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 08 |** Feb 08 | Mar 08 | Jun 08 | Jan 09 | Jan 10
Options Expiring Fri, Jan 18, 2008

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 08 | Feb 08 | Mar 08 | Jun 08 | Jan 09 | Jan 10
Options Expiring Fri, Jan 20, 2008

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) 100.00 ↓
Options

View By Expiration: Jan 08 **|** Feb 08 | Apr 08 | **Jul 08** | Jan 09 | Jan 10
Options Expiring Fri, Jul 18, 2008

Calls

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

International Business Machines Corp (IBM) 100.00 ↓
Options

View By Expiration: Jan 08 **|** Feb 08 | Apr 08 | **Jul 08** | Jan 09 | Jan 10
Options Expiring Fri, Jul 18, 2008

Puts

Strike	Symbol	Last	Chg	Bid	Ask	Vol	Open Int
65.00	IBMSL.X	**0.09**	**0.00**	0.05	0.10	0	10
75.00	IBMSN.X	**0.20**	**0.00**	0.15	0.30	0	50
80.00	IBMSO.X	**0.35**	**0.00**	0.30	0.45	0	307
85.00	IBMSP.X	**0.70**	**0.05**	0.60	0.75	10	330
90.00	IBMSQ.X	**1.20**	**0.00**	1.20	1.35	18	968
95.00	IBMSR.X	**2.40**	**0.15**	2.20	2.40	50	1,598
100.00	IBMSS.X	**4.00**	**0.00**	4.00	4.20	90	1,554
105.00	IBMST.X	**6.90**	**0.30**	6.70	7.00	5	602
110.00	IBMSA.X	**10.10**	**0.00**	10.40	10.80	0	410
115.00	IBMSB.X	**15.20**	**0.60**	14.90	15.30	10	217
120.00	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 July 08 call option with a striking price of 60
    current market value = 100.00
    intrinsic value = $100.00 - $60.00 = $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 Jul 06 call option with a strike price of 60, the intrinsic value equals $100.00 – $60.00 - $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 @ $100.00 = $10,000.00
    - ⇨ assume market value goes to $105
    - ⇨ profit ($5.00 x 100 sh)/$10,000.00 = $500.00/$10,000.00 = 5.00%
  - buy July 06 call option for 100 shares of IBM @ striking price of $95
    - ⇨ premium/cost = 100 x $8.50 = $850
    - ⇨ assume market value goes to $105
    - ⇨ profit
      - ▸ exercise option and sell stock
        ($10,500 - ($9,500 + $850))/$850
        $150/$850 = 17.65%
      - ▸ sell option (assume @ $10.00[$105 - $95])
        ($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 $100.00
    - ⇨ buy 1 IBM July 08 put option at 105 for premium of $6.90 or $690
    - ⇨ put guarantees being able to sell the stock at 105; thus the loss cannot exceed [$690-($10,500-$10,000)] = $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 July 08 call option at 110 for premium of $1.31 or $131.00
    - buy 1 IBM July 08 put option at 110 for premium of $10.10 or $1010.00
    - assume stock goes to 125; the call is exercised, the stock is purchased for the option price ($110) and is sold in the market (at $125); the put expires
      - holder has paid ($131.00 + $1,010.00) = $1,141.00 in premiums and earned (($125 - $110) x 100) = $1500 from exercise of the option
    - assume stock goes to 95; the stock is purchased (at $95) and the put is exercised (selling stock at $110); the call expires
      - holder has paid $1,141.00 in premiums and earned ($11,000 - $9,500) = $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 08 call option at $22.50 for premium of $2.15 or $215.00
    - sell 1 BMY January 08 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