | Profit from |
| :---: |
| 50 Put |
| Purchased |
| at $\$ 2$ | \& | Profit from |
| :---: |
| Straddle |
| Purchase | <br>

\hline$\$ 30$ \& $(\$ 3)$ \& $\$ 18$ \& $\$ 15$ <br>
\hline$\$ 35$ \& $(\$ 3)$ \& $\$ 13$ \& $\$ 10$ <br>
\hline$\$ 40$ \& $(\$ 3)$ \& $\$ 8$ \& $\$ 5$ <br>
\hline$\$ 45$ \& $(\$ 3)$ \& $\$ 3$ \& $\$ 0$ <br>
\hline$\$ 50$ \& $(\$ 3)$ \& $(\$ 2)$ \& $(\$ 5)$ <br>
\hline$\$ 55$ \& $\$ 2$ \& $(\$ 2)$ \& $\$ 0$ <br>
\hline$\$ 60$ \& $\$ 7$ \& $(\$ 2)$ \& $\$ 5$ <br>
\hline$\$ 65$ \& $\$ 12$ \& $(\$ 2)$ \& $\$ 10$ <br>
\hline$\$ 70$ \& $\$ 17$ \& $(\$ 2)$ \& $\$ 15$ <br>
\hline
\end{tabular}

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## Money and Investing <br> Straddle - Strategy for profiting from high volatility

## Straddle



Stock Price

## Money and Investing Bull Spread

7buy call option with a certain strike price, and
7 sell call option on the same stock with a higher strike price

| Strike price | Profit from <br> $\$ 40$ Call <br> Purchased <br> at \$3 | Profit from <br> $\$ 45$ Call <br> Sold at \$1 | Profit from <br> Bull Spread <br> Purchase |
| :---: | :---: | :---: | :---: |
| $\$ 38$ | $(\$ 3)$ | $\$ 1$ | $(\$ 2)$ |
| $\$ 39$ | $(\$ 3)$ | $\$ 1$ | $(\$ 2)$ |
| $\$ 40$ | $(\$ 3)$ | $\$ 1$ | $(\$ 2)$ |
| $\$ 41$ | $(\$ 2)$ | $\$ 1$ | $(\$ 1)$ |
| $\$ 42$ | $(\$ 1)$ | $\$ 1$ | $\$ 0$ |
| $\$ 43$ | $\$ 0$ | $\$ 1$ | $\$ 1$ |
| $\$ 44$ | $\$ 1$ | $\$ 1$ | $\$ 2$ |
| $\$ 45$ | $\$ 2$ | $\$ 1$ | $\$ 3$ |
| $\$ 46$ | $\$ 3$ | $\$ 0$ | $\$ 3$ |
| $\$ 47$ | $\$ 4$ | $(\$ 1)$ | $\$ 3$ |
| $\$ 48$ | $\$ 5$ | $(\$ 2)$ | $\$ 3$ |

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## Money and Investing Bull Spread

## Bull Spread



## Money and Investing

## Butterfly Spread - Strategy for profiting from low volatility

तbuy call with relatively low strike price, x 1 ;
7buy call with relatively high strike price, $x 3$; and $\pi$ write two calls with strike price half way between $x 1$ and $x 3$

| Stock price | Profit from <br> $\$ 40$ Call <br> Purchased <br> at $\$ 12$ | Profit from <br> two \$50 <br> Call Sold at <br> $\$ 6$ | Profit from <br> $\$ 60$ Call <br> Purchased <br> at $\$ 3$ | Profit from <br> Straddle <br> Purchase |
| :---: | :---: | :---: | :---: | :---: |
| $\$ 30$ | $(\$ 12)$ | $\$ 12$ | $(\$ 3)$ | $(\$ 3)$ |
| $\$ 35$ | $(\$ 12)$ | $\$ 12$ | $(\$ 3)$ | $(\$ 3)$ |
| $\$ 40$ | $(\$ 12)$ | $\$ 12$ | $(\$ 3)$ | $(\$ 3)$ |
| $\$ 45$ | $(\$ 7)$ | $\$ 12$ | $(\$ 3)$ | $\$ 2$ |
| $\$ 50$ | $(\$ 2)$ | $\$ 12$ | $(\$ 3)$ | $\$ 7$ |
| $\$ 55$ | $\$ 3$ | $\$ 2$ | $(\$ 3)$ | $\$ 2$ |
| $\$ 60$ | $\$ 8$ | $(\$ 8)$ | $(\$ 3)$ | $(\$ 3)$ |
| $\$ 65$ | $\$ 13$ | $(\$ 18)$ | $\$ 2$ | $(\$ 3)$ |

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## Money and Investing

## Butterfly Spread - Strategy for profiting from low volatility

## Butterfly Spread


__Profit from \$40 Call Purchased at $\$ 12$
__ Profit from two $\$ 50$ Call Sold at $\$ 6$
__Profit from \$60 Call Purchased at \$3
—Profit from Straddle Purchase

Stock Price

