Öneri, C.1, S.6.
Ocak 1997, ss.135-139.

OPTIONS

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ÖZET: Opsiyonlar geleceğe yönelik hak içeren finansal sözleşmeler olup, genel olarak satın alma (calls) ve satma (puts) olarak ikiye ayrılırlar. Satın alma (call option), satma (put option) olarak adlandırılır.

Opsiyon sahibi, belli bir prim karşılığında satın aldığı opsiyon sözleşmesini, sözleşmede belirtilen süre içinde ya da sonunda kullanma hakkına sahiptir. Vade bittiğinde opsiyonunu kullanmak zorunda değildir. Opsiyon satıcısı, belli bir prim karşılığında, opsiyon sözleşmesini hazırlayıp satmakla yükümlülük altına giren taraftır. Karşı taraf talep ettiğinde yükümlülüğünü yerine getirmek zorundadır.

Opsiyonda takas merkezi (clearinghouse) her iki taraf adına riski üstlenerek sisteme olan güveni sağlar.

I-INTRODUCTION

In recent years, options markets have become increasingly important in the world of finance and investments. As a consequence options markets have experienced tremendous growth. One of the reasons behind the growth in options appears to be the increased riskiness of the underlying assets.

In the 1970's inflation increased the level and volatility of market interest rates on most fixed income obligations. The demise of fixed exchange rates between the dollar and other currencies led to increased exchange rate risk for many participants in the financial markets. The decline in the stock market in the mid-1970's also apparently led to increased desire for mechanisms to hedge the risk of investments in stocks. In addition, increased volatility in many financial markets led to a demand on the part of many market participants for new vehicles by which they could leverage their investments in financial instruments. Both in principle and in practice, options satisfy all of these demands.

This essay presents an introduction to options and how options markets work.

II-DEFINITION OF TERMS

An option is a contract between two parties-a buyer and seller-that gives the buyer (holder) the right, but not the obligation, to buy or sell something at a later date at a price agreed upon today[1]. The price in the contract is known as the exercise price or the strike price. The date in the contract is known as the expration date, the exercise date, or the maturity[2]. The option buyer pays the seller a sum of money called the price or premium[1].

It should be emphasized that an option on a financial instrument provides a choice to the holder of the option. The choice depends on whether you have purchased the right to buy or to sell the underlying asset[3]. This right is given by the issuer or writer of the option[2]. If the buyer of the option contract decides to exercise the option, the other party to the option contract (writer of the option) is obligated to buy or sell[4].

Options can be either American or European. These terms refer to types of options and have nothing to do with the geographical location of trading or the manner in which exchange rates are quoted[5]. A European option can be exercised only on the maturity date[2]. An American options differ from European options in that they can be exercised on any date up to the maturity date[6].

III-CALL OPTIONS

A call option gives the holder the right to buy a security at a specified exercise or strike price[7]. When a call option is sold or written, the seller (or writer) of the option gives to the buyer the right to purchase shares in return for receiving the premium. The seller will make some profit if the price of the share at expiration is less than the exercise price plus the premium. However, he will make losses possibly without limit, if the share price moves above the exercise price plus the premium[2].

In options, then, the expiration date gain or loss to the investor (holder) and to the writer of the option are mirror images of each other. It is a zero-sum game where one can gain only at the expense of the other[8].

A call option will be explained with an example which has been given below[9].

Consider the situation of an investor who buys a European call option to purchase 100 IBM shares with a strike price of $ 40. Suppose that the current stock price is $ 38, the expiration date of the option is in four months, and the price of an option (option premium) to purchase one share is $5. The initial investment is $ 500. Since the option is European, the investor can exercise only on the expiration date. If the share price on this date is less than $ 40, the investor will clearly choose not to exercise. (There is no point in buying for $ 40 a share that has a market value of less than $ 40). In these circumstances, the investor loses the whole of the initial investment of $ 500. If the share price is above $ 40 on the expiration date, the option will be exercised. Suppose,

for example, that the share price is $ 55. By exercising the option, the investor is able to buy 100 shares for $ 40 per share. If the shares are sold immediately, the investor makes a gain of $ 15 per share, or $ 1.500, ignoring transactions costs. When the initial cost of the option is taken into account, the net profit to the investor is $ 1.000.

This example can be summarized as below.

From the Trader's Desk

An investor buys a call option to purchase 100 IBM shares.

Strike price: $ 40

Current stock price: $ 38

Price of an option to buy one share:$ 5

The initial investment is 100 x $ 5= $ 500

The Outcome

At the expiration of the option, IBM's stock price is $ 55. At this time, the option is exercised for a gain of;

($ 55- $ 40) x 100 = $ 1.500

When the initial cost of the option is taken into account, the net gain is:

$ 1.500- $ 500= $ 1.000

The figure, which is given below, shows the way in which the investor's net profit /loss on an option to purchase one share varies with the share price in this example.

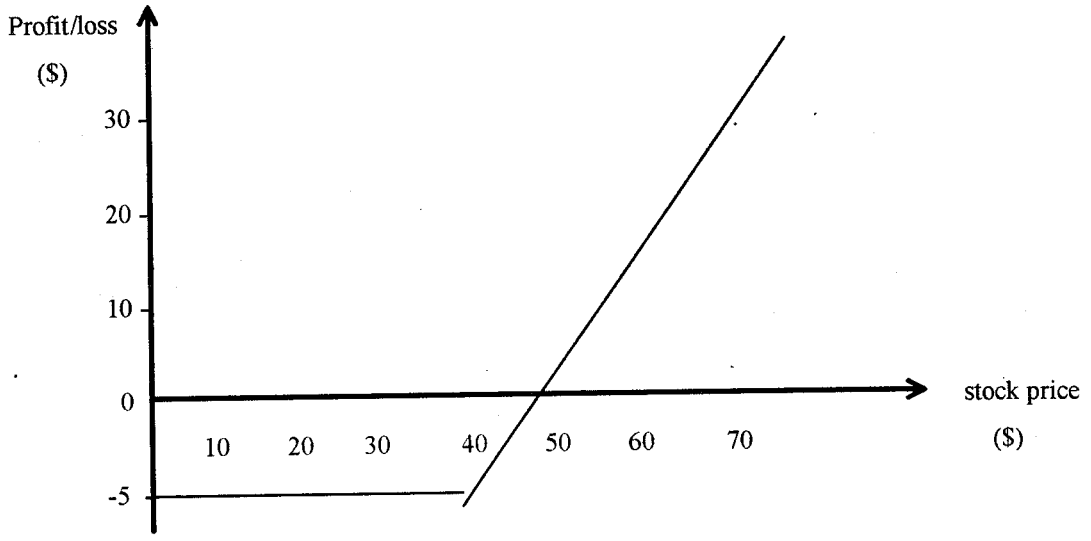

Figure 1: Profit and loss from buying a European call option on one IBM share

(Option price: $ 5, strike price: $: 40).

As it can be seen from the figure, if at the expiration date, the share price were at or below $ 40 the option would expire worthless and would be abondoned by the holder. In this case, the loss would be $ 5. The share price has to be above $ 45 before any profits are made at the expiration date.

In other words, the investor suffer a loss until the stock rises in price to the point where it equals the exercise price of the option plus the premium. After that, as the stock rises in price, the holder of the option gains[8].

IV- PUT OPTİONS

A put option gives the right to sell a security. In order to give effect to the right to sell, the option has to be exercised[10]. A put option is the mirror image of a call option[8]. An example has been given below to explain a put option[9].

Whereas the purchaser of a call option is hoping that the stock price will increase, the purchaser of a put option is hoping that it will decrease. Consider an investor who buys a European put option to sell 100 Exxon shares with a strike price of $ 70. Suppose that the current share price is $ 65, the expiration date of the option is in three months, and the price of an option (option premium) to sell one shere is $ 7. The initial investment is $ 700. Since the option is European, it will be exercised only if the share price is below $ 70 at the expiration date. Suppose that the share price is $ 55 on this date. The investor can buy 100 shares for $ 55 per share and, under the terms of the put option, sell the same shares for $ 70 to realize a gain of $ 15 per share, or $ 1.500 (Transactions cost are ignored). When the $

700 initial cost of the option is taken into account, the investor's net profit is $ 800. Ofcourse there is no guarantee that the investor will make a gain. If the final stock price is above $ 70, the put option expires worthless and the investor loses $ 700.

This example can be summarized as follows.

From the Trader's Desk

An investor buys a put option to sell 100 Exxon shares.

Strike price= $ 70

Current share price= $ 65

Price of put option to sell one share = $ 7

The initial investment is 100 x $ 7= $ 700

The Outcome

At the expiration of the option Exxon's share price is $ 55. At this time the investor buys 100 Exxon shares and, under the terms of the put option, sells them for $ 70 per share to realize a gain of $ 15 per share or $ 1,500 in total. When the initial cost of the option is taken into account, the net gain is;

$ 1.500 - $ 700 = $ 800

The figure shows the way in which the investor's profit /loss on an option to sell one share varies with the stock price in this example.,

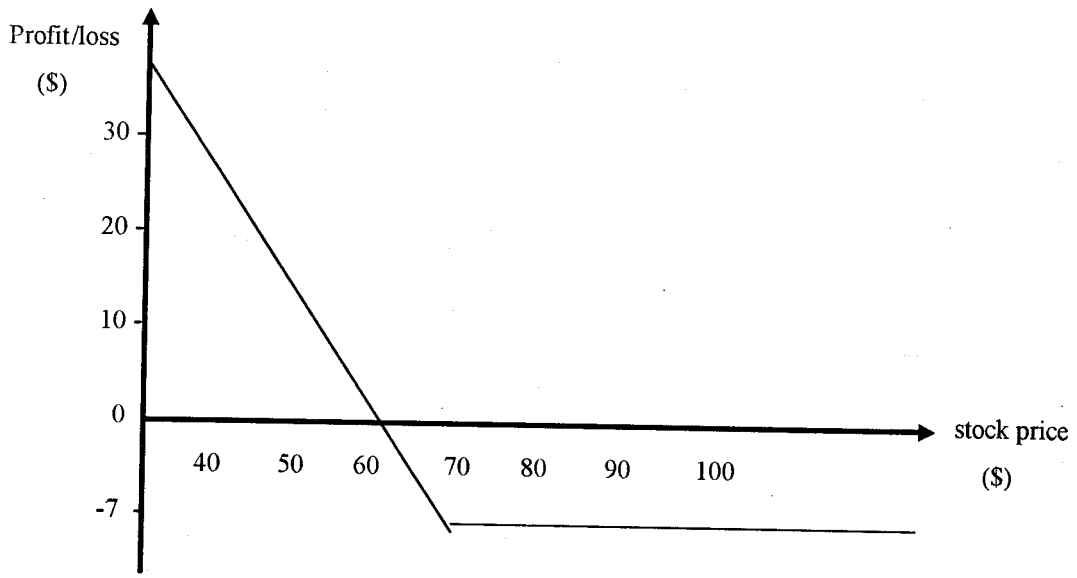

Figure 2: Profit and loss from buying a European put option on one Exxon share.

(Option price: $ 7, strike price: $ 70).

In figure 2, the investor will make a profit at expiration if the share price is below $ 70. If the price is above $ 70, the investor will not exercise the put option. Since the investor will have the opportunity to sell the shares more than $ 70 in the market. So the investor will lose $ 7 for one share.

V-THE PAYOFFS ON OPTIONS

The option's payoffs depend on several variables: the current market price of the security, the strike price, the time to maturity, the volatility of the price at expiration of the security and the risk-free rate of return and the expectation of the security's price for the future[11].

Anyone trading options, and especially someone writing options, needs to be concerned about what the payoffs and risks are, about how changes in the above variables might or will impact the value of options, and about what actions can be taken to reduce the risk[12].

To comprehend the ways in which options work, it is instructive to consider an example of the gains and losses which might flow from changes in the value of the fundamental security for each of the four basic possible positions in option contracts. The four positions include buying (long) or writting (short) either a put or a call. These have been enumerated as follow and the example about the payoffs on options are given below[3].

Position 1 buy (long) a call,

Position 2 write (short) a call,

Position 3 buy (long) a put,

Position 4 write (short) a put.

Suppose an option is being considered on deutschemarks, DM, on the Philadelphia Stock Exchange. Suppose puts and calls are available with an exercise price of $.62 per DM. The price of the call is .75 cents per DM and the price of the put is 1.75 cents per DM. DM option contracts on the Philadelphia Stock Exchange are written for 62.500 DM. Therefore, if you buy a call, for example, you will have to pay the writer of the call $ .0075 x 62.500 = $ 468.75 when the call is purchased. It is necessary to see what the payoff will be if the price of the underlying security is greater or less than the exercise price of each of the four positions described. Therefore, it is important to consider three possible values for the underlying security at the maturity date of option: $ .58, $ .62, and $ .64 per DM. Table 1 defines the net payoffs-that is, the gain or the loss when the option is exercised- plus the value paid or received when the option was written, for each of the combinations of positions and prices of the underlying asset at the maturity of the option.

Table1: Options Payoffs At Various DM Prices (All in Cents/DM)

	Price of Underlying Asset at Maturity		
Position	**58 ¢**	**62 ¢**	**64 ¢**
1. Buy call	-.75	-.75	1.25
2. Write call	.75	.75	-1.25
3. Buy put	2.25	-1.75	-1.75
4. Write put	-2.25	1.75	1.75

Case A: Price = $ .62

In this case neither the put nor the call option can be exercised for a profit. As a result, the purchasers of both the put and the call will allow the option to expire at maturity.

They will be out the initial cost of the option, .75 ¢ for the call and 1.75¢ for the put. This is the price per DM. Therefore, the price of one contract is .75¢ x 62.500 = $ 468.75. The purchaser's loss is the writer's gain so the writer of the call experiences a net gain of .75¢ and the writer of the put experiences a net gain of 1.75¢.

Case B: Price= $ .58

In this case the call option cannot be exercised for a profit, so the owner of the call will allow it to expire. The net payoff for the purchaser and the writer of the call is identical in the case where the price at maturity was $ .62. However, the put option does have value, since the exercise price exceeds the current price of DM by $ .04 per DM; this means the put option can be exercised for a gain of $ .04. The net gain to the purchaser of the put is the difference between $ .04 and the price initially paid for the option of 1.75¢. Thus the net gain is 2.25¢. Once again, the gain for the purchaser of the put is the same as the loss for the writer of the put, so the writer loses 2.25¢.

Case C: Price= $ .64

In this case the put option has no value at maturity, just like the call option in case B. Therefore, the owner of the put will allow it to expire and will incur a net loss of 1.75¢. The writer of the put will have a net gain of 1.75¢. On the other hand, the call option has a value at maturity of $ .02. Therefore, the purchaser of the call will experience a net gain of $ .02, less the initial cost of the call of .75¢, or 1.25 ¢. Again, the purchaser's gain on the call must be the same as the writer's loss, so the writer's net loss is also 1.25 ¢. For 62.500 DM, this represents $ 0.125 x 62.500 = $ 781.25.

This example shows how investors in long and short positions in both calls and puts determine their net payoffs.

VI-THE ROLE OF THE CLEARINGHOUSE

Options are registered with a clearinghouse that guarantees both the long and short sides of puts and calls[5].

The clearinghouse, formally known as the Options Clearing Corporation (OCC), is an independent corporation that guarantees the writer's performance. The OCC is the intermediary in each transaction. A buyer exercising an option looks not to the writer but to the clearinghouse. A writer exercising an option makes payment for or delivery of the stock to the clearinghouse[1].

The OCC has a number of members, and all option trades must be cleared through a member. If a brokerage house is not itself a member of an exchange's OCC, it must arrange to clear its trader with a member[3].

When purchasing an option, the buyer must pay for it in full by the morning of the next business day. These funds are deposited with the OCC. The writer of the option maintains a margin account with the broker. The broker maintains a margin account with the OCC member that clears its trades. The OCC members, in

turn, maintains a margin account with the OCC. The margin requirements are imposed by the OCC on its members. A brokerage house may require higher margins from its clients. However it can not require lower margins[1].

The OCC fulfills the important responsibility of guaranteeing option writer's performances. Thus, a call buyer need not examine the writer's credit. In fact, in the case of individuals the buyers do not even know the writers' identities.

Since the OCC members assume some risk, the OCC imposes minimum capital requirements on them. The OCC has a claim on their securities and margin deposits in the event of their default. As a further safeguard, the OCC maintains a special fund supported by its members. If that fund were depleted, the OCC could assess its other members so as to ensure its survival as well as that of the options market in general[1].

The OCC, made it possible for greater liquidity to develop in the new standardized options and thereby set the stage for explosive growth in the trading of stock options[12].

VII- SUMMARY AND CONCLUSION

There are two types of options; calls and puts. A call option gives the holder the right to buy the underlying asset for a certain price by a certain date . A put option gives the holder the right to sell the underlying asset by a certain date for a certain price. There are four possible positions in options markets; a long position in a call, a short position in a call, a long position in a put, and a short position in a put. Taking a short position in an option is known a writing it.

Writers of options have potential liabilities and are required to maintain margins with their brokers. The broker if it is not a member of the Options Clearing Corporation will maintain a margin account with a firm that is a member. This firm will in turn maintain a margin account with the OCC. The Options Clearing Corporation is responsible for keeping a record of all outstanding contracts, handling exercise orders, and so on.

It appears that one of the greatest uses of option contracts is as a mechanism to speculate on the movements in prices of securities. They allow an investor to take positions that are otherwise difficult or impossible to construct. The advantage arises from the asymmetrical nature of the option relative to the futures contract. This asymmetry is valuable if you have some specific information or belief about the direction of change of the price of an asset. An option provides a direct mechanism to place a bet on a specific direction of change in the asset price or even a specific range of the asset price.

One of the most important uses of options is to hedge risks or to sell risks off to another party. As a consequence of these advantages options have experienced tremendous growth in the last decade. In a world without options, the available strategies would be quite limited.

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