

Options

Topics to be Discussed

Description of options
History of options
Reading option quotes
Components of option's price
Advantages of options
Option strategies

Description of Options

Option - gives the holder the right to buy or sell a security at a specified price and within a given time

- ☛ **call options** - gives the owner the right to **buy** a given number of shares of a security at a specified price during a given time period (usually from three to nine months)
- ☛ **put options** - gives the owner the right to **sell** a given number of shares of a security at a specified price during a given time period

History of Options

Chicago Board Options Exchange (CBOE)

- ☛ prior to formation of CBOE (in 1973) call options were purchased only in the OTC market
 - option was purchased from an options dealer
 - option terms (exercise price, expiration price) not standardized
 - no secondary market in options
- ☛ creation of CBOE resulted in an organized market in call options on selected securities
 - the striking price or exercise price (the per share price at which the option buyer may purchase a security) now standardized
 - listed options have standardized expiration dates

Options Clearing Corporation (OCC)

- ☛ jointly owned by the CBOE and other exchanges that list options (American, Pacific, and Philadelphia)
- ☛ OCC sets option terms, ensures a continuous market for securities, and supplies daily quotations to financial press
- ☛ OCC acts as principal in every options transaction for listed options contracts
 - issues all listed options
 - guarantees contracts
 - legal entity on other side of every transaction

Reading Option Quotes

Bristol-Myers Squibb Co (BMY)**24.60 ↓****Options**View By Expiration: **Jan 09** | Feb 09 | Mar 09 | Jun 09 | Jan 10 | Jan 11

Options Expiring Fri, Jan 16, 2009

Calls

Strike	Symbol	Last	Chg	Bid	Ask	Vol	Open Int
10.00	BMYAB.X	14.60	↓0.30	14.50	14.70	1	21
15.00	BMYAC.X	10.00	0.00	9.50	9.70	0	85
20.00	BMYAD.X	5.00	0.00	4.50	4.70	0	1,157
22.50	BMYAX.X	2.15	↓0.35	2.15	2.20	19	2,556
25.00	BMYAE.X	0.20	↓0.10	0.15	0.20	709	44,094
27.50	BMYAY.X	0.05	0.00	N/A	0.05	2	12,626
30.00	BMYAF.X	0.05	0.00	N/A	0.05	11	28,576
32.50	BMYAZ.X	0.05	0.00	N/A	0.05	0	1,471
35.00	BMYAG.X	0.05	0.00	N/A	0.05	0	25,173
40.00	BMYAH.X	0.05	0.00	N/A	0.05	0	9,791
45.00	BMYAI.X	0.05	0.00	N/A	0.05	0	2,021
50.00	BMYAJ.X	0.20	0.00	N/A	0.05	0	310
55.00	BMYAK.X	0.15	0.00	N/A	0.05	0	200
60.00	BMYAL.X	0.05	0.00	N/A	0.05	0	116

Bristol-Myers Squibb Co (BMY)**24.60 ↓****Options**View By Expiration: **Jan 09** | Feb 09 | Mar 09 | Jun 09 | Jan 10 | Jan 11

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Puts

Strike	Symbol	Last	Chg	Bid	Ask	Vol	Open Int
10.00	BMYMB.X	0.05	0.00	N/A	0.05	0	732
15.00	BMYMC.X	0.05	0.00	N/A	0.05	0	1,353
20.00	BMYMD.X	0.05	0.00	N/A	0.05	0	12,086
22.50	BMYMX.X	0.10	↑0.05	0.05	0.10	6	22,340
25.00	BMYME.X	0.60	↑0.20	0.50	0.60	366	29,832
27.50	BMYMY.X	2.95	↑0.30	2.85	3.00	18	3,422
30.00	BMYMF.X	5.40	↑0.30	5.30	5.50	27	4,855
32.50	BMYMZ.X	7.60	0.00	7.80	8.00	0	71
35.00	BMYMG.X	10.00	0.00	10.30	10.50	0	1,920
40.00	BMYMH.X	15.40	0.00	15.30	15.50	0	657
45.00	BMYMI.X	19.80	0.00	20.30	20.50	0	316
50.00	BMYMJ.X	24.80	0.00	25.30	25.50	0	266
55.00	BMYMK.X	30.30	0.00	30.30	30.50	0	156
60.00	BMYML.X	35.40	↑0.30	35.30	35.50	155	161

International Business Machines Corp (IBM)**80.00 ↓****Options**View By Expiration: **Jan 09** | Feb 09 | Mar 09 | Jun 09 | Jan 10 | Jan 11

Options Expiring Fri, Jan 16, 2009

Calls

Strike	Symbol	Last	Chg	Bid	Ask	Vol	Open Int
40.00	IBMGK.X	44.10	0.00	40.30	40.70	0	65
45.00	IBMGL.X	36.00	0.00	35.40	35.80	0	22
50.00	IBMGM.X	32.40	0.00	30.50	30.90	0	50
55.00	IBMGN.X	27.20	0.00	25.70	26.10	0	36
60.00	IBMGO.X	23.90	0.00	20.90	21.30	0	91
65.00	IBMGP.X	17.60	0.00	16.30	16.70	0	17
70.00	IBMGQ.X	14.10	0.00	11.90	12.30	0	52
75.00	IBMGR.X	8.50	↓0.30	8.00	8.30	2	305
80.00	IBMGS.X	5.00	↓0.30	4.90	5.10	143	1,340
85.00	IBMGT.X	2.70	↓0.30	2.60	2.80	157	3,269
90.00	IBMGA.X	1.31	↓0.14	1.20	1.40	34	1,578
95.00	IBMGB.X	0.70	0.00	0.50	0.65	0	1,975
100.00	IBMGC.X	0.40	0.00	0.20	0.30	0	350
105.00	IBMGD.X	0.20	0.00	0.10	0.20	0	571
115.00	IBMGF.X	0.10	0.00	N/A	0.10	0	124

International Business Machines Corp (IBM)**80.00 ↓****Options**View By Expiration: **Jan 09** | Feb 09 | Mar 09 | Jun 09 | Jan 10 | Jan 11

Options Expiring Fri, Jan 16, 2009

Puts

Strike	Symbol	Last	Chg	Bid	Ask	Vol	Open Int
45.00	IBMSL.X	0.09	0.00	0.05	0.10	0	10
55.00	IBMSN.X	0.20	0.00	0.15	0.30	0	50
60.00	IBMSO.X	0.35	0.00	0.30	0.45	0	307
65.00	IBMSP.X	0.70	↑0.05	0.60	0.75	10	330
70.00	IBMSQ.X	1.20	0.00	1.20	1.35	18	968
75.00	IBMSR.X	2.40	↑0.15	2.20	2.40	50	1,598
80.00	IBMSS.X	4.00	0.00	4.00	4.20	90	1,554
85.00	IBMST.X	6.90	↑0.30	6.70	7.00	5	602
90.00	IBMSA.X	10.10	0.00	10.40	10.80	0	410
95.00	IBMSB.X	15.20	↑0.60	14.90	15.30	10	217
100.00	IBMSC.X	16.00	0.00	19.80	20.20	0	80

Striking price

- ☛ price fixed in the options contract at which the options can be exercised
- ☛ striking price interval \$2.50 for stocks selling under \$25 per share, \$5 for stock selling at or under \$100 per share, \$10 for stocks selling up to \$200 per share, and \$20 for stocks selling over \$200 per share.
- ☛ “in the money” - striking price is less than current price of the stock
- ☛ “at the money” - striking price is equal to the current price of the stock
- ☛ “out of the money” - striking price is above the current price of the stock

Expiration date

- ☛ the month in which the contract expires
- ☛ set by the OCC for all listed options
- ☛ all listed options expire on the Saturday following the third Friday of the month in which it can be exercised

Premium

- ☛ the cost of the option for 100 shares

Components of Option's Price

Intrinsic Value

- ☛ the value that the option holder would receive by exercising the option is known as the intrinsic value
- ☛ example
 - IBM Jan 09 call option with a striking price of 40
 - current market value = 80.00
 - intrinsic value = $\$80.00 - \$40.00 = \$40.00$
 - note premium ($\$44.10$) exceeds the intrinsic value ($\$40.00$)

Time Value

- ☛ any part of the option's price in excess of the intrinsic value
- ☛ for IBM Jan 09 call option with a strike price of 40, the intrinsic value equals $\$80.00 - \$40.00 = \$40.00$.
the time value equals $\$44.10 - \$40.00 = \$4.10$
- ☛ time value caused by
 - time remaining before exercise date
 - ⇒ longer time until expiration, more likely that option's value will increase
 - volatility of underlying common stock
 - ⇒ other things being the same, options on high volatility stocks will have larger time values than those on low volatility stocks

Advantages of Options

Leverage

- ☛ option can be bought/sold for fraction of the cost of its underlying stock
- ☛ small swings in price of stock can generate large gains or losses for the options trader
- ☛ example
 - buy 100 shares of IBM @ \$80.00 = \$8,000.00
 - ⇒ assume market value goes to \$85
 - ⇒ profit $(\$5.00 \times 100 \text{ sh})/\$8,000.00 = \$500.00/\$8,000.00 = 6.25\%$
 - buy Jan 09 call option for 100 shares of IBM @ striking price of \$75
 - ⇒ premium/cost = $100 \times \$8.50 = \850
 - ⇒ assume market value goes to \$85
 - ⇒ profit
 - ▶ exercise option and sell stock
 $(\$8,500 - (\$7,500 + \$850))/\850
 $\$150/\$850 = 17.65\%$
 - ▶ sell option (assume @ \$10.00[\$85 - \$75])
 $(\$1,000 - \$850)/\$850 = 17.65\%$

Reducing Maximum Loss

- ☛ maximum loss is price of option, not higher cost of stock

Option Strategies

Hedges

- ☛ hedging against unpredictable turns in an uncertain market
- ☛ hedges are strategies similar to insurance policies
 - example
 - ⇒ buy 100 shares of IBM at \$80.00
 - ⇒ buy 1 IBM Jan 09 put option at 85 for premium of \$6.90 or \$690
 - ⇒ put guarantees being able to sell the stock at 85; thus the loss cannot exceed $[\$690 - (\$8,500 - \$8,000)] = \190 , the premium on the put less the gain on sale of stock
 - ⇒ no profit will be realized until stock price rises enough to cover premium

Straddles

- ☛ straddle is the simultaneous buying (or writing) of a put and a call on the same stock with the same expiration date and strike price
 - buyer expects movement in the stock but is unsure whether it will rise or fall
 - example
 - ⇒ stock is not bought
 - ⇒ buy 1 IBM Jan 09 call option at 90 for premium of \$1.31 or \$131.00
 - ⇒ buy 1 IBM Jan 09 put option at 90 for premium of \$10.10 or \$1,010.00
 - ⇒ assume stock goes to 105; the call is exercised, the stock is purchased for the option price (\$90) and is sold in the market (at \$105); the put expires
 - ▶ holder has paid $(\$131.00 + \$1,010.00) = \$1,141.00$ in premiums and earned $((\$105 - \$90) \times 100) = \$1,500$ from exercise of the option
 - ⇒ assume stock goes to 75; the stock is purchased (at \$75) and the put is exercised (selling stock at \$90); the call expires
 - ▶ holder has paid \$1,141.00 in premiums and earned $(\$9,000 - \$7,500) = \$1,500$ from exercise of the option
 - ⇒ if stock increased or decreased \$11.41 per share, the cost of the options would be covered and the investor would make a profit on any additional change

Spreads

- ☛ buying and selling a call or buying and selling a put on one security with either different expiration dates or different strike prices or both is a spread
 - the term “spread” refers to the difference between the premium paid and the premium received on the two positions, and determines the gain or loss
 - example, with Bristol-Myers Squibb at \$24.60
 - ⇒ buy 1 BMY January 09 call option at \$22.50 for premium of \$2.15 or \$215.00
 - ⇒ sell 1 BMY January 09 call option at \$27.50 for premium of \$0.05 or \$50
 - ⇒ net difference (spread) $(\$215.00 - \$50.00) = \$165.00$
 - ⇒ maximum loss would come if the market price drops below \$22.50 -- both calls expire “out” and the \$165 net premium is lost
 - ⇒ maximum gain occurs if the price rises above \$27.50. The held call would be exercised at \$22.50, the securities used to satisfy the written option at \$27.50, for a gain of \$500.00 less net premium of \$165.00 or a total of \$335.00 (on a \$165 investment)

Covered Call Options

- ☛ the writing of call contracts on shares owned by the writer

Naked Calls

- ☛ the writing of call contracts on shares not owned by the writer