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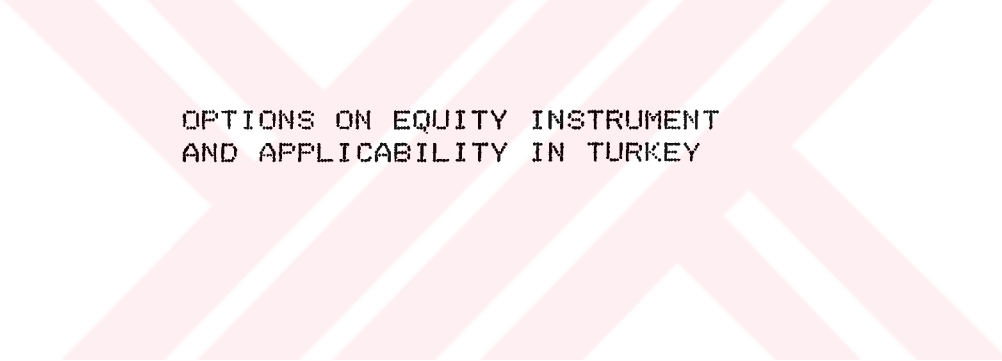
OPTIONS ON EQUITY INSTRUMENT  
AND APPLICABILITY IN TURKEY

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ISTANBUL, JUNE 1991

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## INTRODUCTION

In 70's drastic fluctuations in national economies forced investors and policy makers finding new financial tools and new strategies so as to protect themselves. In order not to suffer from capital risks, new financial innovations were presented to financial environments.

The idea was simply a recognition that the world had entered an era of great financial uncertainty. The risk bred by that uncertainty seeks insurance. Financial futures and options offered the type of insurance that responded to that need. These markets, today, are utilized by investment bankers, broker-dealers, foreign exchange dealers, government security dealers, by banks and insurance companies, by pension funds and mutual funds and by corporations and financial institutions of every kind. The mechanism and structure of them, including the ones on stock and bonds, are all the same.

Financial options was one of the new products and as it is going to be discussed in thesis, was proved that it is the most genius and multi-dimensional innovation of today throughout the market. Since the opening of trading in stock options on the Chicago Board Options Exchange in 1973, the growth of trading in financial options worldwide - both over-the-counter and exchange traded - has been spectacular.

Within ten years of the establishment of the first option exchanges, the volume of trading in stock options grew to a level often exceeding, in terms of share equivalents, that of the New York Stock Exchange, and the number of stocks on which exchange-listed options were available rose from sixteen to nearly four hundred. Individual stock options have been followed by option on stock indices, options on short and long term fixed interest instruments, currency options, and options on physical commodities. Significant financial option exchanges have developed not only in United States, but in the United Kingdom, Canada, The Netherlands, Australia and other centers throughout the world. As a result expansion in terms of volume and type has realised in parallel with geographical expansion.

On the otherhand, the slow hand process experienced in Turkey, has been accelerated by some legal and institutional developments. The establishment of Capital Market Board and the issuance of Capital Market Law followed by the opening of Istanbul Stock Exchange in 1985, after a prolonged period of inactivity have accelerated the attention in and the importance of the capital market recently, in Turkey. The Istanbul Stock Exchange (ISE) has been formally established in December 1985 and first trading session was held in January 1986. The Exchange has gained considerable popularity ever since and the volume of daily transactions in corporate stocks has exceeded 270 billion.



The competitive nature of financial and speculative markets enables investors to identify investments by their degrees of risks. Options are likely to drive public interest in Turkey, especially in the sense that, more investors who are not eager to undertake high degrees of risk, more foreign investors who are familiar with such mechanisms and feel the absence of some alternative investment instruments are all going to be in business.

Being an emerging stock market, Istanbul Stock Exchange has witnessed considerable activity, accelerated by structural reforms and policies crucial for the rapidly growing securities market in Turkey, but it is obvious that we are at the beginning of the road to have relatively perfect capital market in which some alternative financial tools are being widely used, in the parallel to developments in financial centers of the world.

Although both participants of our capital market and the policy makers in touch with the global developments has put this issue on agenda, the financial options concept still sounds so new and untouchable. As a person so close to developments (especially in practise) of spot market, I tried to analyze financial options by concentrating on the oldest and largest of these markets, common stocks' options. And also the thesis shall be researching the adaptation of that innovation to Turkish Capital Market as a derivative market,

in the light of the French and as a spectacular one, the United States experiment.

The methodology that is going to be followed, shall be in that way; after this part, first section is going to begin with emergence of global option markets and the description of options contracts. After presented the A-B-C of options, the structure of market and participants will be introduced to the reader. In this section then some figures and developments from practical world are going to be commented on with the examples of the USA and French derivative markets. Finally in this section we will try to consider future and forward as other innovations in comparative manner. In second section, readers as potential investors are going to meet concept of valuation and then option pricing models will be analyzed with the glass of an investor. Third section is devoted to the strategies of option trading in order to conceive how options are being used in markets. Then brief history of Turkish Capital Market with its updated example of Istanbul Stock Exchange, legislative transformation of capital market in the eighty's will be evaluated. The adaptation basis of the options market is going to be discussed with the analyze of pro's and con's of our capital market and the efficiency of Turkish spot market under the legal structure in the fifth chapter. Finally the thesis is going to be completed with the conclusion part in regard of establishing such derivative mechanisms in Turkish

capital market with the point of view of person employed in  
the only organized national market.



## I. OPTIONS

### I.1 The Emergence of Global Options Market as a Financial Innovation

Man has been trading commodities for thousands of years and financial instruments for more than hundreded years. The ancient prerunners of today's trading floors - the agoras of ancient Greece, the forums of the Roman Empire and the medieval fairs of Western Europe - established basic principles of trading that are still important today.

As we know financial markets are markets for financial assets. A financial asset is a claim on another person or corporation. Options, forward, and futures markets are markets for contractual instruments. A contract is an agreement between two parties in which each party gives something to the other. Such contracts are established by two parties - buyer and seller - and trade in a manner similar to that of securities.

The history of options contracts on physical commodities is, that's why, a long one. There is evidence of the use of option related contracts in the ancient world, and among the medieval banks and financial institutions of Italy, Germany and other financial centers. Options on individual stocks

were traded on semi-organized exchanges in Holland and the United Kingdom as early as the 17th century. For the reason of the lack of an adequately organized exchange on which trading could take place, and adequate clearing and regulatory systems to ensure the maintenance of an orderly market and the efficient fulfilment of the option contracts, the history of options trading has been characterized by scandals, defaults, and other criminal activities.(1)

In the early 1900's, a group of firms calling itself the Put and Call Brokers and Dealers Association created an options market. If someone wanted to buy an option, a member of the association would find a seller willing to write it. If it is needed, it would write the option itself. This means that there was no difference between serving a 'broker'- one who matches buyer and seller- or serving a 'dealer'- one who actually takes a position in the transaction. Of course, we should add outright that this over-the-counter options market suffered from some deficiencies :

a) There was no opportunity of an option holder to sell the option before the expiration date. This meant an option contract had little or no liquidity.

b) The writer's performance was guaranteed only by the broker-dealer firm. In case of a sudden bankruptcy, the option holder would be in a big trouble.

c) The cost of transaction was relatively high, partly due

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(1) FITZGERALD, Desmond, Financial Options, 1987, London, pg.1.

to the first two problems.

In 1973, a revalutionary step were taken for the options world. The solution for the three above mentioned problem was found by the commencement of stock option trading on the Chicago Board Options Exchange, and founding of the Options Clearing Corporation to guarantee performance on all stock options contracts traded on US stock exchanges. The exchange began modestly, with trading only in call options on sixteen common stocks, but it soon became a tremendous success. This success subsequently led to a vast expansion of option trading in the United States, both on additional exchanges such as the American Stock Exchange(AMEX), the Philadelphia Stock Exchange(PHLX), the Chicago Board of Trade and the Chicago Mercantile Exchange, and on many different underlying assets such as currencies, stock indices, and treasury bonds. Exchange traded options markets also developed in Amsterdam, London, Sydney and Toronto.(2)

On the otherhand, the transaction volume of the over-the-counter options market has steadily declined. The vast majority of options trading is now done on organized exchanges.

Some outstanding developments innovated after the establishment of organized option exchanges are ;

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(2) FITZGERALD, *ibid.*, pg.1.

a) The creation of a central market place with regulatory surveillance, disclosure, and price dissemination capabilities.

b) The standardization of expiration dates and the standardization of exercise prices has provide more liquid market.

c) The creation of a secondary market, so that there is no obligation for holders of options imposing them holding their options untill the expiration date. In practise, the majority of options buyers sell their options on the exchange either for a profit or reduce the loss.

d) The introduction of a Clearing Corporation as the guarantor of every options. Standing as the opposite party for every trade, the Clearing Corporation enables buyers and sellers of options to close their positions in the market at any time by making an offsetting transaction.

e) The transaction cost of options quoted in exchange list is lower than cost faced in conventional over-the-counter markets. It is seen that that fact has got positive effect on transaction volume.

f) Options Clearing Corporation does not issue certificates. This has been the end of the physical shipment

and no doubt has brought efficiency and reduced the costs also.

## I.2 The Basics of Option Contracts

Options markets exists for a wide variety of instruments, we will focus on the oldest and largest of these markets, options on common stock.

An option contract is the right to buy or sell a specific quantity of a given asset at a specific price at or before a specific date in the future. As such it has certain important characteristics.

1) An option conveys upon the buyer a right not an obligation. Since it can be abandoned without further penalty, the maximum loss that the buyer faces is the original cost of the option.

2) By contrast if the buyer chooses to exercise his right to buy or sell the asset, the seller has an obligation to deliver or take delivery of the underlying asset. His potential loss is therefore unlimited.(3)

At the very beginning, there is two main type of options contract.

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(3) FITZGERALD, *ibid.*, pg. 7.



### 1.2.1 Call Options

A call option is a contract giving its owner the right to buy a fixed number of shares of a specified common stock at a fixed price at any time on or before a given date.

Let us examine the profit and loss profile for buying and selling call option.

#### 1) Buying Calls:

Buying an XYZ July 50 call option gives investor the right to purchase 100 shares of XYZ common stock at a cost of \$50 per share at any time before the option expires in July.

Assume that the price of the underlying shares was \$50 at the time investor bought his option and premium he paid was 3 1/2 (or \$350). The right to buy stock at a fixed price becomes more valuable as the price of the underlying stock increases. if the price of XYZ stock climbs to \$55 before his option expires, that's way the premium rises to 5 1/2. Now the investor has two choices in disposing of his in-the-money option;

- a) He can exercise his option and buy the underlying XYZ stock for \$50 a share for a total cost of \$5,350 (strike price plus premium paid) and simultaneously sell the shares on the stock market for \$5,500 yielding a net profit of \$150.
- b) He can sell the option contract for \$550, collecting the difference between premium received and paid, \$200. In this

case, investor makes a profit of 57% ( $200/350$ ) whereas his profit on an outright stock purchase, given the same price movement, would be only 10% ( $55-50/50$ )

If the price of XYZ instead fell to \$45 and the option premium fell to  $7/8$ , investor could sell his option to partially offset the premium he paid. Otherwise, the option would expire worthless and his loss would be the total amount of the premium paid. In most cases, the loss on the option would be less than what he would have lost had he bought the underlying shares outright, \$262.50 versus \$500 in this example.

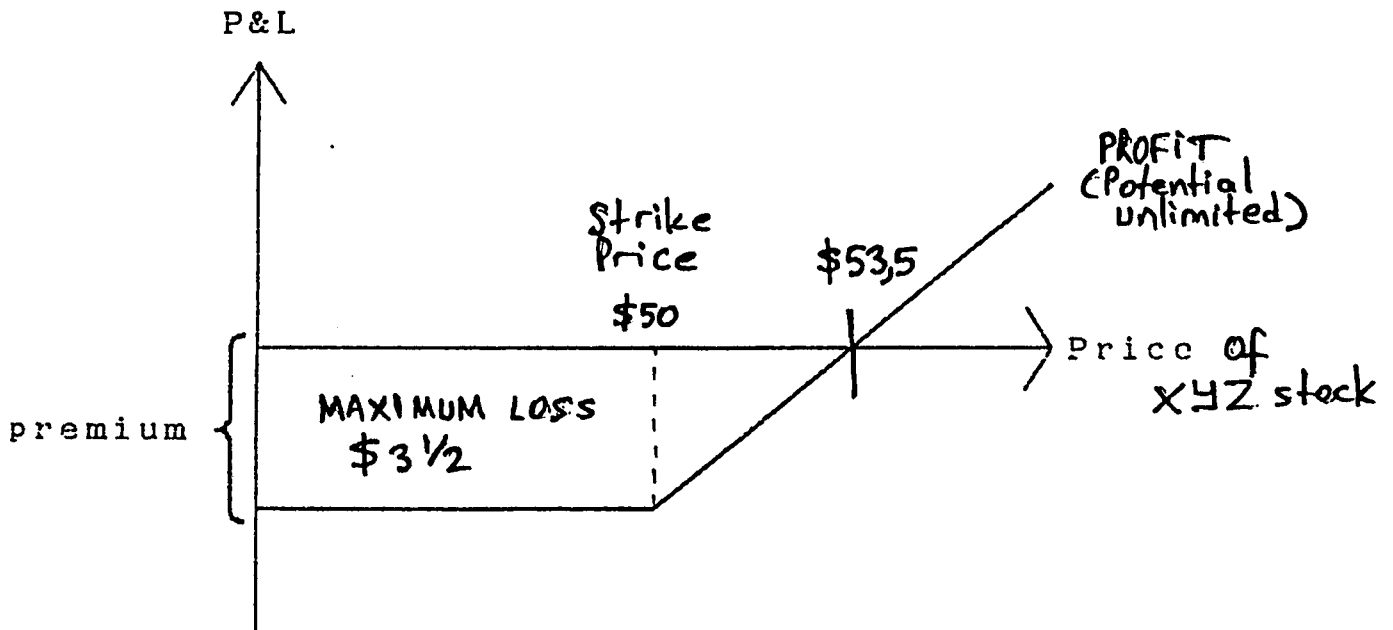
This profit profile may be simply illustrated by the use of a graph. It shows how the investor moves into profit once the underlying stock price moves above \$53.5 (the exercise price plus premium paid). As it is seen that this illustration considers the outcome at expiry of the option. (first choice of our investor)

## 2) Selling Calls:

As a call writer, investor obligate himself to sell, at the strike price, the underlying shares of stock upon being assigned an exercise notice. For assuming this obligation, investor is paid a premium at the time he sell the call.

Long Call

Buying a right to buy



Diag.1 Long (bought) XYZ Call Option

The most common way is writing calls against a long position in the underlying stock, referred to as covered call writing. Investors write covered calls primarily for the following two reasons:

- 1) to realize additional return on their underlying stock by earning premium income
- 2) to gain some protection (limited to the amount of the premium) from a decline in the stock price.

A covered call writer's potential profits and losses are influenced by the strike price of the call he chooses to sell. In all cases, the writer's maximum net gain will be realized if the stock price is at or above the strike price

of the option at expiration or at assignment. Assuming the stock purchase price is equal to the stock's current price:

a) If he writes an at-the-money call (strike price equal to the current price of the long stock), his maximum net gain is the premium he receives for selling the option; b) If he writes an in-the-money call (strike price less than the current price of the long stock), his maximum net gain is the premium minus the difference between the stock purchase price and the strike price; c) If he writes an out-of-the-money call (strike price greater than the current price of the stock), his maximum net gain is the premium plus the difference between the strike price and the stock purchase price should the stock price increase above the strike price.

Assume our investor writes an XYZ July 50 call at a premium of 4 covered by 100 shares of XYZ stock which he bought at \$50 per share. The premium he receives helps to fulfill one of his objectives as a call writer: additional income from his investments. In this case, a \$4 per share premium represents an 8% yield on his \$50 per share stock investment.

If the stock price subsequently declines to \$40, his long stock position will decrease in value by \$1,000. This unrealized loss will be partially offset by the \$400 in premium he received for writing the call. In other words, if he actually sells the stock at \$40, his loss will be only

\$600.

On the other hand, if the stock price rises to \$60 and he is assigned, he must sell his 100 shares of stock for \$5,000. By writing, a call option, he has forgone the opportunity to profit from an increase in value of his stock position in excess of the strike price of his option. The \$400 in premium he keeps, however, results in a net selling price of \$5,400. The \$6 per share difference between this net selling price (\$54) and the current market value (\$60) of the stock represents the "opportunity cost" of writing this call option.

Of course, our investor is not limited to writing an option with a strike price equal to the price at which he bought the stock. He might choose a strike price that is below the current market price of his stock (i.e., an in-the-money option). Since the option buyer is already getting part of the desired benefit, appreciation above the strike price, he will be willing to pay a larger premium, which will provide him a greater measure of downside protection. However, he will also have assumed a greater chance that the call will be exercised.

On the other hand, he could write a call option with a strike price that is above the current market price of his stock (i.e., an out-of-the-money option). Since this lowers

the buyer's chances of benefiting from the investment, his premium will be lower, as will the chances that his stock will be called away from him.

A call option writer is uncovered if he does not own the shares of the underlying security represented by the option. As an uncovered call (also referred to as a naked call) writer, your objective is to realize income from the writing transactions without committing capital to the ownership of the underlying shares of stock. Writing uncovered calls can be profitable during periods of declining or generally stable stock prices. An uncovered call writer must deposit and maintain sufficient margin with his broker to assure that the stock can be purchased for delivery if and when he is assigned.

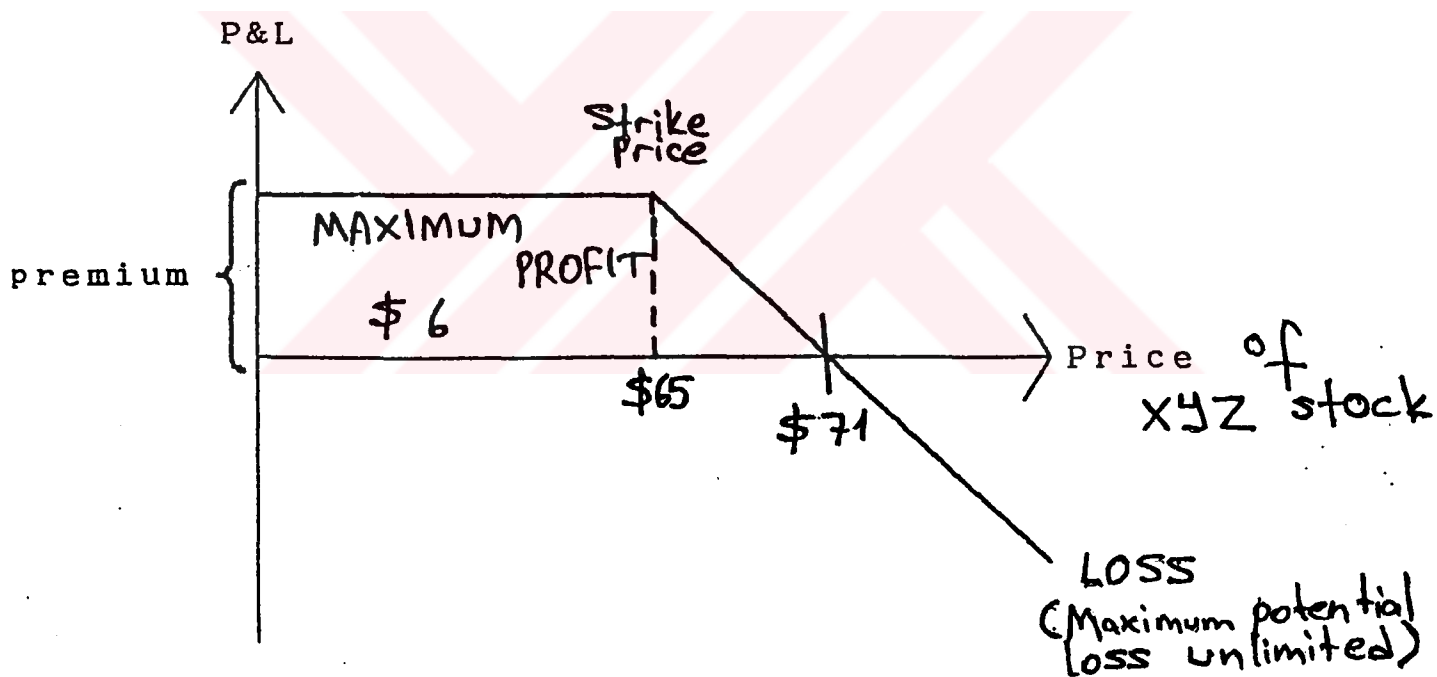
If our investor writes an XYZ JULY 65 call for a premium of 6, he will receive \$600 in premium income. If the stock price remains at or below \$65, he will not be assigned on his option and because he has no stock position, the price decline has no effect on his \$600 profit. On the other hand if the stock price subsequently climbs to \$75 per share, he likely will be assigned and will have to cover his position at a loss of \$400 (\$1,000 loss on covering the call assignment offset by \$600 in premium income).

As with any option transaction, an uncovered call writer

may cancel his obligation at any time prior to being assigned by executing a closing purchase transaction. An uncovered call writer also can mitigate his risk at any time during the life of the option by purchasing the underlying shares of stock, thereby becoming a covered writer.

Diagram 2 shows how the profit and loss profile would look at the expiry of the option.

**Short Call      Selling a right to buy**



Diag.2 Short(written) XYZ Call Option

I.2.2 Put Options

A put option is a contract giving its owner the right to sell a fixed number of shares of a specified common stock at

a fixed price at any time on or before a given date.

Let us examine the profit and loss profile for buying and selling put option.

#### 1)Buying Puts:

Put options may provide a more attractive method than shorting stock for profiting on stock price declines, in that, with purchased puts, investor has a known and predetermined risk. The most he can lose is the cost of the option. If he short stock, the potential loss, in the event of a price upturn, is unlimited.

Another advantage of buying puts results from investor's paying the full purchase price in cash at the time the put is bought. Shorting stock requires a margin account, and margin calls on a sort sale might force him to cover his position prematurely, even though the position still may have profit potential. As a put buyer, he can hold your position through the option's expirations without incurring any additional risk.

Buying an XYZ July 50 put gives our investor the right to sell 100 shares of XYZ stock at \$50 per share at any time before the option expires in July. This right to sell stock at a fixed price becomes more valuable as the stock price



declines.

Assume that the price of the underlying shares was \$50 at the time he bought his option and the premium he paid was 4(or \$400). If the price XYZ falls to \$45 before July and the premium rises to 6, he has two choices in disposing of his in-the-money put option:

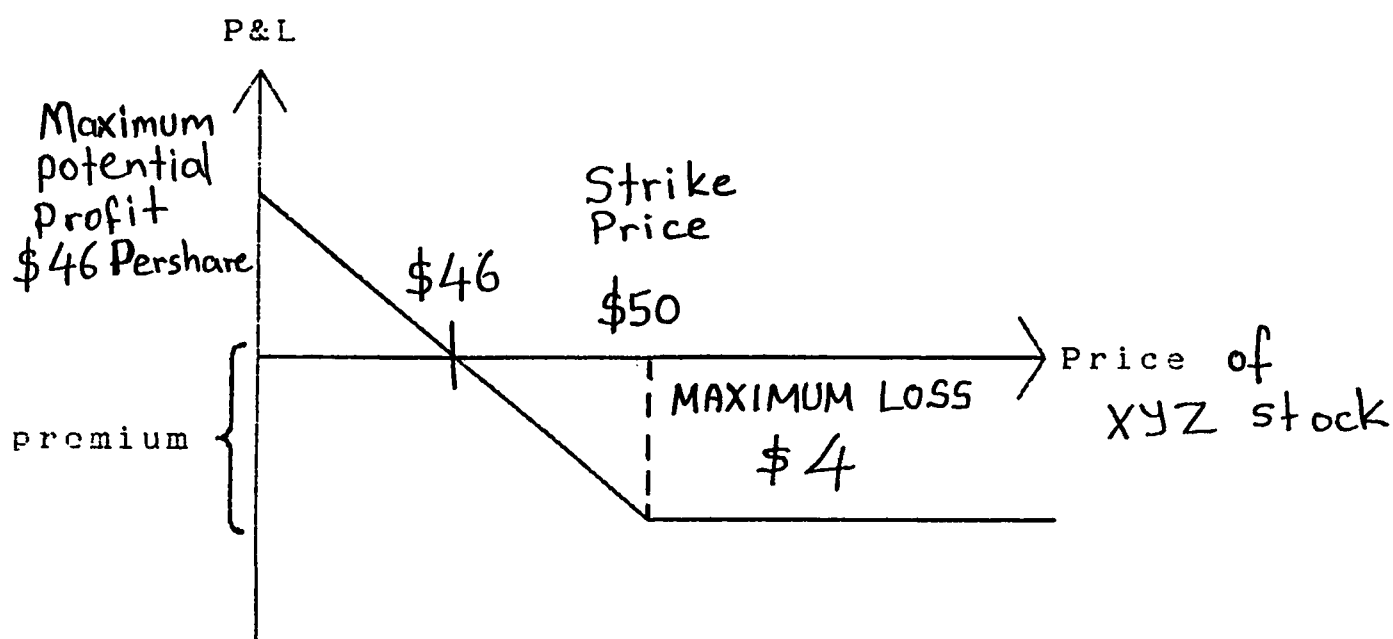
- a) He can buy 100 shares of XYZ stock at \$45 per share and simultaneously exercise his put option to sell XYZ at \$50 per share, netting a profit of \$100(\$500 profit on the stock less the \$400 option premium).
- b) He can sell his put option contract, collecting the difference between the premium paid and the premium received, \$200 in this case.

If XYZ prices instead had climbed to \$55 prior to expiration and the premium fell to 1 1/2, his put option would be out-of-the money. He could still sell his option for \$150, partially offsetting its original price. In most cases, the cost of this strategy will be less than what he would have lost had you shorted XYZ stock instead of purchasing the put option, \$250 versus \$500 in this case.

As it is going to be seen in Diagram 3, investor can benefit from downward price movements while limiting losses to the premium paid if prices increase.

Long Put

Buying a right to sell



Diag.3 Long (bought) XYZ put option 2) Selling puts:

Selling a put obligates an investor to buy the underlying shares of stock at the option's strike price upon assignment of an exercise notice. The investor is paid a premium when the put is written to compensate him for assuming this risk.

A put writer is considered to be covered if he has a corresponding short stock position. A covered put writer's profit potential is limited to the premium received plus the difference between the strike price of the put and the original share price of the short position. The potential loss on this position, however, is substantial if the price of the stock increases significantly above the original share price of the short position. In this case, the short stock will accrue losses while the offsetting profit on the put sale

is limited to the premium received.

The covered put writing is not frequently used because uncovered call writing offers the same risk/reward scenario and generally involves less commission cost and higher premiums.

A put writer is considered to be uncovered if he does not have a corresponding short stock position or has not deposited cash equal to the exercise value of the put. Like uncovered call writing, uncovered put writing has limited rewards (the premium received) and potentially substantial risk (if prices fall and you are assigned). The primary motivations for most put writers are:

- 1) to receive premium income and
- 2) to acquire stock at a net cost below the current market value.

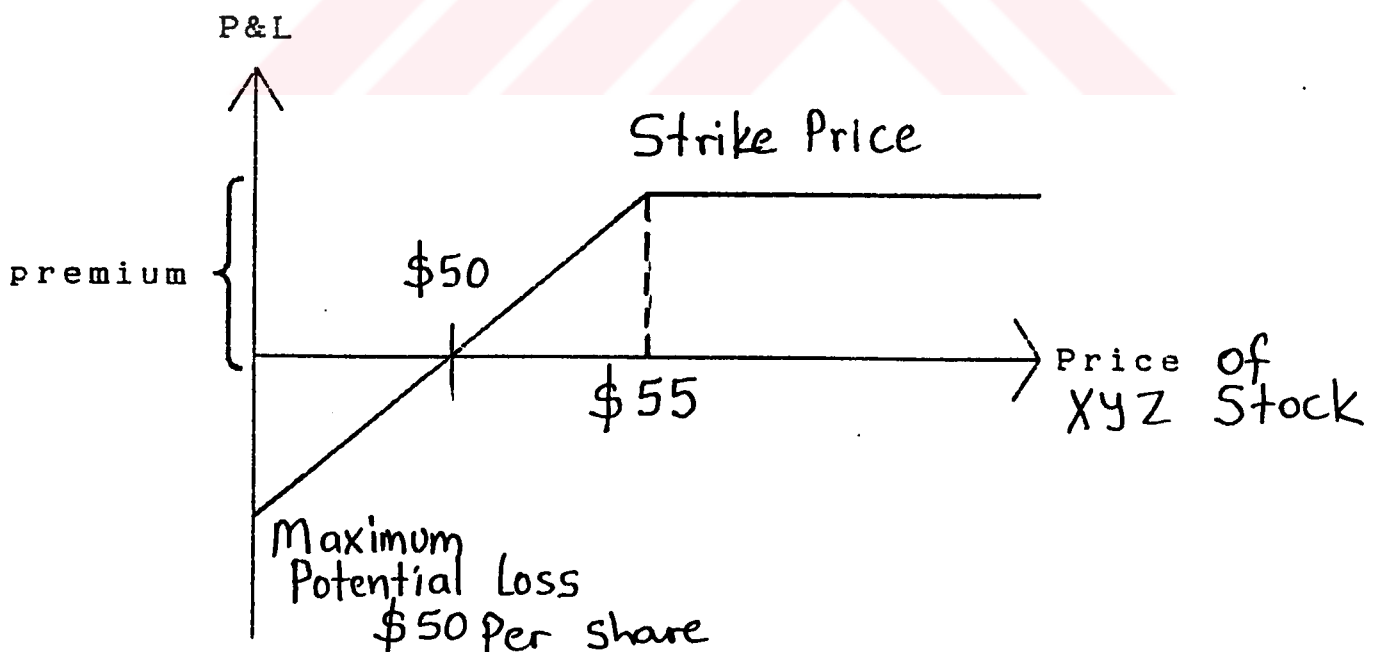
If the stock price declines below the strike price of the put and the put is exercised, writer will be obliged to buy the stock at the strike price. His cost will, of course, offset at least partially by the premium he received for writing the option.

Assume our investor write an XYZ JULY 55 put for a premium of 5 and the market price of XYZ stock subsequently drops from \$55 to \$45 per share. If he is assigned, he must

buy 100 shares of XYZ for a cost of \$5,000 (\$5,500 to purchase the stock at the strike price minus \$500 premium income received.)

If the price of XYZ had dropped by less than the premium amount, say to \$52 per share, he might still have been assigned but his cost of \$5,000 would have been less than the current market value of \$5,200. In this case, he could have then sold his newly acquired 100 shares of XYZ on the stock market with a profit of \$200. Had the market price of XYZ remained at or above \$55, it is highly unlikely that he would be assigned and the \$500 premium would be his profit.

Short Put      Selling a right to sell



Diag. 4 Short(written) XYZ stock put option

The basic profit profile may be simply illustrated by the use of diagram 4.

### 1.2.3 The Basic Risks

As far as we mentioned above chapters, trading options are highly profitable tools. And we are going to understand this character more precisely by analyzing strategies of option trading in further chapters, too. On the otherhand this tools are introducing investors some peculiar risks.

#### A) Risks of Buying Options;

1) The purchaser of an option runs the risk of losing his entire investment in a relatively short period of time. This risk reflects the nature of an option as a wasting asset which becomes worthless when the option expires. This means that the purchaser of an option who neither sells it in the secondary market nor exercise it prior to expiration will necessarily lose his entire investment in the option.

2) The more an option is out-of-the-money and the shorter its remaining term to expiration, the greater the risk that a purchaser of the option will lose all or part of his investment.

#### B) Risks of Writing Options:

1) The writer of an American-style option may be assigned an exercise at any time during the life of the option. Once an exercise has been assigned to a writer (by the randomized method of the clearing corporation), the writer may no longer close out the assigned position in a closing purchase transaction, whether or not he has received notice of the assignment. In that circumstance, an attempted closing purchase would be treated as an opening purchase transaction.

2) The writer of a covered call forgoes the opportunity to benefit from an increase in the value of the underlying interest above the option price, but continues to bear the risk of a decline in the value of the underlying asset.

3) The writer of an uncovered call is in an extremely risky position, and may incur large losses if the value of the underlying interest increases above the exercise price.

4) The writer of a put option bears a risk of loss if the value of the underlying asset declines below the exercise price. Unlike the covered call writer, who can deliver securities or currencies that he already owns in the event of exercise, a put writer who is assigned an exercise must purchase the underlying asset. Unless the put is a cash-secured put, the writer of a put is required to maintain margin with his broker.

### I.3 Options Common Nomenclature

There has been five main elements of an option contract;

- 1) Style and Type,
- 2) Underlying Asset,
- 3) Expiration Date,
- 4) Strike Price (Exercise Price),
- 5) The Exchange on which option traded.

- The specific stock on which an option contract is based is commonly referred to as the **underlying security**. A stock option contract's unit of trade is the number of shares of underlying stock which are represented by that option. Generally speaking, stock options have a unit of trade of 100 shares.

- The **strike price**, or **exercise price**, of an option is the specified share price at which the shares of stock can be bought or sold by the holder, or buyer, of the option contract if he exercises his right against a writer, or seller, of the option.

If the strike price of a call option is less than the current market price of the underlying security, the call is said to be **in-the-money** because the holder of this call has the right to buy the stock at a price which is less than the price he would have to pay to buy the stock in the stock

market. Likewise, if a put option has a strike price that is greater than the current market price of the underlying security, it is also said to be in-the-money because the holder of this put has the right to sell the stock at a price which is greater than the price he would receive selling the stock in stock market. The converse of in-the-money is out-of-the-money. If the strike price equals the current market price, the option is said to be at-the-money.

- Option buyers pay a price for the right to buy or sell the underlying security. The price is called the option **premium**. Whether or not an option is ever exercised, the writer keeps the premium.

- There are two styles of options: **American** and **European**. In the case of an American option, the holder of an option has the right to exercise his option on or before the expiration date of the option; otherwise, the option will expire worthless and cease to exist as a financial instrument. A **European** option is an option which can only be exercised upon its expiration. The holder or writer of either style of options can close out his position at any time simply by making an offsetting, or closing transaction. A **closing transaction** is a transaction in which, at some point prior to expiration, the buyer of an option makes an offsetting sale of an identical option, or the writer of an option makes an offsetting purchase of an identical option.



A closing transaction cancels out an investor's previous position as the holder or writer of the option.

- All option contracts that are of the same type(put or call), and style(American or European) and cover the same underlying security are referred to as a class of options. All options of the same class that also have the same unit of trade at same strike price and expiration date are referred to as an option series.

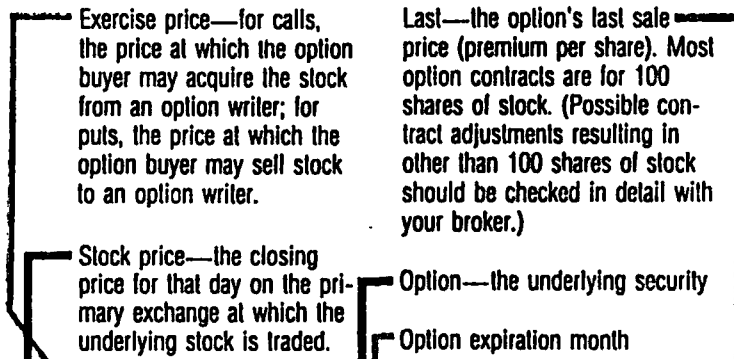
	TYPE	CLASS	SERIES
Put or Call	A stock put		
Expiration		A December stock put	
Strike Price			A \$400 December stock put

Table 1. Identifying an Option

If a person's interest in a particular series of option is as a net holder(that is, if the number of contracts bought exceeds the number of contracts sold), then this person is said to have a long position in the series. Likewise, if a person's interest in a particular series of options is as a net writer(if the number of contracts sold exceeds the number of contracts bought), he is said to have a short position in the series.

In the illustration, Ford options were available with exercise prices from 45 to 80. Expiration months were March,

June and September. On the particular day in our example Ford stock closed at 74 1/4.



### Chicago Board

Option & NY Close	Strike Price	Calls-Last			Puts-Last		
		Mar	Jun	Sep	Mar	Jun	Sep
Ford	45	r	r	s	r	1/16	s
74 1/4	55	20	r	r	1/16	r	1 15/16
74 1/4	60	14 1/4	15 3/4	16	1/8	1/2	2 3/8
74 1/4	65	10 1/2	11	12 3/4	1/2	1 1/2	3 3/4
74 1/4	70	6 3/8	7 1/2	9 3/4	1 5/8	3	5
74 1/4	75	3 1/2	5 1/4	7 1/8	4	5	6
74 1/4	80	1 1/2	3 3/8	5	6 1/2	7 1/2	r
GenCp	65	7 3/8	s	s	1/2	s	s
71 5/8	70	4 1/2	6	r	2 1/4	3 1/2	4 1/2
71 5/8	75	2	4 1/2	6	5 1/4	r	r
71 5/8	80	1 5/16	r	r	r	r	r
71 5/8	85	1/4	1	r	r	r	r
Gen El	75	26 3/4	27	s	r	1/4	s
100 1/4	80	21 3/4	r	r	1/16	r	r
100 1/4	85	16	18 1/4	19 1/4	3/8	1/4	2
100 1/4	90	11	13 1/2	15 1/4	1 5/16	2 1/4	2 3/4
100 1/4	95	7 3/8	9 1/4	12	2 1/8	r	4 1/2
100 1/4	100	4 1/2	7	9 1/8	4 3/8	5 1/8	7
100 1/4	105	2 3/4	5	7	6 3/4	r	r
G M	60	13	r	r	1/8	1/2	1
74 1/2	65	9 3/4	10	8 1/2	7/16	1 1/4	2
74 1/2	70	5 3/8	6	7	1 1/16	2 13/16	4 1/4
74 1/2	75	2 1/4	3 3/8	4 1/4	3 1/2	5 1/2	6 1/2
74 1/2	80	1/8	1 1/8	s	8 3/8	8	s
74 1/2	85	3/16	s	s	r	s	s
Gif Wn	60	10	r	r	r	r	r
69 1/4	65	5 3/4	r	r	3/4	r	r
69 1/4	70	2 1/4	4 1/2	6	2 5/8	r	r
69 1/4	75	1/8	2 3/8	r	r	r	r
Heinz	40	4 1/4	5 5/8	r	5 1/16	3/4	1
44 3/4	45	1 1/2	2 3/8	3 1/2	2 7/16	2 1/2	3 1/2
44 3/4	50	1/4	3/4	r	r	r	r
HughTI	10	1	1 1/2	r	r	r	r
70 3/4	12 1/2	3/16	1/2	r	r	r	r
ICX Ind	22 1/2	5	5 1/2	r	r	r	r
27 1/4	25	3	3 1/4	4	1/2	1 1/8	r
27 1/4	30	9/16	1 1/8	1 1/2	3 1/4	r	r
27 1/4	35	1/8	s	s	r	s	s

r—Not traded. s—No option offered.  
Last is premium (purchase price).

Table 2. A typical listing published in most daily newspapers (i.e. CBOE option prices)

#### I.4 As An Investment Tool: Options and Common Stocks

It is obvious that options share many similarities with common stocks:

- Both options and stocks are listed securities. Orders to buy and sell options are handled through brokers in the same way as orders to buy and sell stocks.
- Like stocks, options trade with buyers making bids and sellers making offers.
- Option investors, like stock investors, should follow price movements, trading volume and other pertinent information day by day or even minute by minute.

Despite both instruments have similarities, there are also some important differences:

- Common stock can be held indefinitely in the hope that its value may increase, while every option has an expiration date. For this reason, an option can be considered a "wasting asset". (if it is not closed out or exercised before its expiration date.)
- There is not a fixed number of options, as there is with common stock shares available (Though some limitations on positions in listed options are being imposed by exchanges on certain periods) Thus, unlike shares of common stock, the number of outstanding options depends solely on the number of buyers and sellers interested in receiving and conferring these rights.

- Unlike stocks which have certificates evidencing their ownership, options are certificateless. That is an innovation of the option markets, sharply reduces paperwork and delays.

- While stock ownership provides the holder with a share of the company, certain voting rights (Now, shares without voting right is possible.), and rights to dividends, option owners participate only in the potential benefit of the stock's price movement.

## I.5 The structure of Option Markets

### I.5.1 Market Participants

Standardized option contracts provide orderly, efficient, and liquid option markets throughout the financial world. In order to understand whole logic apart from regulatory dimension, we should take a look at all components and their roles in market. This structural analyze is going to be backed with some popular examples in further chapters also.

In market,

#### A) An Institutional Exchange:

It is a modern environment with the full of technic and multi-functuning tools, established for the purpose of facilitating transactions between buyers and sellers in the

light of legal regulations.

**B) A Clearinghouse:**

It is a legal entity in charge of matching orders from buyers and sellers. Each clearinghouse has very different procedures and levels of guarantee.

**C) A Clearing Firm:**

It is a member of an exchange that has approval of the clearinghouse to enter executed trades for matching. All trades must be entered to the clearinghouse through a clearing firm.

**D) Associate Member:**

Those firms may not be active on the floor but require floor members to execute trading in their behalf. It can also refer to a specific division of an exchange to which somewhat restricted floor privileges are extended.

**E) Advisor:**

It gives advisory service to its clients on trading decisions and research information. Although exchange membership is not required, i.e. in USA an advisor must be a registered Associated Person.

**F) Floor Broker:**

It executes order in the pit (often referred to as an order

filler) an must be an exchange member. Most of the exchanges require attendance of seminars and completion of testing before the nominee is allowed to do business on the floor. Although he may execute orders for many clearing firms, a broker must be approved by a single firm before doing business on the floor.

G) Member:

An individual, a firm or a corporation who has been approved by an exchange board and purchased a membership. He may or may not exercise his floor privileges. The membership may be assigned to a clearing firm or, on some exchanges, leased to another individual.

H) Local:

Member who has floor privileges and makes a market trades for his own account on a daily basis; also referred to as a market maker.

I) Introducing Broker:

A firm or individual that solicits and accepts orders from customers but does not accept money, securities, or property from the customer. It may arrange institutional business that goes directly to trading floors or they may actually operate their own retail order desk. An exchange membership is not required.

J) Money manager:

Makes all trading decisions for customers. An exchange membership is not required. They are usually paid on an incentive basis.

### I.5.2 The Mechanics of Option Trading

Though the mechanic and process varies one market to another, all markets follow some general practices. Throughout the trading process there are some substantial phases that should be understood clearly because they are key-activities of trading.

A) **Placing an opening order;** an individual who wants to trade options should open an account with a brokerage firm. Then an investor can place several different types of orders which are like to orders in spot market of equities. A market order instructs the floor broker to obtain the best price. A limit order specifies a maximum price to pay (in buying) or a minimum price to accept (in selling). A good-till-cancelled order remains in effect until cancelled. As in spot market, a day order stays in effect for the remainder of the day. An investor holding a particular option might place a stop order (sometimes it is referred stop loss order) at a price lower than the current price (sell stop), or placed above the market (buy stop).

- B) **The role of the clearinghouse;** After the trade is realized, the clearinghouse enters the process. It is the intermediary in each transaction. This means that an option buyer looks not to any particular option writer but to the clearinghouse. Similarly the obligations of option writers are owed to the clearinghouse rather than to any particular buyer.
- C) **Placing an Offsetting Order;** It is at the beginning of liquidation process. It can be a liquidation of a options through the sale of an equal number of identical options(same type, underlying contract, expiration date and exercise price), or the covering of a sale of options through the purchase of an equal number of identical options.
- D) **Exercising an Option;** According to the style of the option exercising the call(or put) means that an investor elect to purchase (or sell) the underlying asset at option strike price. An investor who elects to exercise an option notifies the brokerage firm, which in turn notifies the clearinghouse through which the trade originally was cleared.

### I.5.3 The Role of Options

- A) The modern concept of hedging in the options focuses on



the use of the underlying derivative securities to control some elements of portfolio or business risk. By the means of hedging an investor may increase risk in one way while reducing them in another. In contrast to spot markets, these markets neither create nor destroy wealth. One investor's gain is another's loss. Options market enable those wishing to reduce their risk to transfer it those wishing to increase it because these markets are so effective at reallocating risk among investors. This means that options can be used for risk management.

- B) Option markets provide valuable information about the volatility and, hence, the risk of the underlying asset. Then an investor can make some suggestions about the future spot prices.
- C) Options markets are offering several operational advantages. One is that they bring lower transaction costs. This makes it easy and attractive to use these markets either instead of spot markets or to complete spot positions. Second is that options markets present greater liquidity than spot markets. Third is that options market also allows investors to sell short more easily. Securities markets impose several restrictions designed to limit or discourage short selling that are not applied in options transactions.

D) These markets require the presence of speculators willing to assume risk in order to accommodate the hedgers wishing to reduce it. In exchange for mentioned bridging impact, options market provide an alternative means of speculating by the means of limited loss facilities (ie. premium system) for those, named as speculators.

### I.6 Options and Related Instruments in Brief

Webster's New Collegiate Dictionary defines an option in the financial sense as "a contract conveying a right to buy or sell designated securities or commodities at a specified price during a stipulated period." And Hancerlioglu defines an option (under the topic of 'secme yetkisi') "a right to decide on buying or selling in a certain period". (4) More precisely an option is a contract between two parties - a buyer and seller - that gives the buyer the right, but not the obligation, to purchase or sell something - in our case stocks or index - at a later date at a price agreed upon today.

The party retaining the option is usually termed the 'option buyer', since he must pay for the privilege involved. The party with no subsequent choice is termed the 'option seller' or in some cases the 'writer' or 'maker' of the option.

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(4) HANCERLIOGLU, Orhan, Ekonomi Sozlugu, Istanbul, 1986, pg. 366.

The option seller stands ready to sell or according to the contract terms if and when the buyer so requires. An option to buy something is referred to as a call ; an option to sell something is called a put . The option has a definite life. The right to buy or sell the asset at a fixed price up to a specified expiration date.

The options that are concerned in this thesis are options that trade in organized options markets. Most of these options are for the purchase of financial assets such as stocks or bonds. However, there are also options on futures contracts, and foreign currencies. Many other types of financial arrangements such as line soft credit, loan guaranties, and insurance, are forms of options. Moreover, stock itself is equivalent to an option on the firm's assets.

#### 1.6.1 Forward Contracts

A forward contract is an agreement between two parties - buyer and a seller - to purchase or sell something at a later date at a price agreed upon today. A forward contract sounds a lot like in option. However, an option carries the right, not the obligations, to go through with the transaction. If the price of the underlying good changes, the option holder may decide to forgo buying or selling at the fixed price. On the other hand, the two parties in a forward contract incur the obligation to ultimately buy and sell the good.

Forward markets, unlike option markets, have no physical facilities for trading; there is no building or formal corporate body organized as the market. All around the world, forward markets operate through informal communication channels among major financial institutions

Because forward contracts are not traded on organized exchanges, prices and contract terms are not standardized and the extent and volume of trading are not known. Forward contracts primarily facilitate understanding of another type of instrument - futures contracts.

#### 1.6.2 Future Contracts

A future contract is an agreement between two parties - a buyer and a seller - to buy or sell something at a future date. The contract trades on a futures exchange and is subject to a daily settlement procedure. Futures contracts evolved out of forward contracts and possess many of the same characteristics. In essence, they are like liquid forward contracts. Unlike forward contracts, however, future contracts trade on organized exchanges, which are called future markets. For example, the buyer of a future contract, who has the obligation to buy the good at a later date, can sell the contract in the futures market, which relieves him or her of the obligation to purchase the good. Likewise, the seller of the futures contract, who is obligated to sell the good

at the later date, can buy the contract back in the futures market, relieving him or her of the obligation to sell the good. Future contracts also differ from forward contracts in that they are subject to daily settlement procedure. In the daily settlement, investors who incur losses pay them every day to investors who make profits.

Future prices fluctuate from day to day, and contract buyers and sellers attempt to profit from these price changes and to lower the risk of transacting in the underlying goods.

The striking differences between futures and forward contracts in brief;(5)

a) In forward transaction, counterparties define all detailed specifications (i.g. quantity of underlying asset, delivery date, expiration, price, etc.) because they are not standardised.

b) Forward contracts can not be transferred to third person. Offsetting is not possible. All of them result with physical delivery unless counterparties are in favour of cancellation.

c) There is no margin requirement for forward transactions.

d) Every party responsible against other in forward transactions in case of delivery. This means that counterparties should know each other well to trust each other. In future contracts, Clearing Center assume responsibility against each party.

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(5) KARSLI, Muharrem, Sermaye Piyasasi-Borsa-Menkul Kiyametler. Istanbul, 1989, pg.207.

## I.7 Traded Options in Practise

As we mentioned before, there are options on indices, debt instruments, foreign currencies, even on futures contract, and -oldest one- on common stocks in options market. Up to date it has been understood that the innovative manner in order to find new traded option is the main characteristic of options world. The volume expansion and the proliferation of new traded options is staggering and shows no sign of slowing down. Today, options offer innovative ways of increasing and protecting capital and assets. And it continue to evolve as superior tools for the transfer and control of financial risk, for insurance, for protection, and for hedging.

As we consider both the origin and prolifiration criteria of options, it is the best way to refer some figures from the United States.

Contract	Annual Volume			
	1982	1983	1984	1985
CBT T-bond	51,965	1,022,376	6,6336,209	11,901,116
CBT T-note	--	--	--	177,292
CME S&P 500	--	157,863	672,884	1,090,068
CME Eurodollar	--	--	--	743,080
CME Currencies	--	--	727,634	2,216,285

Table 3. Volume of trading in futures options in the USA

The current volume of financial options trading in the United States is beginning to dwarf the underlying cash

markets. Table shows the volume of trading in the most successful futures options.

Contract	Average daily volume		
	1983	1984	1985
AMEX equity	43,194	130,536	143,140
AMEX non-equity	10,889	27,030	49,549
CBOE equity	303,953	231,754	228,154
CBOE non-equity	41,636	254,985	363,544
NYSE equity	---	---	1,119
NYSE non-equity	---	16,148	16,944
FHLX equity	65,678	63,071	47,755
FHLX non-equity	789	6,370	24,165
PSE equity	44,062	44,167	50,136
PSE non-equity	---	770	367

Table 4. Volume of trading in cash options in the USA

#### 1.7.1 The United States Case

As all we know US financial markets are the largest and the most diverse in the world. By the history of derivative instruments US has played a pioneer role, and this role is still continuing as it is seen on figures regarding transaction volumes and other technical developments.

In states, there are six major exchanges which deal with options. (As it is seen in table 5.)

In parallel to the history of spot markets, US experienced State controlled developments in the history of derivative markets. In fact the close control and

(As of 1987)

Exchange Name	Starting Date	Number Stocks
Chicago Board Option Ex.	April 26, 1973	192
American Stock Exchange	January 13, 1975	125
Philadelphia Stock Ex.	June 29, 1975	85
Pacific Stock Exchange	April 9, 1976	95
Midwest Exchange	December 10, 1976	--
New York Stock Exchange	February 13, 1985	20
<b>TOTAL</b>		<b>517</b>

## Midwest Exchange is merged with CBOE on June 2, 1980.

Table 5. USA options listed on exchanges

surveillance of a public authority is consistent with the domestic dynamic of over-the-counter market in which options were traded only, till 1973. Since widespread manipulative and fraudulent practices in the securities industry involving the trading of OTC options and their underlying securities The Securities Exchange Act of 1934 would have prohibited the



expansion of options trading to national securities exchanges. With this hopeless beginning, there has been no change on status of derivative instruments till, the SEC, in 1973, adopted former Securities Exchange Act Rule 9b-1, which authorized the establishment of "pilot" programs for listed options. On February 1, 1973, the SEC granted the application of the Chicago Board Options Exchange to register as a national securities exchange. Since 1973, the SEC has approved listed options trading programs for the American Stock Exchange (AMEX) in 1974, Philadelphia Stock Exchange (PHLX) in 1975, Pasific Stock Exchange (PSE) in 1976, and the Midwest Stock Exchange in 1976. In March 1977, the SEC authorized, for the first time, the limited traing of put option.(6) Under the recommendations regarding the regular maintenance of system, the SEC approved the joint establishment, by the AMEX and the CBOE, of the Option Clearing Corporation (OCC) to implement a national clearing system for listed options.

When AMEX established trading on options in January 1975, it was with 15 stocks that were not traded on the CBOE. The point is, originally there was a conscious effort by the exchanges to avoid from establishing competing markets. This practise continued when the Philadelphia Exchange began trading on options. The AMEX established a market in which same issues (of listed options) traded, like on the CBOE. In

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(6) FABOZZI, F. J./ZARB, F. G. Handbook of Financial Markets Securities, Options, Futures, USA, 1981, pg. 570-571.

february 1977 the AMEX started a market including very active on the CBOE. In response the CBOE began trading in six AMEX issues(ie. Merrill Lynch, Digital Equipment). This accelerating competition increase the liquidity of underlying issues and naturally the aggregate transaction volume.

As a result of rapid growth in listed options trading after 1973, and the appearance of abuses in the selling and trading of listed options, the SEC, in July 1977, requested a moratorium on the listing of additional options classes, and it announced that it would commence a general review of listed options trading. During the following years the report of Option Study was prepared by mutual works with the participation of National Association of Securities Dealers(NASD). In march 1980, the SEC terminated the option moratorium and begin to permit further expansion of the standardized options markets.(7)

The options are on stocks of large companies that enjoy active secondary markets. In fact, the criterion for listing an option is the trading activity of the underlying stock. The growth in trading volume has been phenomenal. During the first full month of the CBOE (May 1973), the number of contracts traded totalled about 31,000. By mid 1988, the total number traded on the four exchanges for each month consistently exceeded 13 million. The trading volume in call options is substantially larger than the volume of put

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(7) FABOZZI, Frank J., *ibid.*, pg. 572-575.

options because of the tendency of investors to buy long rather than sell short (ie., the purchase of a call is based upon a bullish outlook, while you would buy a put if you were bearish on a stock).

The exchange breakdown reflects the initial dominance of the CBOE. Although the proportion on the CBOE has declined even after the merger with the Midwest exchange, it is still the largest in the trading. (Table 6.)

Cox and Rubinstain, in their book named 'Options Markets' are counting grounds to be able to judge the performance of securities market, as follows; size and profitability, liquidity, transaction speed, fairness, effects on other financial markets. (8) For Chicago Board Options Exchange, they are finding satisfactory results. Naturally we can accept those results valid for all the security exchanges in US since same regulations and framework is binding for all.

The system of AMEX, PHLX, and NYSE have a lot of common points. These exchanges trade in options and stocks by using a specialist system. In this system specialists have two essential functions. The first is maintaining a fair and orderly market in the stocks and options in which they are registered specialists. To do so, they must often buy and

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(8) COX, J. C. \RUBINSTEIN, M., Options Market, 1985, pg. 82-92.

sell for their own accounts and risk when there is a temporary disparity between supply and demand. Thus, to equalize trends, they must buy and sell contrary to the direction of the market. They also keep the public book of orders. The second, they act as brokers; that is, as agents in executing orders if another broker is unavailable. The important point is that specialists must put their customers' interest before their own. Also to begin trading in each security on each day by arranging an opening transaction, is their responsibility.

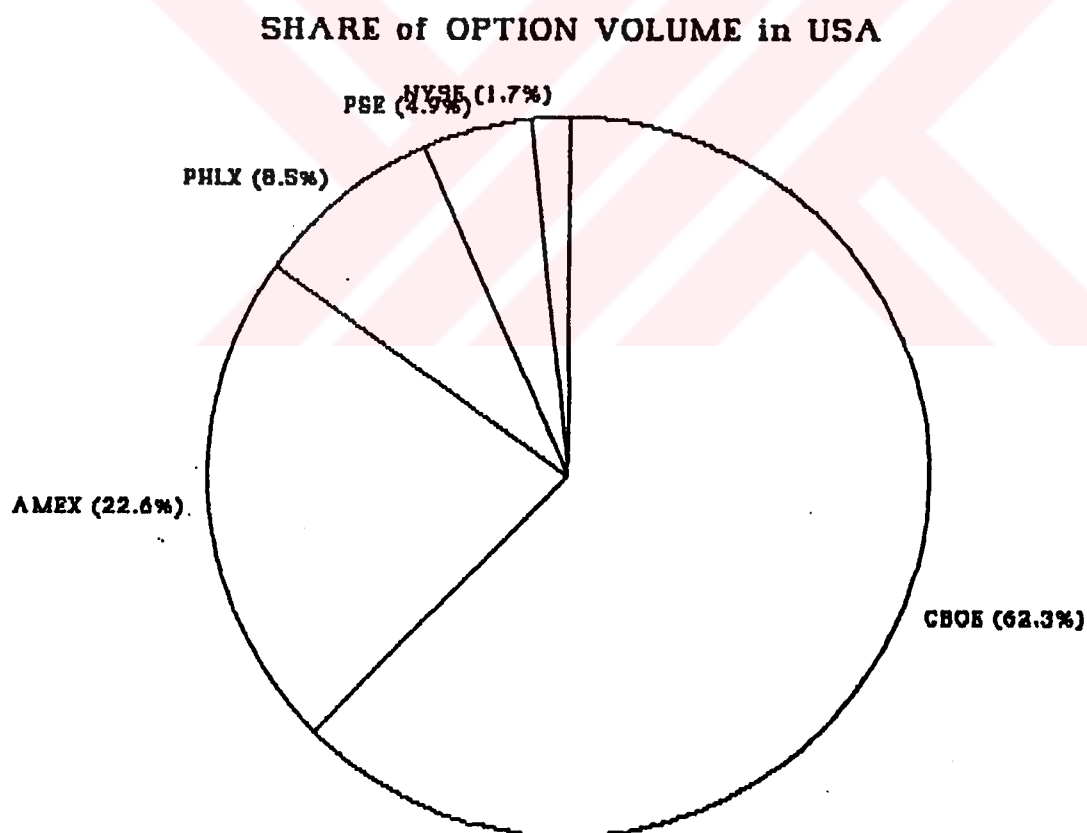


Table 6. Breakdown of option volume in USA

The CBOE and FSE do not use a specialist system. Instead, they divided the specialist function and use several persons to accomplish the same purposes: 1) Board brokers, 2) Order book officials, 3) Market-makers.

Board brokers and order book officials regulate market activity and execute orders for members. Their function is strictly clerical and riskless. Market risk, if any, is accorded to a market maker. The CBOE uses a board broker, where as the FSE uses an order book officials, to act as a brokers'broker. They accept orders from other members of the exchanges and record them in a book they maintain by type, by series, by buy or by sell, and by price sequence. When a quotation is requested, they can readily identify and disclosure the highest bid and lowest offering prices. Market size (quantity at the quote price) is also publicly available, unless it exceeds 25 options. Trading for their own account and risk, market makers have the responsibility to maintain a fair orderly, and competitive market. They are not agents. Usually they bid and offer in order to narrow the difference between bid and asked prices on the board broker's and order book official's book. On the CBOE and FSE each option class may have several assigned market makers.

Beside the six biggest exchanges dealing with options, NASDAQ, National Association of Securities Dealers Automated

Quotations is also dealing with options. Nasdaq trading is predicated upon competing market makers in over the counter stock and option issues that are registered in this computerized system. The competing market makers buy and sell for their own accounts and risk to satisfy customer or contra dealer demand for their product.

### 1.7.2 The French Experiment: a closer example

In those days, owing to the both impacts coming from abroad; and striking developments realized by domestic participants implies that our national capital market should be at the stage of outstanding steps. In this process, analyzing similar experiments and trying to be ready for possible anticipated developments is most proper way. Although evaluation of all legal, and economic infrastructure is out of the scope of this thesis, I am going to focus on some points .

Since the beginning of the 1980s the Paris market has experienced rapid growth and many regulatory and technological changes which have made the market increasingly competitive in domestic and international trading.

Although there are six other provincial exchanges the Paris Bourse handles about %95 of stock exchange transactions. All securities, whether bonds or equities, must

be traded on the Bourse within which several different types of markets are operated. There are four markets for trading bonds and shares; the cash market, the forward market, the over-the-counter market and the second market. There was an exclusive monopoly, of the 40 stockbrokers (Agent de Change), granted by the law. This monopoly extends both the official and unofficial markets. The Agents de Change are appointed by the minister of the economy after passing professional examinations and being elected by all the other Agents de Change. The executive body of the brokers is the Chambre Syndicale des Agents de Change which comprises representative members of each exchange and seven governors. It is responsible for ensuring the smooth running of the market, the enforcement of regulations governing the activity of members and the management of the brokers guarantee funds which ensures that brokers complete transactions even if their clients default. The Chambre Syndicale is also responsible for supplying market information and publishing the official daily list. In addition to the Chambre Syndicale, The Commission des Operations de Bourse (COB) also acts in a supervisory capacity which is similar to the SEC in the US. Its chairman and members are appointed by the government for a period four years. Its main responsibilities are to ensure that listed companies comply with legal requirements, to prevent the 'insider' information and to register complaints. (9)

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(9) KEMP, Lorraine J, World Money and Securities Markets, UK, 1984, pg. 107-108.

Our legal system was formed under the continental law approach after the establishment of the Republic of Turkey. This base has reflected impacts on the institutional structure of modern Turkish foundations. Both Turkish Stock Exchange and Paris Stock Exchange have been embodied with the hand of the state. They are not naturally organized, on themselves. Instead there were direct state intervention, they were organized by the regulations imposed on capital market. As it is seen above paragraph the executive organs of the stock exchange is under the direct control of state. Also participation to the system directly under control of related ministry. As it is seen transaction volume concentrated on one center only. This is another structural similarity.

In 1981, the newly elected Mitterand Government nationalized most of the gigantic industry firm and banks with the cost of \$5 billion.(10) After this nationalisation period (1981-1985), the right parties which have won the following election announced an privatisation program. Unlike the Turkish privatisation program, this program was began under the so advantages conditions; the inflation rate reduced to %3.5 and the public opinion supported this program as a whole after the drastic nationalisation experiment.

In the paper presented in OECD-CMB Conference(1989) by

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(10) ALTINTAS, M. Berra, Kamu iktisadi Tesebbuslerinin Ozelleştirilmesi ve Ozelleştirmenin Sermaye Piyasasına Etkileri, Ankara : SPK, 1988, pg. 106-107.



Maria-Claire Robert has been underlying measures implemented from 1978 as follows: 1) tax incentives, 2) deregulation, 3) innovations.(11) As we consider in last chapter, those mentioned measures should be at our agenda to cope with almost the same problems.

As for the usage of derivative markets, France has reached an important point. a) The financial future exchange established in Paris in 1986. Then it merged with the existing commodity futures exchange. Now it is called MATIF. b) The option exchange MONEP was established at the Paris Bourse in 1987. Traded options on the eleven most active Main Board stocks are currently available at the MONEP. c) Stock index products were introduced in 1988, and a second (screen-based) options and futures market OMF was authorized to operate in Paris. CAC 40 stock index options are traded on the MONEP. CAC 40 stock index futures are trade on the MATIF. OMF market trades OMF 50 stock index futures and options on the futures contract.(12)

When it comes to practise I would like to analyze MONEP in order to give basic infrastructure: Listed trade options in MONEP has shown similarities with options traded in

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(11) ROBERT, Marie-Claire, "The Importance of Regulatory Authorities in Fostering the Development Process of Capital Markets : The French Experience", in "Proceedings of the OECD/CMB Conference on the Current Issues in Turkish Capital Market", Ankara:SPK, 1989, pg. 93-106.

(12) ROBERT, *ibid.*, pg. 102.

Chicago, London, and Amsterdam. MONEP is open to all investor as french or foreign national, and individual or institutional. Options traded in MONEP can be classified as an American style options because they can be exercised on any date between purchasing day and two day before exercise date. Conseil des Bourses de Valeurs ( The Council of Securities Exchange ) defines the stocks on which options can be issued. As of the march, 1989 eleven stock can be used by traded options. (ie. Elf Aquitaine, Michelin B., Societe General) In MONEP all of the floor traders are a representatives of stockbrokers and act as an stockbroker or market-maker.

When it comes to stockbrokers (The Agents de change), the old monopoly of individual brokers, now called Societes de Bourse, is being phased out by 1992. Banks and other financial institutions, both domestic and foreign, are already partial owners of some Societes de Bourse. (13) When we analyzed the recent structure of Turkish market, the repealing of old type individual brokers with the transformation period directed to fulfill the conditions to be the member company under some capital requirements was completed. In fact there was never a monopoly of those mentioned brokers and the number of new entrance to the Bourse as a member had reached over 100 (as of may 1991 the

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(13) The Economist, European Capital Markets : Strategic Forecast, Special Report (No: 1161), 1989, pg. 89-97.

number is 140).(14) So Capital Market Board has the opportunity to control all participants in fully standardized manner if it is considered that the CMB could not maintain the responsibility of surveillance to the entities which were not regulated by the law under the CMB has been authorized.

In MONEP, Societe de Compensation des Marches Conditionnels has the responsibility of, a) the management of market works, b) the clearing and recording of transaction, c) margin management and compensation, d) the regulation of intermediaries which has the record of clearing.

French Stock Exchange Council(COB) authorized only stockbrokers to trade in market on behalf of the clients or banks and financial institutions. Following conditions and definition reveals the main working rules of the market with the rules above mentioned:

- a) Working Hours; options can be quoted between 10:00 to 16:00 perm day.
- b) Quotation Method; the continuous open auction is the method for quotations.
- c) Quotation Unit; price determined to one unit of underlying stock.
- d) Market Official; it represent the market authority. It is responsible for maintainance of regulated market in which

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(14) IMKB, Egitim Seminer Notlari, May 1991, pg. 79-81.

the participant are acting in conformity with regulations and realized transactions.

### I.8 The Clearing House

It is no doubt that clearing house is a great innovation. As we consider the global markets throughout the world, it is clearly seen that the success of current futures markets has been depending on clearing and settlement organizations.

Maybe some details and mechanics varies one from other, a clearing house has the following three primary functions:

- 1) After payment of premium to the original seller, the options clearing house assumes the opposite side of each options transaction. Thus the clearing house issues and guarantees each options contract.
- 2) Clearing house settles all listed options trades of the exchange. Even if one party to a contract has become bankrupt, or otherwise defaults.
- 3) The option clearing house assigns exercise notices.

Once the order is executed, the original buyer and seller have no further responsibility to each other. Thus the option clearing house guarantees performance to all participants.

The option clearing house also handles assignment of options exercise notices submitted by buyers. Option holders simply notify their brokerage firm. The firm notifies the

option clearing house, then it assigns an exercise notice to randomly elected member brokerage firm which has option writers identical to the one exercised. Thus the assignment obligation is assigned to one of those options writers; almost always to the oldest options first.(FIFO; first in first out) The customer then has to honour the exercise notice and deliver the stock.

### 1.9 An Example of Taxation Technic

In United States, The preferential tax treatment for long-term capital gains has been fully eliminated beginning in 1988. Thus, long term capital gains are taxed at the same rate; as an business profits, interests, dividends and short term capital gains, marginal tax rate of 33 percent. Ofcourse investors have no reason to hold such positions for an extended period of time. Capital losses, however, are allowed in full to the extend of capital gains plus \$3,000 of ordinary income.

Expiration of a call is treated as a sale or exchange on the expiration date, and it results in a short term or long term capital loss, depending on the holding period of the call. If the call exercised, the holding period of the stock acquired begins on the day after the call is exercised and does not include the holding period of the call. Premium received for writing a call is not included in income at the

time of receipt, but it is held in suspense until the writer's obligation lapses or writer either sells the underlying stock or closes the option. If the obligation lapses, the premium is short term capital gain to the writer upon expiration regardless of the length of time the call is outstanding.

If a put is acquired and sold prior to exercise, any gain or loss is short term or long term capital gain or loss, depending on the holding period of the put. The lapse of such a put results in a short term capital loss if the put is held 1 year or less and is long term capital loss if held more than one year. Like the call premium, the put premium is held in suspense until the put writer's obligation is terminated. If it is assigned, the strike price plus commission less the put premium on writing the put become the basis for the stock on the day after the stock's purchase.

## II. OPTION VALUATION

The value of an option contract, as with all other types of investment instruments which are actively traded, depends upon the interplay of the sources of supply and demand. (15) Options are traded competitively on the floors of the nation's exchanges and will increase in price when there are more buyers than sellers and decrease in price when there are more sellers than buyers. Buyers do not want to pay any more necessary for an option while sellers want to get the highest possible price for writing the option. These countervailing forces will tend to cause the option premium to seek an equilibrium level. There are several factors which contribute value to an option contract and thereby influence the premium at which it is traded. These factors are;

- 1) the price of the underlying stock,
- 2) time remaining until expiration,
- 3) the volatility of the underlying stock price,
- 4) cash dividends,
- 5) interest rates,

A large body of academic literature on option pricing exists and they are using mathematical formulas that uses the factors determining the option's price as input. The output is just the theoretically correct option price. Such a price is often different to the market price. It is obvious that

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(15) KAUFMAN, Perry J., The Concise Handbook of Futures Markets, 1986, USA, pg. 17.

models are not providing sufficient answers regarding the assessments of market participants. The reason for this is simply that market supply and demand have an effect on an option's premium. In fact, the value of an option at expiration is directly linked to the relationship between the underlying asset price and an option's exercise price.

Let's examine the factors in order of priority;

1) Underlying Stock Price:

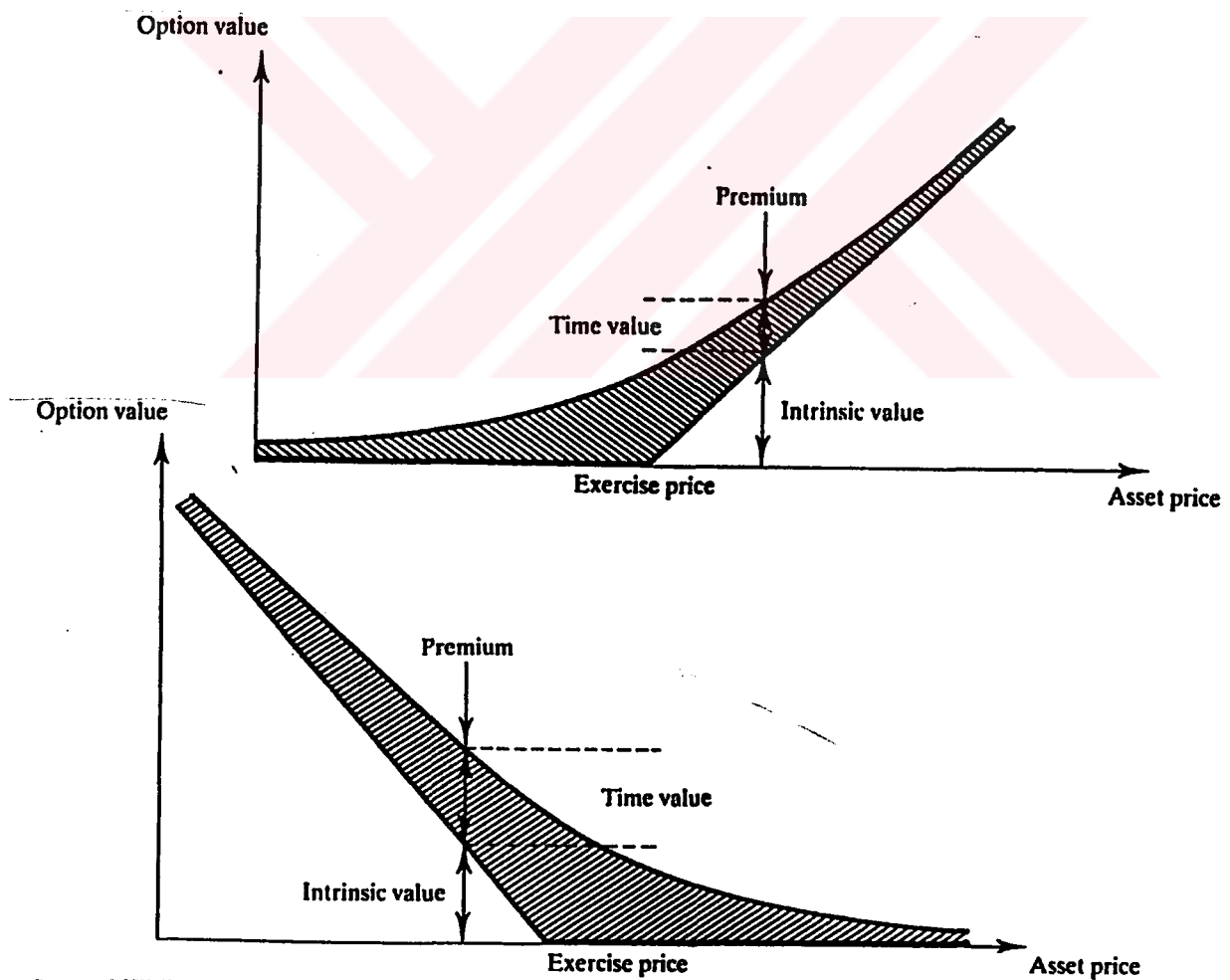
The value of an option depends heavily upon the price of its underlying stock. As previously explained, if the price of the stock is above a call option's strike price, the call option is said to be in-the-money. Likewise, if the stock price is below a put option's strike price, the put option is in-the-money. The difference between an in-the-money option's strike price and the current market price of a share of its underlying security is referred to as the option's **intrinsic value**. Only in-the-money options have intrinsic value.

When the underlying share price is equal to the strike price, the option (either call or put) is at-the-money. An option which is not in-the-money and at-the-money is said to be out-of-the-money. An at-the-money or out-of-the money option has no intrinsic value, but this does not mean it can be obtained at no cost. In this step, other factors give options value and therefore affect the premium at which they are traded. Together, these factors are termed **time value**



**premium.** Time value premium is the amount by which the option premium exceeds the intrinsic value. On the other hand the time value of the option can be considered as the value of a continuing speculation on a favourable movement in the underlying asset price.(16) For in-the-money options, the time value premium is the excess portion over intrinsic value. For at-the-money and out-of-the money options, the time value premium is the option premium.

Let's examine those concepts mentioned above with the help of diagrams.



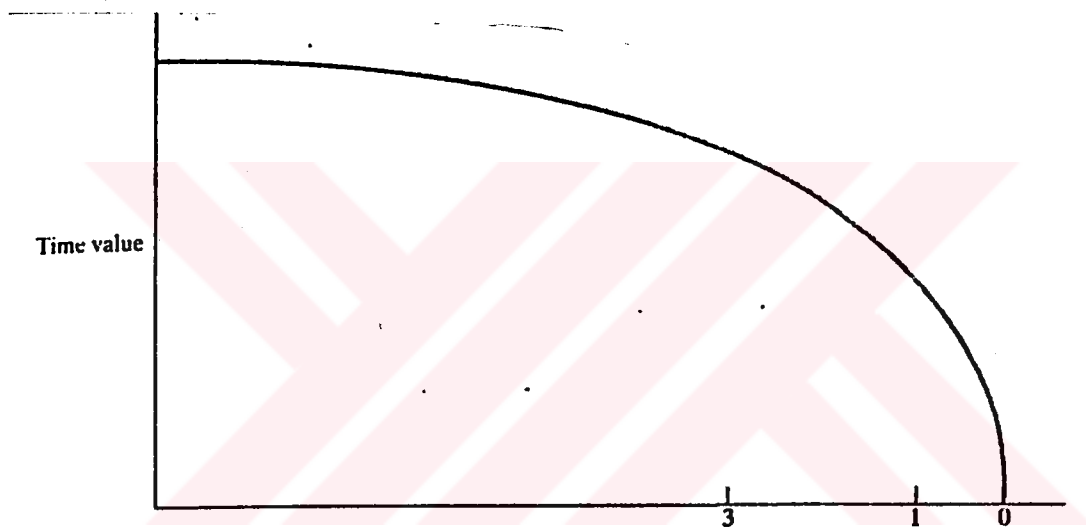
Source: LIFFE.

Diagrams 5. and 6. Option premium as Time Value plus  
Intrinsic Value

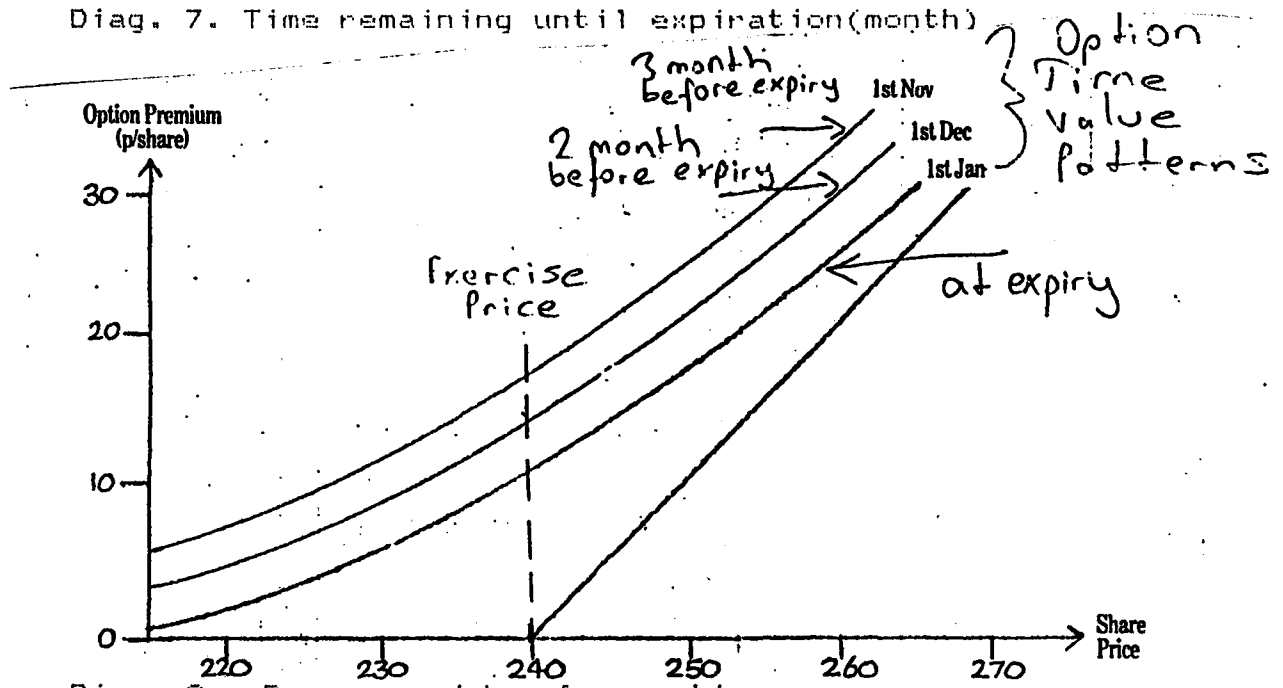
(16) FITZGERALD, *ibid.*, pg. 32.

2) Time Remaining Until Expiration:

Generally, the longer the time remaining until an option's expiration date, the higher the option premium because there is a greater possibility that the underlying share price might move so as to make the option in-the-money. Time value premium drops rapidly in the last several weeks of an option's life.



Diag. 7. Time remaining until expiration (month)



Diag. 8. Decay graphic of an option

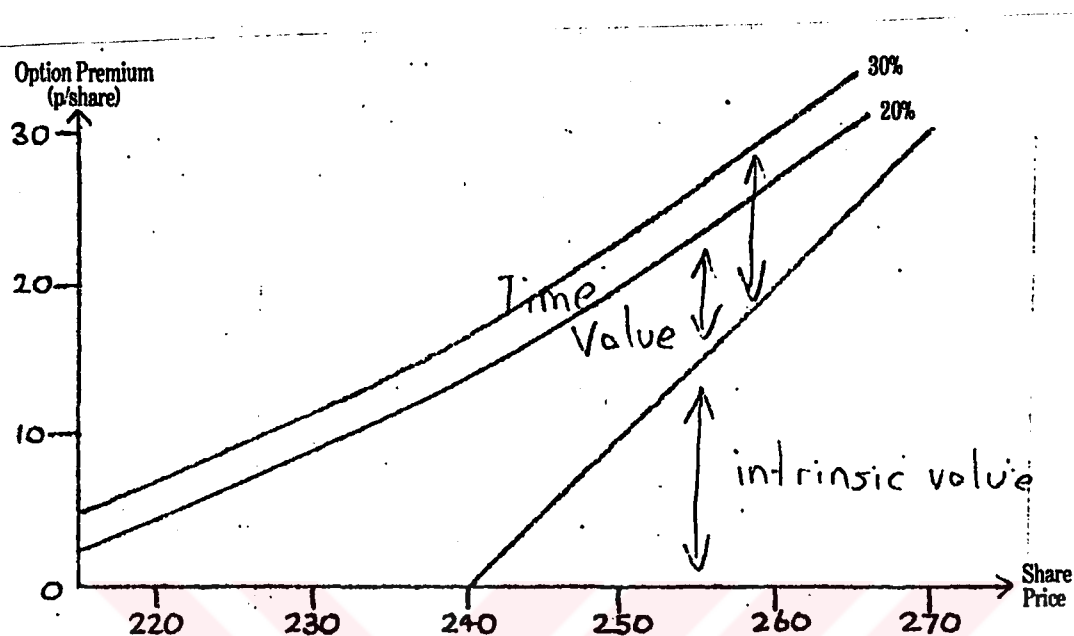
As it is seen at the diagram 8., for the one month loss 1st December to 1st January the reduction in premium was greater than for the month from 1st November to 1st December. The reason for this is that time value does not decrease in a linear manner. Time value decays more and more rapidly as expiry approaches.

### 3) Volatility:

It is the propensity of the underlying security's market price to fluctuate either up or down. In mathematical terms the volatility of a share is expressed as " the annual standart deviation of the share price in percentage terms." It varies not only from share to share but also for an individual share depending upon when and how it was calculated. This volatility of the underlying share price influences the option premium. The higher the volatility, the higher the premium because there is, again, a greater possibility that the option will move in-the-money.

This can be seen by considering a one year option to buy XYZ stock at an exercise price of \$240 when the current stock price is \$230. If a purchaser were told that the price of XYZ stock moves on average up or down by about %20 per year, then he would only be willing to pay very little for the option. If by contrast he was told the XYZ stock price moves %30 per year, that option to buy XYZ at \$230 would be considerably

more interesting and valuable.



Diag. 9. Effect of different Volatility

When discussing volatility, a distinction must be drawn between historic volatility and implied volatility. Historic volatility is a figure derived from past share price data. Implied volatility is a figure derived from the market price of a particular option series and can be thought of as the market's estimate of future volatility.

There are number of formula used to estimate historic volatility and as a result no uniq figure exists. In a similar way there is no unique implied volatility figure available.

According to the mathematical definition of the volatility, there is widely used formula as annual base

$$\text{Volatility (per year)} = \sqrt{\text{Var} \left[ \text{Log} \left( \frac{\text{Price}_t}{\text{Price}_{t-1}} \right) \right] * 250}$$

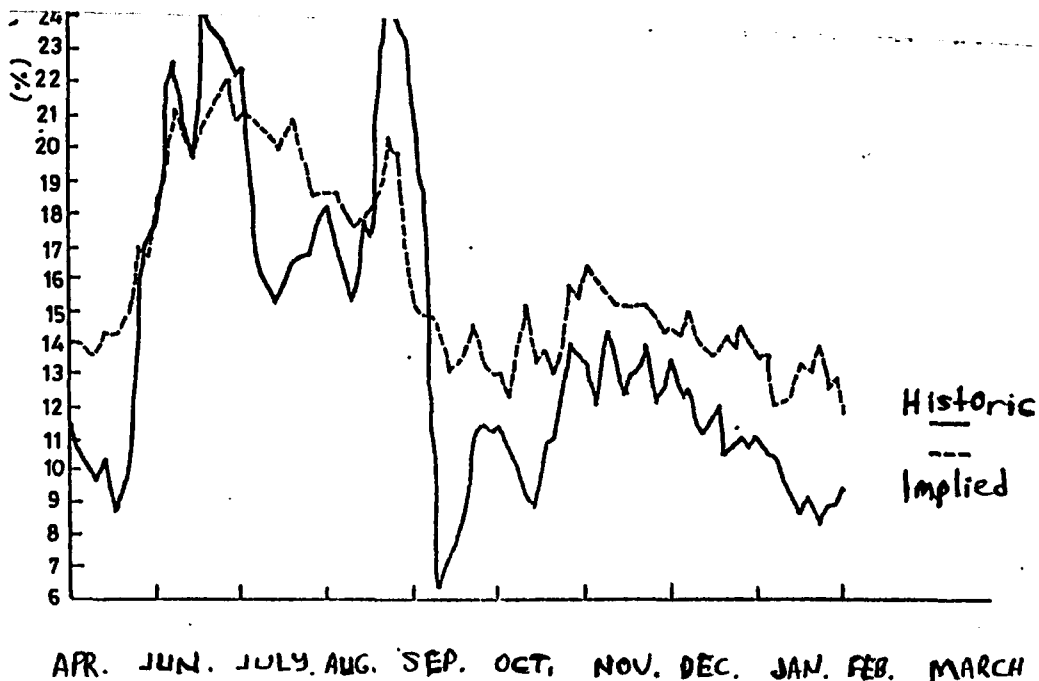
t=1...n

n = the transaction days on which volatility is measured

Price of an option with %20 volatility per year and 4 year lifetime equals price of an option with %40 volatility per year and 1 year lifetime. (%20\*4 = %40\*1) This means that the increase of the remaining time in four times has the same effect on option price as increase of an volatility on underlying asset 2 times. So actual(daily) volatility of an option can be shown by following formula,

$$\text{====> (volatility per time period) * } \sqrt{\text{time remaining to expiry}}$$

To increase the time remaining to expiry affect the real holding cost of underlying asset, so the increase on the time remaining to expiry can not be explained totally with change



Diag. 10. An example of Volatility

As it is seen on the Diagram 10., historic and implied volatilities has proper correlations. But there is no logical movement pictured. For this reason, it is not possible to use them easily to get profit in market operations. In an option pricing model, most difficult step would be estimating the volatility of underlying asset. Because it is the only factor effecting option premium that can not be observed in market, directly.

#### 4) Dividends:

Regular cash dividends are paid to the stock owner. Therefore, cash dividends affect options premiums through their effect on the underlying share price. Because the stock price is expected to fall by the amount of the cash dividend, higher cash dividend tend to imply lower call premiums and higher put premiums.

Options customarily reflect the influences of stock dividends and stock splits because the number of shares represented by each option is adjusted to take these changes into consideration.

#### 5) Interest Rates:

A call option can be thought of as the right to buy the underlying asset at the discounted value of the future spot

price: The greater the degree of discount the more valuable is the right, and the higher the interest rate the greater the degree of discount. So, other things being equal, option prices should rise with short-term interest rates. (lower put premiums)

For an example, let's imagine a fund manager has \$2540 available and wishes to gain exposure to 100 XYZ shares. He can do this either by buying the shares directly - using all his capital, or alternatively he can gain the same exposure by buying 1 Jan 240 call option for \$250. In going the options route the fund manager leaves himself \$2290 to put on deposit. Higher interest rates will earn higher returns on this money and so make the call option route all the more attractive. This will be reflected in higher call option prices.

Put option prices decline as interest rates rise because those investors who hold both put options and stock are tying up capital that, as cash, could be earning them interest. The higher the interest rate the greater the interest foregone. This is reflected in a decrease in put option premium.

Determining Factors	Effect of Increase	
	P	C
1) Current stock price	↓	↑
2) Striking price	↑	↓
3) Time to expiration	↑	↑
4) Stock volatility	↑	↑
5) Interest rates	↑	↑
6) Cash dividends	↓	↑

Table 7. Some determinants of option value

### II.1 Option Value Bounding Conditions

Before trying to arrive at a precise option valuation model, it will be useful to examine what bounds can be placed on the values of options from arbitrage arguments.<sup>(17)</sup> Owing to this examination of bounds, we can get some restrictions in building a construction of price mechanism for options. Many of the conditions will be discussed below are common to non-stock options and the principles underlying arbitrage conditions are fundamentally the same. And as you are going to see, these are mathematical expressions of points that we mentioned in the analyze of factors which has an affect on option valuation, up to now.

Consider first a simple option - an American call option on a non-dividend paying stock. The option premium is written as<sup>(18)</sup>

<sup>(17)</sup> FITZGERALD, *ibid.*, pg. 36-39.

<sup>(18)</sup> COX, *ibid.*, pg. 165-166.



$$C(S, X, T)$$

where  $C$  = option premium

$S$  = underlying stock price

$X$  = exercise price of the option

$T$  = time to expiration of the option

Condition 1;

The value of a call option is greater than or equal to zero.

$$C(S, X, T) \geq 0$$

Condition 2;

The value of an American call will always be at least as high as its intrinsic value.

$$C(S, X, T) \geq S - X$$

Condition 3;

A call option with a lower exercise price will be worth at least as much as, and generally more than, a similar option with a higher exercise price.

$$C(S, X, T) \geq C(S, X'', T) \quad \text{if } X'' > X$$

Condition 4;

A call option with a longer time to expiration will be worth at least as much as, and generally more than, a similar option with a shorter time to expiration.

$$C(S, X, T) \geq C(S, X, T'') \quad \text{if } T > T''$$

Condition 5;

A call option cannot be worth more than the underlying stock.

$$C(S, X, T) \leq S$$

These five simple conditions, derived from first principles, give the first set of bounds on the call option

value shown in Diagram 11.

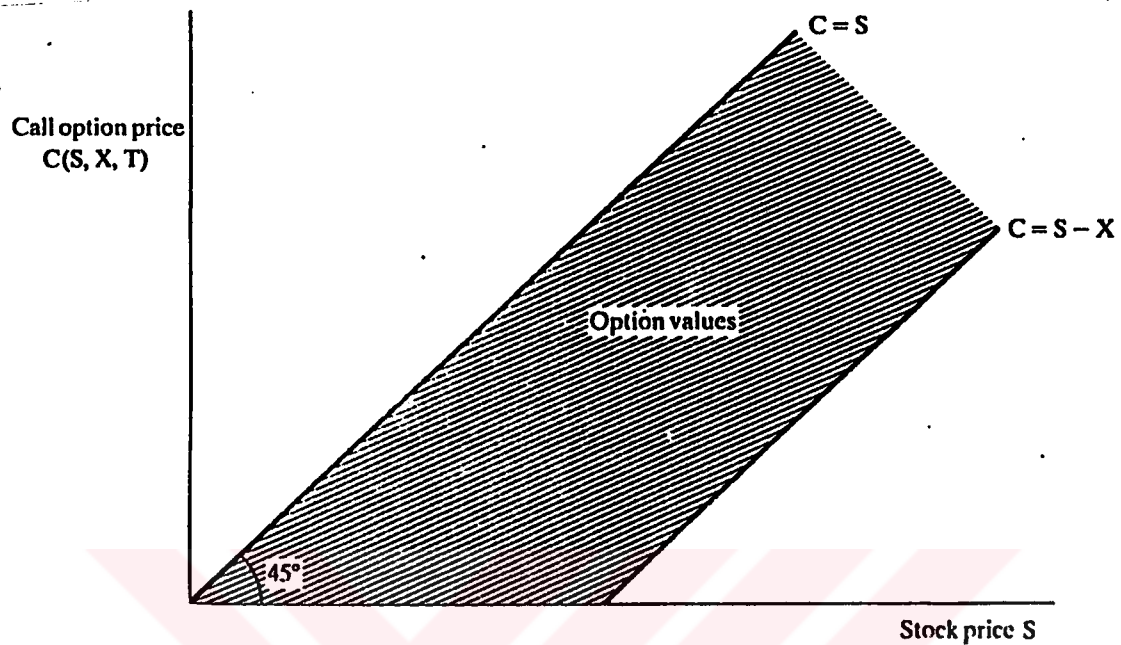


Diagram 11. Bounds on options values

These bounds are still very wide. There should be some conditions can be used to get further restrictions on the price of options.

Condition 6;

The value of a call option will always be at least as much as the stock price minus the discounted value of the exercise price.

$$C(S, X, T) \geq S - X e^{-rT}$$

where  $r$  = the riskless rate of interest.

Let's go further to understand this explanation, clearly. Consider a discount bill which will pay an amount  $X$  at the expiration of the option. Then its current price assuming continuous discounting would be  $X e^{-rT}$ . Now consider two portfolios: The first  $A$  consists of a call option  $C(S, X, T)$

and the discount bill priced at  $Xe^{-rt}$ ; the second B consists of the stock at price  $S$ . The respective prices and returns to these portfolios are shown below.

Portfolio	Price	Stock price at expiration	
		$S'' < X$	$X \leq S''$
A	$C(S, X, T) + Xe^{-rT}$	$0 + X$	$(S'' - X) + X$
B	$S$	$S''$	$S''$
Relationship of terminal values		$V''_a > V''_b$	$V''_a = V''_b$

To avoid dominance, the price of portfolio A must be greater than the price of portfolio B. (According to the application of stochastic dominance theory of finance). Hence

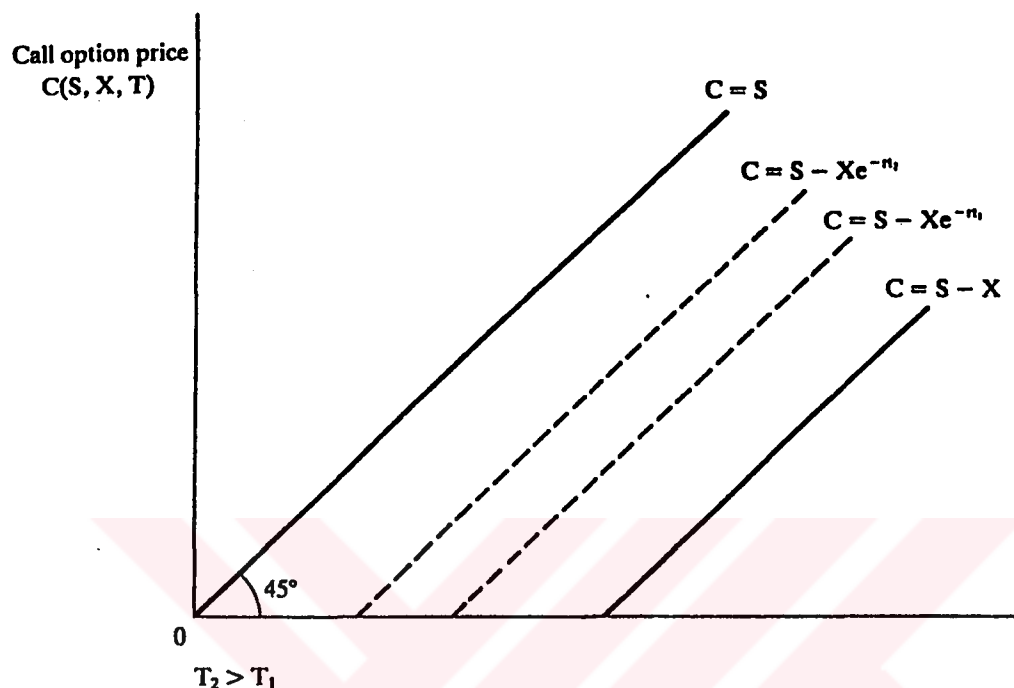
$$C(S, X, T) + Xe^{-rT} > S$$

$$C(S, X, T) > S - Xe^{-rT}$$

The relationship has several interesting implications. First, it indicates that an American call option on a non dividend paying stock will never be exercised: the call is worth more than  $S - Xe^{-rT}$ , but if exercised the investor would only receive  $S - X$ , which is less than  $S - Xe^{-rT}$  for any positive interest rate. So it is always better to sell a call option to somebody else rather than exercise it. Secondly, a relationship of this kind opens up arbitrage possibilities.

Condition 6 imposes tighter bounds on the value of the

call option, as shown in Diagram 12.



Diag. 12. Additional bounds on option values

The lower bound for the value of the option now depends upon the time to expiration: the longer the maturity, the smaller the amount  $Xe^{-rt}$  and hence the higher the value of the option.

Condition 7;

The value of a call option is an increasing function of the riskless rate of interest.

The higher the value of the interest rate  $r$ , the smaller will be  $Xe^{-rt}$  and higher the value of option.

Condition 8;

The value of a call option is an increasing function of the stock price volatility.

Condition 6 implies that purchasing a call option is more or less equivalent to buying the underlying stock with borrowed funds. At expiration, if the option is exercised, a purchaser owns the stock and pays off the loan of  $X$  previously borrowed. However, this is a slightly unusual loan, since if the price of the stock is below the exercise price, the option holder can default on the loan by not exercising the option without penalty. The difference between the intrinsic price or value of the option  $S - Xe^{-rT}$  and actual premium  $C(S, X, T)$  is effectively an insurance or risk premium, which prices how much the ability to default of the loan is worth. Since the greater the volatility of the underlying stock price, the more likely it will be in the option buyer's interest to default on the loan, then the higher will be the insurance or risk premium, and the greater the value of the option. In symbols this can be expressed,

$$C(S, X, T) = \text{Stock price} - \begin{array}{l} \text{Discounted value} \\ \text{of a loan of the} \\ \text{exercise price} \\ \text{maturing at } T \end{array} + \begin{array}{l} \text{Insurance premium} \\ \text{to allow a no} \\ \text{penalty default} \\ \text{if } S \leq X \end{array}$$

The insurance premium fair price is a positive function of asset price volatility.

## II.2 Option Pricing Models

In the context of the thesis, two of the models are going to be explained. 1) The one period binomial model, 2) Black & Scholes model. Both of the models works on the riskless

hedge basis. This basis assumes that the price of the option reflects the changes of the underlying stock price.

### II.2.1 The One-Period Binomial Model:

It is originally suggested by Sharpe and developed by Cox, Ross and Rubinstein.(19) The model allows the stock price to go up or down possibly at different rates. A binomial probability distribution is one in which there are only two outcomes or states. The probability of an up or down move is governed by the binomial probability distribution. Because of this, the model is also called a two state model. Consider a world in which there is a stock priced at  $S$  on which call options are available. The call has one period remaining before it expires. When the call expires, the stock can take on one of the two values: It can go up by a factor of  $U$  or down by a factor of  $D$ . If it goes up, the stock price will be  $SU$  which equals  $S(1+U)$ . If it goes down, it will be  $SD$ , which equals  $S(1+D)$ . Consider a call option on the stock with an exercise price of  $X$  and a current price of  $C$ . When the option expires, it will be worth either  $CU$  or  $CD$ . Since at expiration the call price is its intrinsic value,

$$CU = \text{Max}[0, S(1+U)-X]$$

$$CD = \text{Max}[0, S(1+D)-X]$$

If both stock prices resulted in the option expiring in-the-money, the option would not be very speculative, however,

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(19) FITZGERALD, *ibid.*, pg. 122.

it would still be correctly priced by the model. The writer would receive a premium compensating for the future cash outflow expected upon exercising the option.

The objective of this model is to derive a formula for the theoretical option price, the variable  $C$ . The theoretical price is then compared against the actual price and reveals whether the option is over-priced, under priced, or correctly priced. The formula for  $C$  is developed by constructing a risk free portfolio of stocks and options. This risk free portfolio is called a hedge portfolio and consist of  $H$  shares of stock and a single written call. The model provides the hedge ratio,  $H$ . The current value of the  $H$  shares minus the value of short call because the shares are assets and the short call is a liability. Thus, the portfolio value is assets minus liabilities, or simply net worth. The current portfolio value is defined as  $V$ , where  $V=HS-C$ .

At expiration, the portfolio value will be either  $VU$  if the stock goes up or  $VD$  if the stock goes down. Using the previously defined terms,

$$VU = HS(1+U)-CU$$

$$VD = HS(1+d)-CD$$

If the same outcome is achieved regardless of what the stock price does, the position is risk free. This can be showed by simply setting  $VU=VD$  so that

$$HS(1+U)-CU = HS(1+D)-CD$$

$$H = (CU-CD)/[S(1+U)-S(1+D)] = (CU-CD)/(SU-SD)$$

If the portfolio's current value grows at the risk-free rate, its future value will be  $(HS-C)(1+r)$ . The two values of portfolio at expiration,  $VU$  and  $VD$ , are equal, so either one can be selected. Choosing  $VU$  and setting it equal to the original value of the portfolio compounded at the risk-free rate gives,

$$V(1+r) = VU$$

$$(HS-C)(1+r) = HS(1+U)-CU$$

Substituting the formula for  $H$  and solving this equation for  $C$  gives the option pricing formula,

$$C = [pCU+(1-p)CD]/(1+r)$$

Pricing the option of the stock in the framework used here is called risk-neutral pricing. The investor's feelings about risk play an important role in the pricing of securities. In the risk-neutral option pricing framework, investor's risk preferences are of no consequence. The stock price is determined by investor's risk preferences. This does not mean that the stock will be priced equally by risk-averse and risk-neutral investors; further, the model will accept the stock price as given and pay no attention to the risk preferences used to obtain stock price.

The binomial option pricing model is not necessarily meant to be realistic. The number of possible stock prices at expiration is unlimited in reality. Though the binomial model



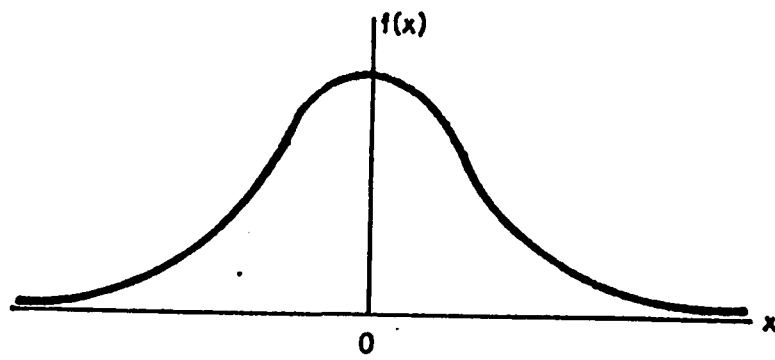
must impose some finite limits, it does become more realistic as the number of periods is increased.

### II.2.2 The Black & Scholes Option Pricing Model .

The fair price of an option depends upon the probability distribution of the asset price at the expiration date of the option. Under certain assumptions the type of probability distribution can be characterized by its expected value and the standard deviation of the distribution. The type of probability distribution conventionally used is the log-normal distribution, It was in 1973 that arguably, the best known option pricing formula after its originators Fisher Black and Myron Scholes was derived.

Black and Scholes applied what in finance theory is called stochastic calculus that is a new branch of mathematics. The model's assumptions are the following;

- 1) The rate of return on the stock follows a lognormal distribution. This means the logarithm of 1 plus the rate of return the normal, or bell-shaped curve. The realistic characterization of stock returns reflects stockholders' limited liability.



Diag.13. The Log-normal Distribution

- 2) The risk-free rate and variance of the return on the stock are constant throughout the option's life.
- 3) There are no taxes or transaction costs.
- 4) The stock pays no dividends.

The basic Black & Scholes model can be written(20):

$$C(S,X,T) = SN(d_1) - Xe^{-rT} N(d_2)$$

$$\text{where } d_1 = \frac{\ln(S/X) + (r + \sigma^2/2)T}{\sigma \sqrt{T}}$$

$$d_2 = d_1 - \sigma \sqrt{T}$$

- C = call option premium
- S = current asset price (spot price)
- X = exercise price (strike price)
- T = time to expiration (i.e. 1 month is showed as 1/12)

(20) FITZGERALD, *ibid.*, pg. 39.

@ = instantaneous variance of the asset price (volatility)

In = natural logarithm

e = anti-logarithm (2.7183)

N(.) = cumulative normal distribution function

r = riskless rate of interest

Although The Black-Scholes option valuation formula looks complicated, it is easy to use in practise. The only variable in the formula which is not directly observable is the volatility of the underlying asset price, which can be estimated from historical or other observable data.(21) In order to use this model, also we are in need of natural logarithm and cumulative normal distribution tables.

Now let's make an example to be so clear,

The stock price is currently \$60 and the annual standart deviation of the stock price is %14.

The riskless rate of interest over six months is %7. What is the fair price of a four month option with an exercise price of \$50 ?

S = \$60

X = \$50

T = 0.333 (it refers to 120 days of a year with 360 days.)

r = 0.07

@ = 0.144

---

(21) KAUFMAN, *ibid.*, pg. 23.

First  $d_1$  and  $d_2$  are calculated.

$$d_1 = \frac{\ln(60/50) + (0.07 + 0.144/2)0.333}{0.144 \sqrt{0.333}}$$

$$= \frac{0.182 + (0.080)0.333}{0.144(0.577)} \implies \frac{0.2087}{0.0830} = 2.515$$

$$d_2 = 2.515 - 0.0830 = 2.432$$

The next step is to determine the value of the cumulative normal distribution corresponding to  $d$  values. Examining the normal distribution table (Table 8.)

x	N(x)	x	N(x)	x	N(x)	x	N(x)	x	N(x)	x	N(x)
		-2.00	.0228	-1.00	.1507	.00	.5000	1.00	.8413	2.00	.9773
-2.95	.0016	-1.95	.0256	-.95	.1711	.05	.5199	1.05	.8531	2.05	.9798
-2.90	.0019	-1.90	.0287	-.90	.1841	.10	.5398	1.10	.8643	2.10	.9821
-2.85	.0022	-1.85	.0322	-.85	.1977	.15	.5596	1.15	.8749	2.15	.9842
-2.80	.0026	-1.80	.0359	-.80	.2119	.20	.5793	1.20	.8849	2.20	.9861
-2.75	.0030	-1.75	.0401	-.75	.2266	.25	.5987	1.25	.8944	2.25	.9878
-2.70	.0035	-1.70	.0446	-.70	.2420	.30	.6179	1.30	.9032	2.30	.9893
-2.65	.0040	-1.65	.0495	-.65	.2578	.35	.6368	1.35	.9115	2.35	.9906
-2.60	.0047	-1.60	.0548	-.60	.2743	.40	.6554	1.40	.9192	2.40	.9918
-2.55	.0054	-1.55	.0606	-.55	.2912	.45	.6736	1.45	.9265	2.45	.9929
-2.50	.0062	-1.50	.0668	-.50	.3085	.50	.6915	1.50	.9332	2.50	.9938
-2.45	.0071	-1.45	.0735	-.45	.3264	.55	.7088	1.55	.9394	2.55	.9946
-2.40	.0082	-1.40	.0808	-.40	.3446	.60	.7257	1.60	.9452	2.60	.9953
-2.35	.0094	-1.35	.0885	-.35	.3632	.65	.7422	1.65	.9505	2.65	.9960
-2.30	.0107	-1.30	.0968	-.30	.3821	.70	.7580	1.70	.9554	2.70	.9965
-2.25	.0122	-1.25	.1057	-.25	.4013	.75	.7734	1.75	.9599	2.75	.9970
-2.20	.0139	-1.20	.1151	-.20	.4207	.80	.7881	1.80	.9641	2.80	.9974
-2.15	.0158	-1.15	.1251	-.15	.4404	.85	.8023	1.85	.9678	2.85	.9978
-2.10	.0179	-1.10	.1357	-.10	.4602	.90	.8159	1.90	.9713	2.90	.9981
-2.05	.0202	-1.05	.1469	-.05	.4801	.95	.8289	1.95	.9744	2.95	.9984

$$N(2.515) = 0.9940$$

$$N(2.432) = 0.9920$$

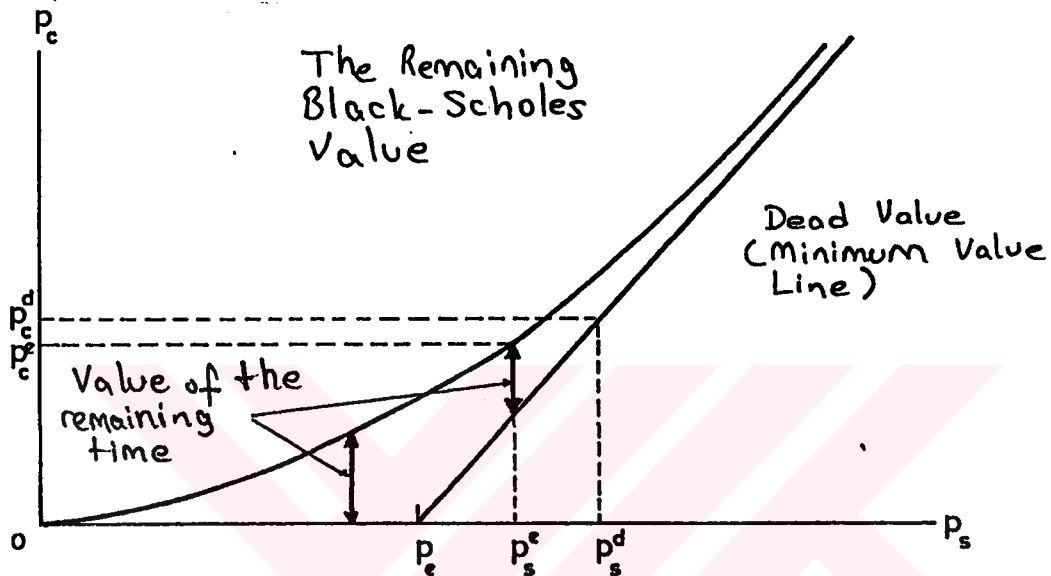
So the fair value of the call option can be determined as

$$C(S, X, T) = C(60, 55, 4mo)$$

$$-(0.07)(0.333)$$

$$\begin{aligned}
 &= 60(0.9940) - 50e^{-0.05}(0.9920) \\
 &= 59.64 - 50(0.9769)(0.9920) = \$11.185
 \end{aligned}$$

For the set of data given above, the fair value of the call option with an exercise price of \$50 is just above \$11. The intrinsic value \$10 and the time value is \$1.185.



Diag. 14. The Black & Scholes Call Option Evaluation  
 II.3 The Riskless Hedge in The B&S Framework :

Consider a portfolio consisting of long call options and short the underlying stock. If an investor chooses the proportions of stock and options carefully, a riskless portfolio could be constructed, i.e. a portfolio where for small changes in the stock price, any profits or losses on the long position will be exactly compensated for by the profits or losses to the short stock position. Since such a portfolio is essentially riskless, the investor should expect to earn on the portfolio the riskless rate of interest. This

construction of a hedged portfolio for options and stock which must earn the riskless rate of interest is at the heart of the B&S option valuation model.(22) The B&S option formula also simultaneously provides the hedge ratio for determining the riskless portfolio for small changes in the stock price.

$$\text{Hedge Ratio} = N(d_1) = N\left\{ \frac{\ln(S/X) + (r + \sigma^2/2)T}{\sigma \sqrt{T}} \right\}$$

For an risk-averse investor, it is the rate of underlying asset share that should be in hand per option with 100 share in order to be protected against changes of underlying asset price.

In the case of option analysed above, the value of  $N(d_1)$  is 0.9940, i.e. an approximately riskless portfolio would consist of long 100 options and short 99 shares of stock.

However, the hedge portfolio is riskless only for small changes in the stock price because the hedge ratio changes as the variables in the option valuation formula change.

In the model, there are some important concepts: delta, gamma, theta, epsilon. These are the derivations of the options premium.(23)

1) Option Delta,

(22) FITZGERALD, *ibid*, pg. 40.

(23) COX, *ibid*, pg. 215-235.

The hedge ratio from the B&S model is usually called the delta of the option. In brief, the hedge ratio of an option is the expected change of one value unit in option premium own to the change of one value unit of underlying asset price. In graphical manner, it is the elasticity of call option price slope. So below formula can be used for this expression;

$$N(d) = \frac{\Delta C}{\Delta S}$$

The delta of an option is the prime determinant of the risk factors used by many exchanges in determining the margin funds that are to be deposited by the seller of an option.

The delta of options is also to construct balanced option hedges.

## 2) Option Gamma,

The delta of an option increases as the option goes more in-the-money and decreases as the option goes further out-of-the money. So the delta of a call option is a positive function of the level of the stock price. The gamma of an option is simply a measure of the expected change in the delta of the option for a small change in the underlying stock price. Technically it is the second derivative of the option premium with respect to the stock price.

### 3) Option Theta;

The theta of an option measures the expected change in the fair option premium as the time to expiration decreases. The time value of an option falls much more swiftly in the last few days of an options life than earlier, i.e. the theta of the option will increase rapidly as the to expiration reduces.

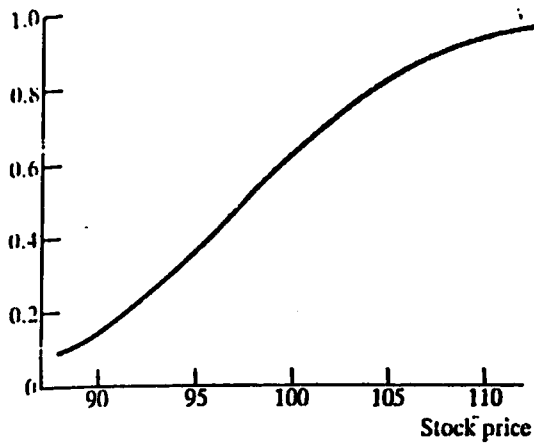
### 4) Option Epsilon;

The epsilon of an option measures the responsiveness of the option premium to changes in the underlying volatility of the asset price.

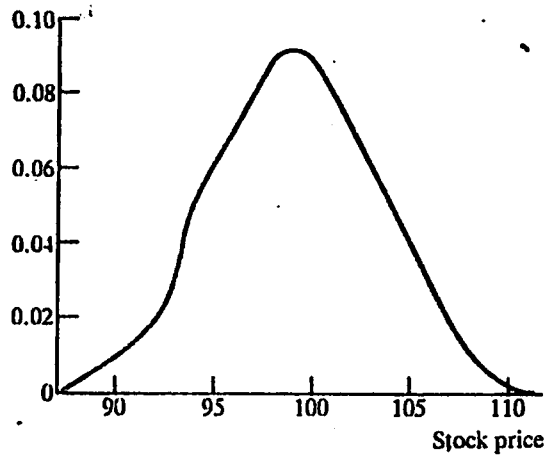
The delta, gamma, theta and epsilon of the option will all vary as the underlying inputs into the option valuation model change. The graphs in Diag. 15. show the responsiveness of the three parameters—delta, gamma and epsilon—to movements in the underlying stock price. The slope of the delta function (which is gamma) increases and then decreases. The maximum slope, as revealed by the gamma function, is when the call option is slightly out-of-the money. The maximum responsiveness of the option premium to volatility is also when the option is slightly out-of-the money, although the maximum epsilon level extends over a somewhat wider range.



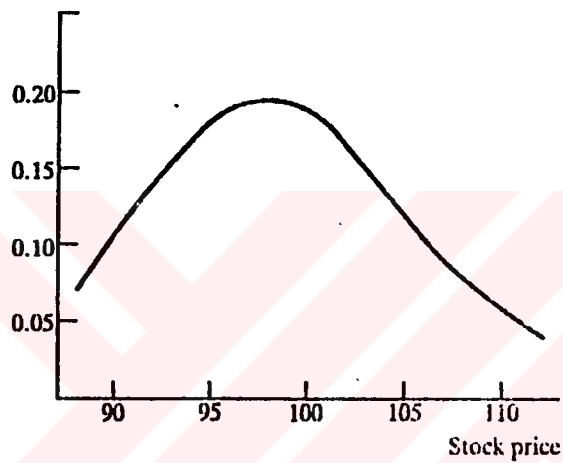
a. Option delta



b. Option gamma



c. Option epsilon



Diag. 15. Option model elasticities versus stock price

It is possible to see counter-relation of these parameters in the below table;

**Call options**

Maturity = 90 days

Exercise

price	Premium	Delta	Gamma	Epsilon	Theta
96	5.59	0.72	0.04	0.16	0.01
98	4.92	0.67	0.05	0.17	0.01
100	4.33	0.63	0.05	0.19	0.02
102	3.72	0.58	0.05	0.19	0.02
104	3.20	0.53	0.05	0.19	0.02

Table 9. The counter-relation among option model elasticities

#### Valuation of Put Options :

It is possible to express the pricing of the put option as a function of the call pricing.

Using the terminology developed earlier,

$$P(S,X,T) = C(S,X,T) + Xe^{-rt} - S$$

The price of a put option is equal to the value of a call option with the same exercise price and time to expiration, a riskless investment of the discounted value of the exercise price, and a short position in the stock.(24)

The simple Black & Scholes Model originally designed for stocks technically only applies to European options. Even ignoring the basic difference: American options can be exercised prematurely, the problem also applies to American call options on dividend paying stocks. This means that calls on dividend-paying stocks and American puts generally will need some adjustment of the simple B&S formula for valuation purposes.

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(24) FITZGERALD, *ibid.*, pg. 50.

### III. OPTION TRADING STRATEGIES

In order to to get rid of risk factor, options can be used in many ways cause of their elasticity.(25) All option strategies, however complex they may sound, consist of a combination of one or more of the four basic options positions; long call, short call, long put, short put. Whilst they are the only types of option trade possible they can be combined in anumber of different ways to create strategieswith very different risk/reward characteristic appropriate to specific views. We shall consider strategies whereby Calls are combined alone and those where Puts are combined alone in the form of Vertical Spreads and then move on to look at Horizontal and Diagonal Spreads.

#### III.1 Spreads

Unlike the long or short positions, where profit and loss respectively could be open ended, the principle behind spread strategies is that profit and loss potential is known and limited.

##### III.1.1 Vertical Spreads,

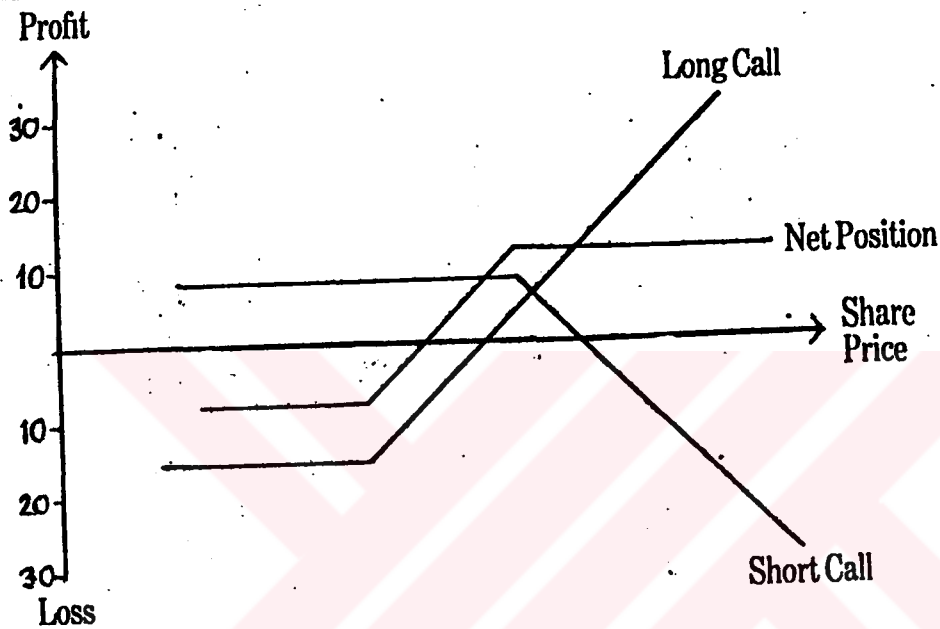
###### 1) Bull Call Spread:

It involves the purchase and sale of Calls at different

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(25) BENLI, Leyla, CMB Research Report : "Opsiyonlar", 1990, pg. 7.

exercise prices but with the same expiry date. The purchased Calls have a lower exercise price than the written Calls. The strategy is appropriate when anticipating a moderate rise the underlying asset.



Diag. 16. Bull Call Spread

While Bull Call Spreads are established when bullish of the underlying asset the series chosen in creating the spread will depend on one's degree of bullishness. In general the more bullish the further out-of-the money the spread created since the underlying asset has to move further before the position picks up any intrinsic value and indeed before the short position is assigned. When both Calls are out-of-the money the net debit should be relatively small and therefore the maximum profit potential several times greater than the maximum potential loss. The deeper in-the-money the spread created, in general the greater the greater the

initial debit, and therefore the less the potential profit.

Advantages;

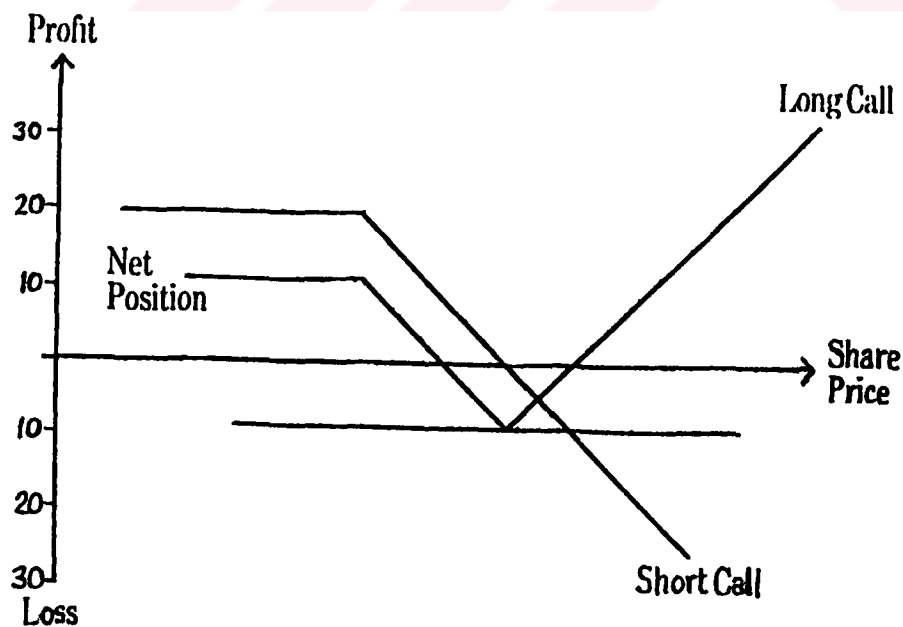
- position established for less cost than a Long Call and breaks even more quickly
- limited loss

Disadvantages;

- limited profit

## 2) Bear Call Spread:

It involves the purchase and sale of Calls at different exercise prices but with the same expiry date. The Calls purchased have a higher exercise price than the Calls written. Since the series held has a higher exercise price the transaction is margined. The position is normally established when anticipating a moderate fall in the price of the underlying asset.



Diag. 17. Bear Call Spread

The spread chosen will depend on one's degree of bearishness. The more bearish the more in-the-money the spread chosen. The credit received should be significantly larger than the maximum loss. The further out-of-the money the spread the less the credit received and therefore the lower the potential.

Advantages;

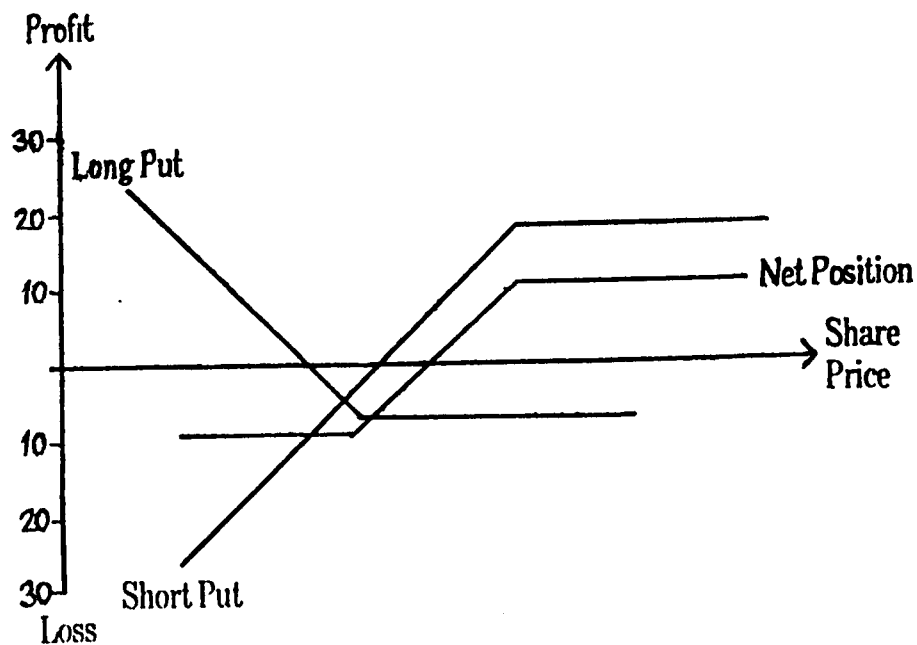
- credit received
- limited loss

Disadvantages:

- limited profit ie. credit received
- position may be disrupted by early exercise( the holder may exercise early to qualify for a dividend payment)
- position margined

3) Bull Put Spread:

A Bull Put Spread involves the purchase and sale of puts at different exercise prices but with the same expiry date. The Puts purchased have a lower exercise price than the Puts written. Again the transaction is subject to margin requirements. As the name suggests the position is established when anticipating a rise in the price of the underlying.



Diag. 18. Bull Put Spread

Again the spread chosen will depend on one's degree of bullishness. The more bullish the more in-the-money the spread chosen since the credit received should be greater than the aximum potential loss. If a less bullish stance is taken then at or out-of-the money Bull Put Spreads are more appropriate.

Advantages;

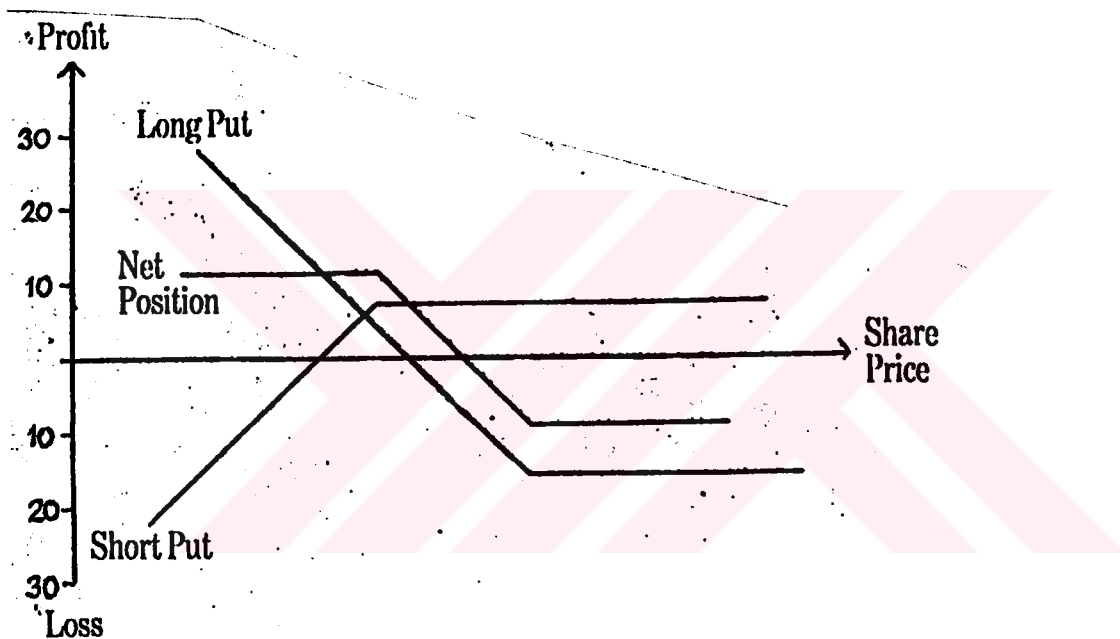
- credit received
- limited loss

Disadvantages;

- limited profit ie. credit received
- position may be disrupted by early exercise
- position margined

#### 4. Bear Put Spread:

A Bear Put Spread involves the purchase and sale of Puts at different exercise prices but with the same expiry date. The Puts purchased have a higher exercise price than the Puts written. The strategy is appropriate when anticipating a fall in the price of the underlying asset.



Diag. 19. Bear Put Spread

The spread chosen will depend on one's degree of bearishness. The more bearish the further out-of-the money the spread should be since profit potential should outweigh the net debit. With a less bearish stance at or in-the-money Bear Put Spreads are more appropriate.

Advantages;

- position established for less cost than a Long Put



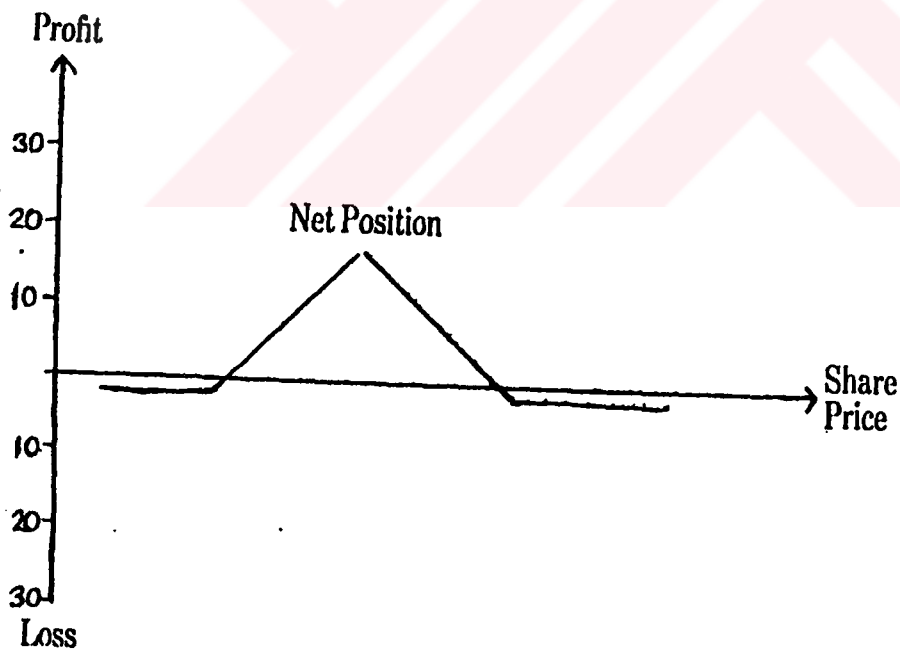
- Limited loss

Disadvantages;

-limited profit

#### 5) Butterfly Spread:

The Bull and Bear Spreads discussed above can be combined to form a Butterfly Spread which may be an appropriate strategy when neutral to moderately bullish or neutral to moderately bearish depending on the combination of bull or bear spreads chosen.



Diag. 20. Butterfly Spread

Whilst the Butterfly Spread in above graphic combines Bull and Bear Call Spreads, a Butterfly Spread could be

established with Bull and Bear Put Spreads or indeed a Bull Call Spread and Bear Put Spread or Bull Put Spread and Bear Call Spread.

Advantages;

- limited loss

Disadvantages;

- limited profit
- position may be disrupted by early exercise
- position margined

### III.1.2 Horizontal/Calendar Spreads,

The principle behind Horizontal, or as they are more commonly known Calendar or Time Spreads is to take advantage of the different rates at which time value decays. Since the time value element of an option's premium decays faster in the near month series than the far month series (as we mentioned in early chapters), a spread opens up between the two. The more rapid erosion in the near month series works to the advantage of the writer and the strategy is therefore particularly appropriate when the near month series is overpriced.

A Calendar Spread involves the sale of a near dated Call(put) and the purchase of a longer dated Call(put) at the

same exercise price. Calendar Spreads using calls or puts are appropriate when moderately bullish or moderately bearish respectively.

Whilst profit potential before expiry is limited, profit potential after the near month expiry is effectively open ended since the position is net long one Call with three months to run. A Calendar Spread using Puts could be established in the same way as an appropriate neutral to moderately bearish strategy.

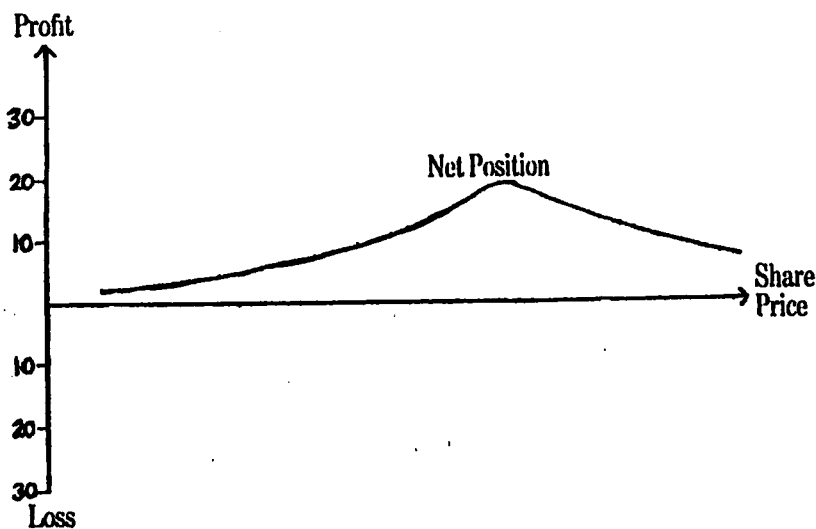
Advantages;

- limited loss ie. initial date.

Disadvantages;

- limited profit

- position may be disrupted by early exercise.



Diag. 21. Horizontal Spreads

### III.1.3 Diagonal Spreads,

Diagonal Spreads can be considered to be a cross between a Vertical Spread and a Horizontal Spread. Again they are appropriate when neutral to moderately bullish or neutral to moderately bearish. The strategy involves the purchase and sale of a Call or Put with both different exercise prices and different expiry dates, normally the sale of a near month Call(put) and the purchase of a younger dated further out-of-the-money Call(put).

#### Advantages;

- Losses normally limited. Losses may accrue if the cost of closing the short position exceeds the value of the long position.
- Profit potential may be unlimited(following the near month expiry)

#### Disadvantages;

- position may be disrupted by early exercise
- position margined

The spread strategies covered so far have only considered those situations where the number of contracts bought and sold has been equal. However spread strategies can be set up on a ratioed basis whereby the number of short positions exceeds the number of long positions (Ratio Spreads) or alternatively

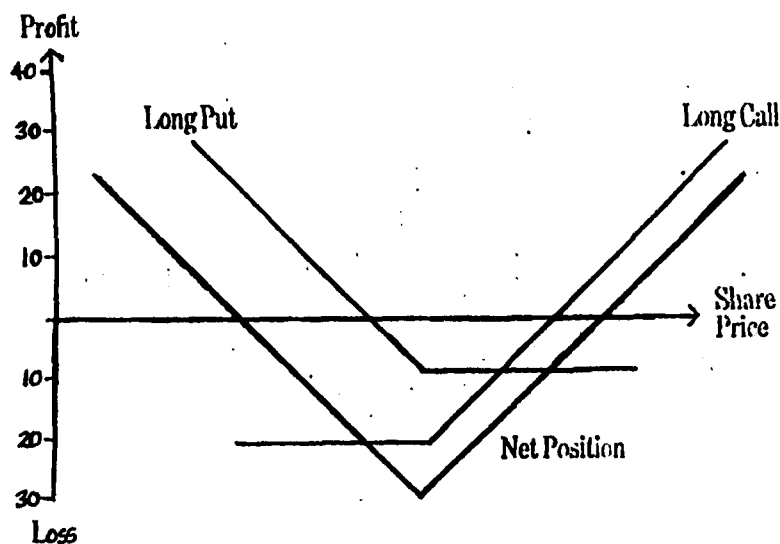
where the number of long position exceeds the number of short positions (Ratio Backspreads).

Up to now we have considered several ways in which either Calls or Puts can be combined but there are other strategies which combine both of them are known as Straddles and Strangles/Combinations.

### III.2 Straddles

#### 1) Long Straddle,

A Long Straddle involves the purchase of a Call and a Put with the same exercise price and expiry date. Purchasing a Straddle is appropriate when anticipating significant volatility in the underlying but when uncertain about direction.



Diag. 22. Long Straddle

Advantages;

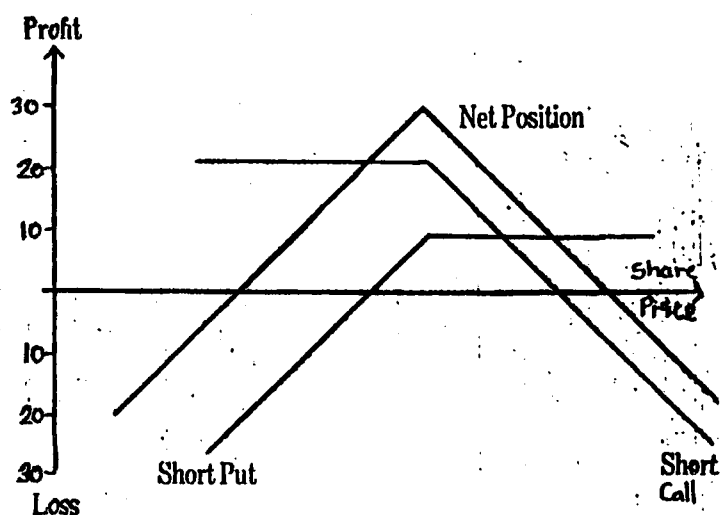
- profit potential open ended in either direction
- maximum loss limited to the premium paid

Disadvantages;

- breakeven points extended
- passage of time works against the order

## 2) Short Straddle,

A Short Straddle involves the sale of a Call and Put with the same exercise price and expiry date. It is generally appropriate when taking the neutral view that the underlying asset will trade between the breakeven points.



Diag. 23. Short Straddle

The risk is of course that if the underlying does prove to be volatile, the Short Straddle position exposes an

investor in both directions and it is important that stock and cash should be in place to cover the Call and Put legs respectively.

Advantages;

- generation of earnings from premium received
- secure known purchase and sale prices
- passage of time works in the writer's favour

Disadvantages;

- profit limited to the premium received
- loss potential unlimited in either direction
- position margined

### III.3 Strangle and Combinations

#### 1) Long Straddle and Long Combinations,

Another common method of buying both a Call and a Put is in the form of a Strangle or Combination whereby Calls and Puts are purchased at different exercise prices but with the same expiry date. With a Strangle, both Calls and Puts are in-the-money, whereas with a combination both Calls and Puts are out-of-the-money. Again they are appropriate strategies when anticipating volatility but when uncertain about direction.

Advantages;

- Profit potential open ended in either direction
- Maximum loss limited to premium paid with the Combination.  
With the Strangle the position will always have some intrinsic value (Because each leg of the Strangle is in-the-money)

Disadvantages;

- breakeven points extended
- passage of time works against the holder

As with Straddles, both Strangles and Combinations can also be sold.

2) Short Strangle and Short Combination,

A Short Strangle involves the sale of a Call and a Put at different exercise prices, but with the same expiry date.

Advantages;

- generation of earnings from premium received
- secure known sale and purchase prices
- passage of time works in the writer's favour

Disadvantages;

- profit limited to the premium received
- loss potential unlimited in either direction
- position margined










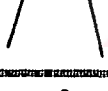
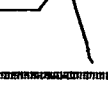
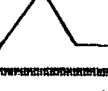


	Option Name	Market Bias	Profit Potent.	Loss Potent.	Decay Effect
	BULL SPREAD	Bull	Limited	Limited	Mixed
	BEAR SPREAD	Bear	Limited	Limited	Mixed
	LONG BUTTERFLY	Mixed	Limited	Limited	Mixed
	SHORT BUTTERFLY	Mixed	Limited	Limited	Mixed
	LONG STRADDLE	Mixed	Unlimit	Limited	Hurts
	SHORT STRADDLE	Mixed	Limited	Unlimit	Helps
	LONG STRANGLE	Mixed	Unlimit	Limited	Hurts
	SHORT STRANGLE	Mixed	Limited	Unlimit	Helps
	CALL RATIO SPREAD	Mixed	Limited	Mixed	Mixed
	PUT RATIO SPREAD	Mixed	Limited	Mixed	Mixed
	CALL RATIO BACK- SPREAD	Mixed	Mixed	Limited	Mixed
	PUT RATIO BACK- SPREAD	Mixed	Mixed	Limited	Mixed

Table 10. The risk-reward profile of options strategies

## IV. A BRIEF OVERLOOK TO THE TURKISH CAPITAL MARKET

### IV.1 Historical Developments of Turkish Capital Market

Till 1830's, it is possible roughly to say that buying and selling of money (funding) was the business of Jewellers, then they were called as Galata Bankers in Ottoman Empire. As a matter of fact those jewellers had been an expert on valuating and exchanging of all money types which were circulating throughout the Empire. Furthermore they were acting as an investment advisors of modern times on behalf of the state officials and some rich residents. Unfortunately establishment of national banks in the market was realized by 1908 thank to the acclamation of II. Meşrutiyet but long after the penetration of foreign bank to the system instead of Galata Bankers.

On the other hand, when it comes to the concept and operations of an organized securities market in Turkey, it is seen that it has roots in the second half of the 19th century. Issuing bonds and dept papers that the so-called "Galata Bankers" sold at "Havyar Han" at Karakoy, Istanbul was a way of Ottoman Empire to finance expenditures. The first securities market in the Ottoman Empire was established under the name of "Dersaadet Securities Exchange" following the Crimean War in 1866. Although its operations were suspended during the war years, this exchange, from time to

time witnessed highly speculative events. Dersaadet Exchange having even the total volume of transactions was formed by securities of foreign companies created also a medium for European investors who were seeking higher returns in Ottoman markets representing non-national capital. In 1894, stock exchange agencies were about to develop a lobby to operate on some statements that were not quoted in the exchange, but all of these flourishing moves were blocked by the crisis that market had undergone because of South African Mines.

The stock of gold mine which already did not exist, were sold, so the public lost confidence to the capital market. The scandal caused an unfortunate interruption in the improvement of the market.

When we analyze the background of legal infrastructure, we are facing the first Decree regarding to foundation of legal entities like bourse in all trade centers enacted in 1886. The first serious organization effort came to the agenda of Istanbul Bourse in 1873 and necessary formal character provided by two by-law, respectively "Istanbul Esham Borsasi Talimati"(1873) and "Borsa Talimatnamesi" (1886).(26)

Following the proclamation of the Turkish Republic, a new law was enacted in 1929 to reorganize the capital markets

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(26) IMKB, Borsa Rehberi 1928 (I), 1989, pg. 3.

under the new name of "Istanbul Securities and Foreign Exchange Bourse". Soon, the bourse became very active and contributed substantially to the funding requirements of new enterprises across the country. However, the 1929 Depression and Second World War abroad clouded its success. An unfortunate decision to move the bourse to the commercially inactive capital city of Ankara during the war years, coupled by poor communications, further increased the problems of the capital markets. The act regarding protection of Turkish money enacted in 1930 was the final cut because of halting the last relation of the exchange with abroad under foreign exchange control.

Although the stock exchange existed as a legal entity, the secondary market developed at a faster pace in parallel to an over-the-counter market cause of continuous increase in the number and size of joint stock companies, which began to open up their equity capital to the public.

By the end of 60's, the fact that "saving bonds" sold to public had to be discounted, accelerated the transactions in the capital market. During the same period, stock exchange transactions were carried on at the "Fourth Vakif Han", Sirkeci, by the stock brokers and jobbers who had been buying and selling stocks for sixty years.

#### IV.2 Legislative Changes in Last Decade

The early phase of the 80's saw a real improvement in the Turkish capital markets, both in regard to the legislative framework and institutions. In 1981, the "Capital Market Law" was enacted. One year later, the main regulatory body responsible for the supervision and regulation of the Turkish securities markets, the Capital Market Board based in Ankara, was established. A new decree was issued in October 1983 foreseeing the setting up of securities exchanges in Turkey. Following the publication of the "General Regulations for the Establishment of Securities Exchanges and Their Functions" in the Official Gazette in October 1984, the government appointed the Executive Council Chairmen in March 1985. The regulations concerning operational procedures were approved in subsequent extraordinary meetings of the General Assembly and the Istanbul Stock Exchange was formally opened at the end of 1985.(27)

In the 80's, in order to enable companies to find alternative methods of financing and to promote investments in economic enterprises among the general public, the government established the Capital Market Board and passed the capital market law governing all securities related matters in Turkey. The framework established to enable trading of securities publicly has caused the government to intensify its efforts to privatize the state owned economic enterprise.

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(27) BOZKURT, Unal, Menkul Değerler Yatırımlarının Yönetimi, İstanbul, 1988, pg. 28-29.

Turkish economy, has undergone an era of structural transformation and globalization after 24 January regulations. Real rate of interest gave rise to the savings. Banking system was forced to function efficiently. The purpose was to transfer savings to the industry at low costs so that demand and cost inflation were reduced. Meanwhile, a great number of bankers emerged out of nowhere and served as a second hand market for the certificate of deposits and private sector bonds and were collecting deposits in such amount as to be a competitor for the banks. But nevertheless these funds were not placed efficiently which raised the risk factor for the bankers.

2499 numbered Capital Market Law, announced on July 30th, 1981 drove a number of legal regulations that made the bankers system collapse by means of rejecting repurchase guarantee of security that already sold. Capital Market Law, best describes itself in its March 20th, 1981 justification. Here are some important notes from this justification ;

The Capital Market is the name of financial system that regulates the transfer of medium and long term lending funds from the investors to the entrepreneurs by means of buying and selling stocks and bonds, in other terms, the system of the investors, the entrepreneurs and fund transferring establishments, banks, investment funds.

The Capital Market is, by definition, a financial and economic phenomena and its establishments obviously has to do with the economic developments.

It's well observed that, the Capital Market are improving real fast nearby the traditional financial system. But during its establishment, it also need to have legal regulations for the reasons as the followings ;

a) The main tool in the developmental pattern of the capital market is the protection of the rights of the investors and that the market functions safely and efficiently.

b) The commercial law in Turkey implies a long and tedious procedure of public offering for the corporations.

c) Functions of the capital market actually depends on the fact that financial institutions expect on portfolio management, investment firms and banks that are all engaged in selling the equities issued by the corporations all work efficiently.

d) One last reason is the demanding developments that has taken part in the Capital Market recently.

Some of the modifications that the legislation no : 2499 brought are as follows ;

\_\_ approved capital ceiling system for the corporations has been established,

\_\_ regulations about the private sector bonds, commercial papers, and mutual funds have been composed,

\_\_\_ obligation for the corporations that are going to issue stocks and bonds to have external auditing has been brought.

Addition to Law 2499, the Communiqué enacted by the government on July 20, 1988 designed to permit foreign institutional investors to enter the Turkish Capital Markets by means of establishing mutual funds and unit trusts and repatriating abroad their principal funds and earnings on securities trading, has partially satisfied the expectations of such prospective investors.

#### IV.1.3 The Ongoing Structure of Turkish Capital Market in 80's

The key point of the accelerated improvement of the capital market in the last ten years may be noted as follows ; aside from foreign borrowing, the government also has gone under domestic borrowing by issuing government bonds and treasury bills. During the same time period, trading in treasury bonds and bills have become very popular among institutional and private investors who want to invest their temporarily idle funds. The integrations of Turkish economy and the foreign capital, companies need to find better investment alternatives to compensate for the high rate of inflation, and their intention of getting along with their capital, because the credit rates are high, are all listed on the leading key points.



Now I would like to touch some figures explaining the trend of our economy and capital market in recent years :

While the total value of securities given permissions to issue between 1986/1990 was respectively, TL 274,060.6 million, TL 682,527.2 million, TL 1,137,907.4 million, TL 2,302,907.4 million, TL 6,309,733.6 million. As it is seen that there is a striking increase showing the accelerated trust to capital market coming from both supply and demand side. The share of stocks in total reached %65.6, this shows that stock market gradually accepted as an instrument of fund transfer. The total market value of shares in aggregate amount TL 971,543.4 million in 1989 reached TL 4,143,289.6 million in 1990. As in 1988-1989 term the shares issued exceeded bonds issued and within the total they showed incredible increase. This increase has been repeated in 1989/1990 term also.(in appendix -1-) The increase in both the cost borrowing from banks and the cost of borrowing accomplished by bonds were the factors facilitating the growth of the securities.

The tables(11.,12.) reveal that the government has extensively absorbed domestic savings. In the last 5 years, %65 of the cash deficit on average has been financed by the securities issues. The corporate sector's reliance on debt securities is still negligible.

Budget Deficit and Its Financing

	1980	1981	1982	1983	1984	1985	1986	1987	1988*
Cash Deficit (Billion TL.)	225	168	199	356	1,026	1,130	1,608	2,831	3,524
Cash Deficit / GNP ( % )	5.1	2.7	2.3	2.1	5.6	4.1	4.1	4.8	3.4
Cash Deficit / Total Savings ( % )	31.6	14.0	19.3	18.7	33.4	21.5	18.7	20.2	13.4
Financing of Cash Deficit (%)									
External Borrowing (net)	32.9	24.4	-	-	32.5	-	-	-	0.8
Domestic Borrowing (net)	21.3	52.3	46.7	46.9	41.0	65.1	71.1	63.9	80.1
Central Bank (net)	45.8	23.2	16.1	20.2	18.5	23.6	16.0	12.5	19.1
Others	-	-	37.2	32.9	8.0	11.3	12.9	23.6	-

\* Provisional Figures

Source: Derin and Sak (1989), p.4

Table 12. Budget Deficit and Its Financing

Corporate Sector's External Sources of Finance

	Banking Sector <sup>(*)</sup>	Securities Markets <sup>(**)</sup> (I)	Total External Financing (II)	(I/II)
1972	50.9	0.9	51.8	.017
1975	123.8	3.1	131.9	.024
1980	689.2	28.0	717.2	.039
1982	1,738.4	49.9	1,788.3	.028
1983	2,338.4	59.3	2,397.7	.025
1984	3,163.7	66.0	3,229.7	.020
1985	5,175.5	96.6	5,272.1	.018
1986	8,992.4	129.9	9,122.3	.014
1987	13,936.2	444.7	14,380.9	.031
1988	20,098.3	683.0	20,781.3	.033

Billion TL.

(\*) Outstanding loans at end of year extended to private enterprises and households by deposit money banks and development banks

(\*\*) Outstanding corporate bond and commercial papers at end of year.

Table 13. Corporate Sector External Source of Finance

The value of transactions in the secondary market tripled again in 1990 compared to TL 11,8 billion in 1988 and TL 36,4 billion in 1989 reaching TL 101,8 billion. 82,4 of the secondary market transaction volume consisted of public securities. This general decreasing trend has been continuing as of %88 in 1988, %87 in 1989. This is can be seen a slight expression of government concentration on privatization instead of dept instruments. As of june 1991, there is breathless trend of public offerings both by means of the exchange and banks so this means that decrease on public securities transaction volume will continue throughout the year.(appendix -2-)

On the contrary, the transaction volume of shares was TL 1.735.9 billion in 1989, it continued its tremendous increase by TL 15.313.1 billion in 1990. This implies an increase at %782,1 of volume and %54,6 of amount.(in appendix -3-)

In last two years, it is observed that unbelieavable growth experienced. This development can be evaluated as an increasing interest towards tools of capital market instruments. Also it is going to attract companies in the way of satisfying their fund need by the securities.

In 1988 there was a stability and fluctuations has been withnessed. Then tremendous increase experinced in the bourse for the first time. This increase continued in 1990 also but

as a ratio, increase in 1989 is the unforgettable.

Similar developments experienced on ISE's indice. At July 1990 indice passed the limit of 5000. But with the beginning of the Gulf Crisis closed at the end of the year on 3255.7 level referring %47 increase according to indice of 1989.(in appendix -3-)

As of July 1991, the slow motion trend is being witnessed on general. The affects of Gulf Crises on domestic economy and the uncertainty in politic arenae are the reasons for this slowing trend.

The number of firms listed in the ISE is 916 as of the end of 1990. It refers 25 percent an increase compared to the number of the last year. And total market capitalisation experienced %356 percent increase in 1990 comparing to the 15,535.0 billion of 1989. Ofcourse it expressing a slow down process as considered %758 percent of 1988-89 term.(in appendix -4-)

In order to conceive where our stock market has been coming from, we should analyze the turnover ratio of the secondary market of ISE.

STOCK	SHARE VOLUME	TRADED VALUE	TURNOVER RATIO(1986)	TURNOVER RATIO(1989)
Akcimento	11,351,872	35,969	%1.78	%19.69
Arcelik	1,789,495	20,612	%0.37	%2.88
Bagfas	15,900,565	62,586	%1.56	%26.52
Celik Halat	4,539,664	32,825	%7.35	%31.62
Cukurova E.	15,925,731	209,857	%2.06	%19.23
Eczaci. Yat.	845,431	2,949	%3.65	%10.92
Ege Gubre	1,877,134	3,129	%1.46	%11.96
Eregli D.	27,974,287	680,701	%0.07	%16.10
Goodyear	2,187,925	16,955	%0.62	%8.82
Guney Bira	1,935,067	12,482	%0.70	%22.18
Izocam	844,638	5,631	%4.11	%5.82
Kav	780,145	13,802	%1.23	%12.43
Koc Yat.	3,894,064	19,249	%1.46	%13.27
Kordsa	3,970,024	26,800	%0.88	%6.14
Koruma Tar.	3,292,370	21,820	%14.72	%32.59
Nasas	4,673,759	6,911	%1.15	%7.27
Otosan	3,188,133	24,716	%0.15	%5.89
Rabak	13,968,988	73,207	%6.33	%62.57
T. Demir D.	5,472,940	21,217	%2.17	%12.86
T. Sise C.	3,217,903	12,460	%0.59	%2.07

Table 11. Turnover Ratios of some shares in ISE

As it is seen in table 11., the highest turnover ratio was belong to Koruma Tarim with %14.72 in 1986. In 1989, we can see some spectacular ratios, as highest is %62.27 for

Rabak firm. And Koruma Tarim's turnover ratio is %32.59.

This means that %32.59 of total share has been traded within the year.

If we consider that turnover ratios refer to the rate of total transaction volume to total capital, increase on that value means that market is getting deeper and providing more attractive investment facilities to investor and more funds for firms in need of capital flow.

It is no doubt that ISE has been performed outstanding success in a quite limited time showing its potential to develop. But unfortunately the capital rate that owned by public, of companies quoted in secondary market is still inefficient to prevent price fluctuations. Let say an investor having 100,000 of Goodyear shares, could not sell shares without causing drastic price fluctuations in a short time because the ownership structure of the company.

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	Share in Capital(%)
The Goodyear Tire and Rubber Co.	50.70
Koc Group	17.13
Armed Forces Benevolent Association	11.48
Others	20.64

=====

Table 14. Breakdown of shareholders profile (ISE)

TL 23,446 billion is the paid-in capital of the company, this means that there is roughly 23,446 million share in market. But this is not the amount in circulation. The turnover ratio as of 1989 is just %8.82. And generally the shares owned by big partners are not expected to circulate in the exchange. That's why 100,000 share is important amount considered %20.16 as part of other small shareholders and it is not possible to sell them without lowering prices.

This structure is almost the same for all other stocks in ISE. In brief, it is not possible to trade with big amount without having impact on price in ISE.

The ISE is ranked as number one in terms of capitilisation rate in market under Europe/Middle-east/Africa group of developing exchanges although the number of companies quoted to the ISE is less than the number of others. In terms of average daily transaction volume the ISE has taken the first place within the his group. And also the ISE is at the first place again in terms of annual return. Naturally its price earning ratio ranked in the middle of the list, increased his competition power.(28)

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(28) CMB, Monthly Bulletin (as of December 1990), pg. 11.

## V. THE ADAPTABILITY OF OPTIONS ON EQUITY INSTRUMENTS IN TURKEY

Before to discuss the question of whether option market should be established, we should examine the infrastructure of current system. In every country having developed derivative markets has followed almost the same structural building policy because lack of efficiency on spot market organs would be an obstacle to perform expected derivative markets.

Now let's follow the steps taken in French capital market which has some basic similarities with our capital market;

The French experience is characterized by the following major features(as I mentioned in chapter I.7)(29):

- 1) Tax incentives to investors and issuers;
  - i) Tax-exempted investment income,

The tax-exempt amount of interest income was gradually raised. At the taxpayer's option a flat %26 is withheld as final tax. To encourage long term-investment flat-rate withholding tax on interest income from cash or spot or short-term asset was raised. And tax credit for dividend income, introduced in 1966, was complemented in 1978 by a dividend exemption of FFR 2,000 with subsequent increases.

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(29) ROBERT, M., *ibid.*, pg. 97-104.



ii) Tax-deductable investments,

Legislation enacted in 1978(Monory Law) introduced share purchase plans, The Finance Law 1983 instituted Equity Saving Accounts(CEA) for the period 1983-1987 as a substitution for the share purchase plans and a legislation enacted in 1987 instituted Retirement Saving Plans (PER) as a substitution for the CEAs offering the possibility to deduct from taxable income and couple for investments in French equity shares either direct or through collective investment schemes.

ii) Tax incentives to issuance of equity,

Legislation enacted in 1977 authorized companies to deduct from taxable corporate income a proportion of the amount of dividends distributed on newly issued shares.

In 1985, the %1 issuance tax on shares issued for cash was abolished.

2) Deregulation: promotion of collective investment schemes; simplified procedures for issuing equity; facilities for smaller companies to raise funds in the market;

i) Collective investment schemes,

Legislation enacted in 1979 redefined the legal and organizational structures for open-end investment companies (SICAV) and authorized the creation of unit trusts(FCB)

These two types of collective management have played a big role in the dissemination of the securities among the public because they offered it a sophisticated management of portfolio with complex products.

ii) Simplification of the new issues proceedings,

In order to encourage and make it easier for companies to raise funds in the market, issuance of additional equity was facilitated a second market created.

A) Legislation enacted in 1983 shortened the legal time schedule for additional equity issues and authorized companies to distribute dividends, at the shareholder's opinion, in the form of new shares in the lieu of cash. In 1985, the fees for underwriting new issues were deregulated and became freely negotiable.

B) A second market (Second Marche) was introduced in 1983 to enable smaller companies which do not qualify for the official list to access the capital market. The goal was to organize a less regulated market but with good liquidity. The prospectus to be published is not subject to prior review by the CDB but must contain the minimum information recommended by the Commission. No auditor's report is required. This meant a substantial decrease in the cost of listing.

Since its introduction, The Second Board market has attracted about 300 domestic companies.

iii) Privatization,

The shares of state owned companies have been offered to the employees and the public mainly in 1987 and this has been an important factor of the interest of the public for the Stock Exchange.

3) Innovations of extended range of marketable securities; reform of market structure and operation; derivative markets and products;

i) Extended range of marketable securities,

Legislation enacted in 1983 and 1985 provided the necessary statutory basis for extending the range of marketable securities or instruments. This legislation enables issuers to issue a widerange of straight of composite securities tailored to their specific financing requirements.

Government-owned enterprises were enabled to raise funds in the market through the issuance of shares in listed subsidiaries or other instruments.

ii) New trading clearing and settlement procedures,

A) Computer-assisted continues trading;

In order to develop a continues auction market, the CAC system(Computer-assisted continuous quotation), using software derived from the CATS system of the Toronto Stock

Exchange, was introduced in 1986. The CAC is a delocalized trading system with automatic order execution. In the beginning of 1989, the system included all listed bonds issues, some 200 stocks traded on the forward market official list, and 400 stocks traded for cash.

B) Dealer and specialist function;

By legislation enacted in 1985 the brokerage firms were authorized to establish limited companies for the purpose of expanding out-of-hours principal trading with customers. The Stock Exchange Reform Law 1988 provided the statutory basis for the broker-dealer capacity of the securities companies (Societes de bourse).

C) Corporate stock exchange membership;

The Stock Exchange Reform Law 1988 changed the organizational and financial structures of the members of the stock exchanges. The traditional firms of "Agents de Change" were replaced by securities companies Societe de Bourse whose capital is open to outside interest, mainly banks. The trading monopoly of the Agents de Change was transferred to the securities companies who are the shareholders of the company responsible for operating the stock exchanges, The French Stock Exchange Corporation.

D) New clearing and settlement system;

Legislation enacted in 1983-84 provide the statutory

framework for the introduction of a scriptless securities system was gradually implemented, thus extending the system of book-entry deliveries, to include all individual investors.

Dematerialization paved the way for the development of a computer-based standardized and cost-effective clearing and settlement system with a five day settlement cycle and delivery against payment.

#### V.1 The Pro's and Con's of Current System

As it is seen in above mentioned French Experiment, an in depth reform of the structures and operation of the stock exchange system was an essential contribution to promote the growth the development process. In order to build a derivative market, the below organs of capital market must be regulated and in cooperation,

- capital market board; will organize and assume the responsibility of surveillance on whole capital market,
- stock exchange; will establish the markets in its structure, provide necessary coordination and educate the staff,
- market participants; will service customers and stimulate the market,
- clearing house - will be the key point of all transactions.

In Turkey, the existing clearinghouse of the stock exchange does not work properly. The first reason of this situation is, the stocks are not in contract form, they are traded physically . Also software and hardware of the required system does not exist. It is likely to examples the clearing house should supply and service for dividend collecting and bonus share distributing.

The most important features of the capital markets are transparency and trust. Especially in derivative markets, the financial data of the corporations must be exact and accurate and preferably externally audited.

For the moment , since there is not healthy information flow in Turkish market, existing investors are in a trouble. It is that our capital market structure is lacking of rating agencies that could evaluate financial data of the corporation on behalf of the investors.

The taxation of the earnings on the capital market does not function properly in Turkey. According to current system retail investors are not taxed for every kind of investments instruments except for the 10.5 percent stoppage. On the other hand institutional investors pay 10.5 percent stoppage, while they are tax-exempted for government securities and subject to corporation tax for the rest of the the instruments.

As far as options introduced to the system, they are going to be subject to corporation tax as they are instruments based on stocks. Infact institutional investors have a huge potential of investment capacity. For that reason, at the beginning, in order to be attract institutional investors to the derivative markets, transactions must be tax exempted for them.

#### V.2 Changes on Legislativeal Base

Turkish Capital Market legal frame date back to nearly ten years. Obviously there are some lcking points needed to be adjusted. But the recents developments are so supportive.

A law draft proposed to The Grand National Assembly in regard to some alteration and amendments to Law 2499, recently. Although it is still in the process of discussion, is so likely to be approved. I would like to mention some parts of the draft in comply with the the framework of the thesis.;

- 1) It is legalizing the issuance of shares without voting power which is essential for companies owned by families. Although the increse of capital by issuing shares to public is a solution to the lack of fund for all companies, it was dangereous for most of strong companies by the reason of our traditional company ownership profile. The corporate

sector is dominated by family companies which also favour intermediated financing through the banking system. By this innovation, increase on the amount of the share issued to public and satisfied capitalization ratio is so likely in very near future. Naturally it is implying a stock exchange with providing more liquid environment and increased transaction volume. Ofcourse this let us be close to establishment of the contemporary derivative markets.

2) It is proposing some measures in order to prevent insider information. Fair and equal disseminations of all information to the public is so essential in order to have the trust of public opinion and fully competitive environment. To impose some penalties against likelihood manipulative and fraudulent practises from now on, will protect our market to be criticised and disappointing developments. As considered experiences of foreign capital markets, it is seen that this kind of abuses has been faced throughout the history. (ie. The SEC terminated the expansion of traded option market with the charge of the abuses in 1977.) The important point that especially derivative markets are in need of this kind of strict regulations for the favour of investor.

The primary purpose of the regulatory system is to protect the public. In an industry as large as this, some abuses are certain to occur. Nonetheless, the option industry must



not be suffered from major scandals or defaults by member firms. This is almost certainly due to the industry's willingness to police itself. Participants should know that the public trust is critical to industries survival. In Turkey, our stock exchange and capital market has already suffered by fake stocks and fake bonds transactions.

Before establishing new mechanisms such as futures and options, that requires high level of confidence, related ministry should propose the necessary law changes including high money and prison. By the draft that we mentioned, the adaptations of further penalties is going to be realized.

But the further legislation should also be enacted regarding price manipulations on stocks and possibly is going to be on options when the market begin to operate;

i) matched orders which are fictitious transactions

between two or more people in order to create a price without a change of ownership,

ii) wash sales which is used to record a price without no actual change of ownership,

-iii) pool operations whereby a price is raised (or lowered) by concerted activities of members of pool,

i\/) dissemination and spread of false information,

\/) short selling

3) It authorize the Capital Market Board in order to regulate futures markets by imposing standart grounds and grant a

permission of entrance to mentioned markets as a trader. It is really spectacular development for our market. After this legal ground, It can be said that the only thing that is essential to use derivative tools now, the readiness of market and the infrastructural developments.

Also The CMB has been authorized to regulate so-called repurchase agreements and to grant permission to trade. This development is important on these days on which the secondary market of corporate bonds is introduced and the central bank increased surveillance on repo agreement by banks. And a considerable portion of the secondary market trading takes the form of repos. So it is hoped that the lack of legal regulation on that matter is going to be removed.

- 4) It forms The Association of the Members of Turkish Capital Market in which the membership is obligatory. As we mentioned in earlier chapters, with in the structure of adequate capital markets this kind of organizations is essential. So as to provide strong cooperation and participation, modern markets need a regulator apart from the state. As we remember that Turkish capital market has always been under the wings of state, to dealt with coming problems, she is in need of that organization just like in France. It is possible to be transferred some essential authorizations to this association in managing of national stock exchange in coordination with current institutions by

the time.

- 5) It includes some alterations on the CMB's position regarding the regulation of auditing and standardization of accounting system and the publishing of audited balance sheets and income statements. It is so obvious that effective functioning of the capital market is depending on the fact that the firms should have an internationally accepted accounting system and well-formed methods, balance sheets and data processing mechanisms. That's why this would be an obligatory prerequisite for the options and futures as well.

## CONCLUSION:

All over the world, financial markets has experienced radical changes and both money market and capital market has been designed so as to balance fluctuations and meet the need of risk-free funding. Throughout 70's and 80's especially banks adapted their structure to answer those needs. On the other hand capital markets in which units having fund surplus and units having funding lack meet face to face, served as an intermediary in order to supply the firm with inexpensive funds while providing riskless investment tools to investor at the same time.

In countries like Turkey, this process has been against the dominance of banks which have monopolistic power within every aspects of economy. Banks have always been an alternative in the absence of adequate capital market instruments and stable economic indicators. Investments both creating wealth and satisfying consumptive needs (like real estate, houses, cars) are so popular, nowadays in Turkey cause of high inflation rates which imposing higher risk for long term financial tools than short term ones and uncertainties regarding future developments.

Although conditions like high inflation and political uncertainties, the capital market has accelerated its slow motion development trend owe to increased cost of money to

firms and government in need of fund and desire of policy makers. No doubt that firm can issue bonds and valuable paper with the lower cost than credit rate of banks. Thus, investor will choose this more profitable tool considering the interest earned by depositing money.

It is so obvious that a developed capital market structure which has been regulated and organized to give quick and solid responses to the needs and to facilitate above mentioned services to the firms and investors. Though the Turkish capital market scored very succesful performance within the quiet limited time, securities markets can be deemed as relatively new segments of the financial system in Turkey. As a matter of fact the introduction of securities into the financial system in the post-1980 period has not changed the prevailing bank dominated resource allocation profile much.

The proper functioning of secondary markets is essential for the rapid and healthy development of capital markets toward derivative markets. As result of the limited supply and demand in primary markets, secondary markets lack depth and breadth. This is major obstacle to the efficiency of secondary markets in Turkey. On the other hand there are number of restrictions related to the organizational and operational aspects of securities markets.

With the opening of secondary market for debt securities and regulating of repurchase agreements which are widely used in the secondary market, one of main obstacles toward developed infrastructure has been removed.

Also a book entry clearing and settlement system should be introduced to the system with the establishment of a compulsory central depository institution.

The measures should be taken to eliminate the time consuming nature of securities issues. Firms do not want to issue securities both by the reason of owning profile of corporation which is going to be removed thank to the facility of new type shares issuance, and the time consuming frame of legal procedures. So simplification of issuance procedures is going to be another key point.

Transparency of stock market should be enhanced and temporarily financing facilities should be provided to particularly non-bank intermediaries in order to improve competition among intermediaries.

Though a stock exchange can not be considered without speculation motive, for the exchange with average about depth, breadth and resiliency, some measures should be dictated in order to protect small investor. The point that should not be forgotten is the higher speculation level of

derivative markets than that of the spot markets.

Adaptation of tax system with exemptions and deductions, even for the companies in the way of issuance of shares to public can be rewarded. Simplification of issuance procedures is another key point.

In brief, it is obvious that establishing an option market is just looking for necessary demand of investors and hedgers first accelerating in spot market since both CMB and ISE are trying to complete needed infrastructure.

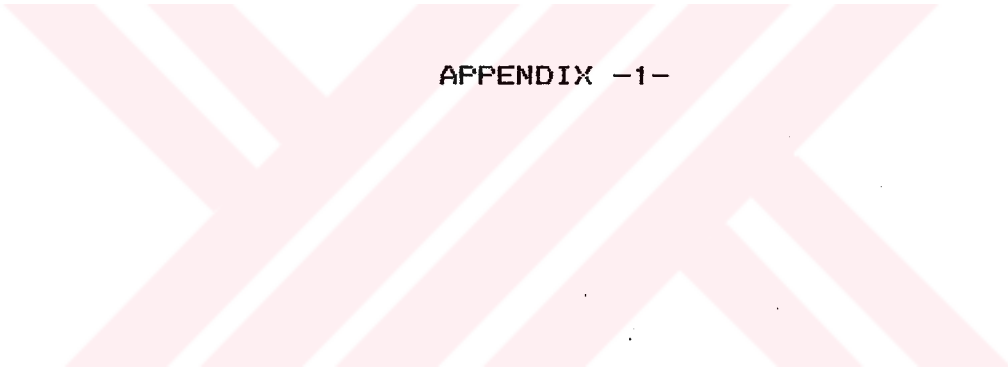
Ofcourse, to be realistic it is not easy to settle options market into today's capital market structure, but it should be well understood that how important the capital market as a potential locomotive of the economy. At the lights of developments that we tried to analyze it is quite predictable that the market will bear more improvements as well. So it is compulsory to have options adapted after a certain period of time in Turkey. This means that time is working in favour of us.

But the basic problems to be overcome, still cause slowing impact: lackage of depth in ISE, gigantic fluctuations on share price indices, high inflation periods faced.

Ofcourse as it is seen in some other countries' restructuring program that futures markets should have the priority to be active in order to ease the adaptation to more complex options market, also secondary markets especially built for debt securities should be improved.







APPENDIX -1-

PERMISSIONS TO ISSUE SECURITIES GRANTED BETWEEN 1986/1990 (TL Million)

Years	Shares		Corp. Bonds	F. Bills	PLSC	BB/BGB	MF-PC	Total
	I	II	III	IV	VI	VI	VII	VIII
1986	101,978.6	101,978.6	110,882.0		850.0	60,250.0		274,060.6
1987	187,202.2	187,202.2	317,531.0	55,800.0	750.0	76,244.0	45,000.0	682,527.2
1988	364,478.0	364,478.0	210,860.0	271,000.0	200.0	238,000.0	53,000.0	1,137,538.0
1989	966,758.4	971,543.4	604,514.0	465,350.0	2,000.0	98,000.0	161,500.0	2,302,907.4
8901	26,193.0	26,193.0	9,329.5	32,500.0			5,000.0	73,022.5
8902	27,919.0	27,919.0	19,400.0	13,000.0			20,000.0	80,319.0
9004	40,418.0	40,418.0	12,115.0	19,050.0	2,000.0		22,000.0	95,583.0
8904	158,290.0	158,290.0	7,036.5	59,000.0			11,000.0	235,326.5
8905	32,282.9	32,282.9	58,058.0	89,100.0		48,000.0		227,440.9
8906	82,991.9	82,991.9	36,305.0	79,550.0				198,846.9
8907	168,793.0	168,793.0	51,260.0	29,500.0			15,000.0	264,553.0
8908	38,682.8	38,682.8	75,000.0	48,400.0				162,082.8
8909	98,583.0	98,583.0	67,820.0	41,750.0			40,000.0	248,153.0
8910	82,527.3	82,527.3	225,400.0	21,500.0			35,000.0	364,427.3
8911	191,160.0	191,160.0	30,090.0	15,000.0		50,000.0		286,250.0
8912	16,917.5	23,702.5	12,700.0	17,000.0			13,500.0	66,902.5
1990	1,807,327.9	4,143,289.6	762,344.0	215,100.0	4,000.0	330,000.0	855,000.0	6,309,733.5
9001	8,041.0	8,041.0	15,500.0	23,000.0			120,000.0	166,541.0
9002	28,395.0	37,690	10,470.0	20,000.0			105,000.0	218,825.0
9003	47,783.0	100,889.2	35,800		4,000.0	100,000.0	29,000.0	268,889.2
9004	254,803.0	380,000.5	12,200.0	10,000.0			25,000.0	427,200.5
9005	282,344.0	640,137.8	11,600.0	27,000.0			155,000.0	833,737.8
9006	241,935.3	898,028.6	140,191.0	25,000.0			275,000.0	1,338,219.6
9007	62,951.9	185,064.5	38,050.0	39,100.0		100,000.0	40,000.0	402,214.5
9008	210,576.1	313,303.4	82,660.0	2,000.0			70,000.0	467,963.4
9009	102,697.5	182,211.4	38,050.0	45,000.0				265,261.4
9010	408,439.0	1,154,162.4	118,500.0	10,000.0			26,000.0	1,308,662.4
9011	54,321.5	130,015.2	189,328.0				5,000.0	324,343.2
9012	105,040.6	114,040.6	24,835.0	14,000.0		130,000.0	5,000.0	287,875.6

Footnotes:

PLSC : Profit and Loss Sharing Certificate

(1)

Includes cash contributions only


BB/BGB : Bank Bills and Bank Guaranteed Bills

(2) VIII=II+III+IV+V+VI+VII

MF-PC : Mutual Fund Participation Certificate

I : Nominal

II : Market Value



APPENDIX -2-

: TRANSACTIONS VOLUME IN SECONDARY MARKETS BETWEEN 1986-1990 (TL.MILLION)

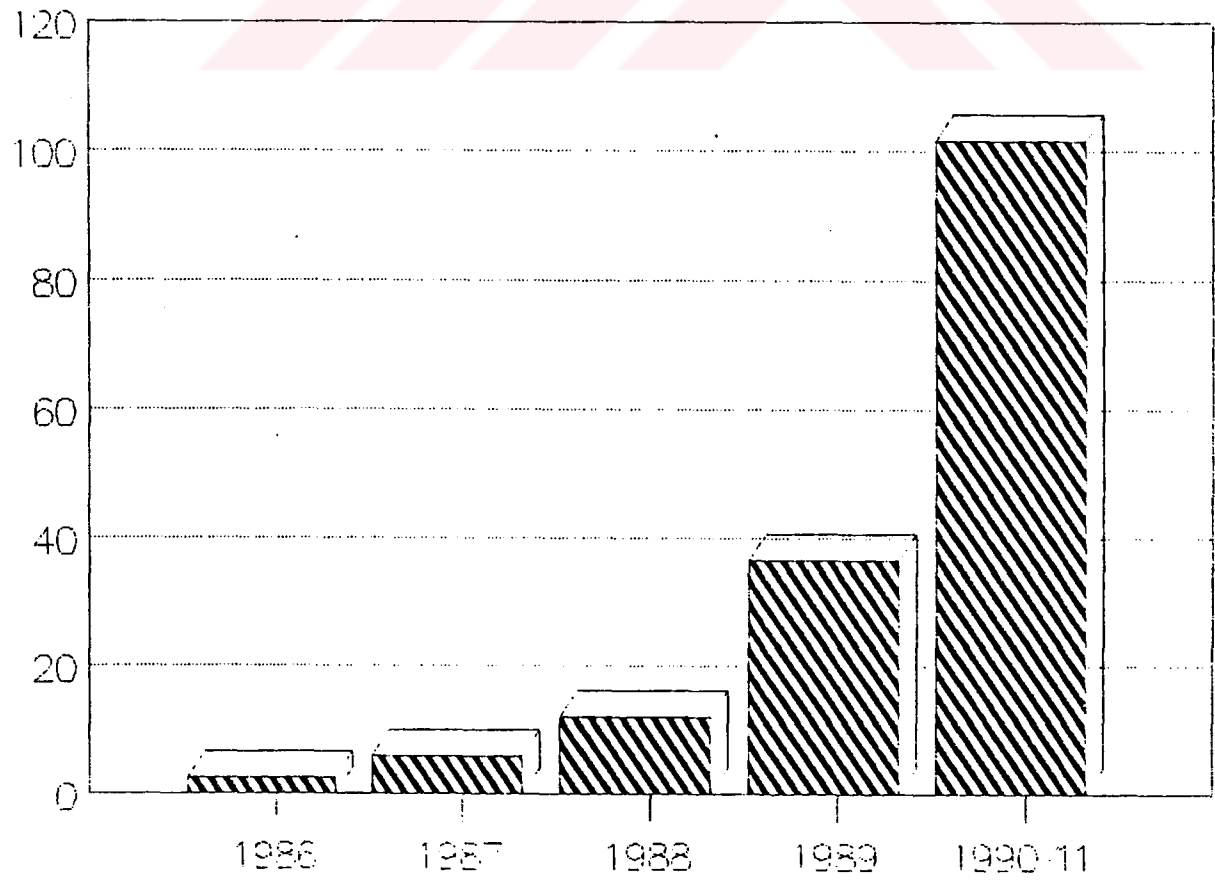
Years	S	CB	GB	TB	BB-BGB	RSC (*)	FB	FEIB	Total
1986	8,703.0	104,424.0	546,313.7	1,411,953.3	36,395.3	289,173.8			2,396,963.1
1987	105,376.0	394,904.4	1,520,143.3	3,219,866.6	95,527.8	359,555.2	51,670.6	86,330.8	5,833,374.7
1988	149,002.0	1,032,185.9	2,630,923.0	7,320,770.5	170,351.8	384,606.5	175,690.3	13,719.2	11,887,249.2
1989	1,735,907.0	1,463,328.2	10,828,046.5	18,782,845.7	188,291.9	1,098,101.5	856,928.4	1,558,439.1	36,491,888.3
9001	7,168.0	76,060.9	312,207.0	638,819.5	13,703.5	10,165.3	22,362.1	87,882.5	1,168,168.8
9002	9,760.0	57,169.3	211,678.5	636,759.5	6,808.4	17,848.2	32,527.9	58,348.6	1,030,900.4
9003	28,115.0	75,764.7	348,108.0	1,111,551.6	12,876.6	22,813.5	21,894.0	65,770.0	1,684,893.4
9004	15,917.0	78,904.9	457,742.7	1,464,365.9	17,286.7	99,451.1	34,778.2	92,349.0	2,258,795.5
9005	36,827.0	73,199.8	764,203.4	1,309,501.7	7,685.2	72,670.0	62,221.1	106,240.8	2,432,549.0
9006	113,850.0	227,819.8	842,460.0	1,532,827.0	25,647.0	98,798.4	125,628.4	239,152.8	3,208,183.4
9007	45,440.0	125,513.2	1,011,240.9	1,403,083.8	35,678.2	121,180.9	86,569.9	236,706.9	3,065,413.8
9008	60,498.0	93,492.9	1,108,527.0	2,044,603.6	3,448.4	224,611.3	92,941.6	174,814.7	3,802,935.5
9009	245,222.0	115,881.2	1,287,260.9	2,244,110.1	16,875.5	37,953.0	136,485.4	143,998.2	4,227,766.3
9010	364,457.0	193,326.0	1,037,815.1	2,163,747.3	22,312.8	43,752.2	95,340.1	130,448.0	4,051,198.5
9011	241,831.0	117,560.3	1,826,977.5	1,820,361.6	11,473.4	190,334.9	46,988.0	95,584.7	4,352,911.4
9012	569,024.0	230,635.2	1,619,825.5	2,393,114.1	14,496.2	158,522.7	97,191.7	127,342.9	5,210,152.3
1990	14,604,376.7	2,505,103.5	53,783,875.7	27,403,813.9	184,496.9	1,055,174.3	624,446.2	1,475,206.3	101,636,493.5
9001	1,128,447.2	49,712.1	1,727,584.5	2,442,470.6	13,219.6	122,878.1	95,113.5	90,492.1	5,669,917.7
9002	1,179,530.4	108,037.6	1,836,516.2	2,281,511.4	11,615.2	145,728.4	51,304.4	93,269.6	5,707,513.2
9003	650,026.0	139,255.1	2,687,545.7	2,382,671.7	4,090.9	173,306.1	85,615.1	117,812.4	6,240,323.0
9004	872,037.9	149,464.7	2,715,093.1	1,826,276.0	4,736.2	70,664.6	94,517.4	103,550.1	5,836,340.0
9005	1,385,023.2	249,866.7	4,713,780.3	1,978,325.4	30,811.9	187,695.1	84,065.9	173,544.1	8,803,112.6
9006	1,435,220.8	205,715.2	5,262,309.5	2,016,845.5	32,777.4	127,747.4	67,966.2	186,534.1	9,335,116.1
9007	1,557,349.4	195,249.3	5,435,413.9	1,776,231.2	37,774.6	81,097.4	24,196.9	140,643.3	9,227,956.0
9008	1,986,521.7	400,340.2	6,554,465.1	2,182,026.0	2,457.4	29,876.3	14,375.7	148,836.9	11,318,899.3
9009	1,512,689.8	320,800.9	6,450,376.6	2,784,490.5	16,813.1	62,238.4	13,719.4	145,436.6	11,306,565.3
9010	1,692,506.7	364,913.5	8,018,440.4	3,745,741.4	23,251.7	34,882.5	22,690.9	153,188.0	14,055,615.1
9011	1,205,023.6	321,748.2	6,382,350.4	3,987,224.2	6,948.9	39,060.0	70,680.8	121,899.1	14,135,135.2


S : Shares  
 CB : Corporate Bonds  
 GB : Government Bonds  
 TB : Treasury Bills

BB : Bank Bills-Bank Guaranteed Bills  
 RSC : Revenue Sharing Certificates  
 FB : Finance Bills  
 FEIB : Foreign Exchange Indexed Bonds

Footnote :  
 (\*) : Includes Housing Certificates Sales.

: Transaction Volume In Secondary Market





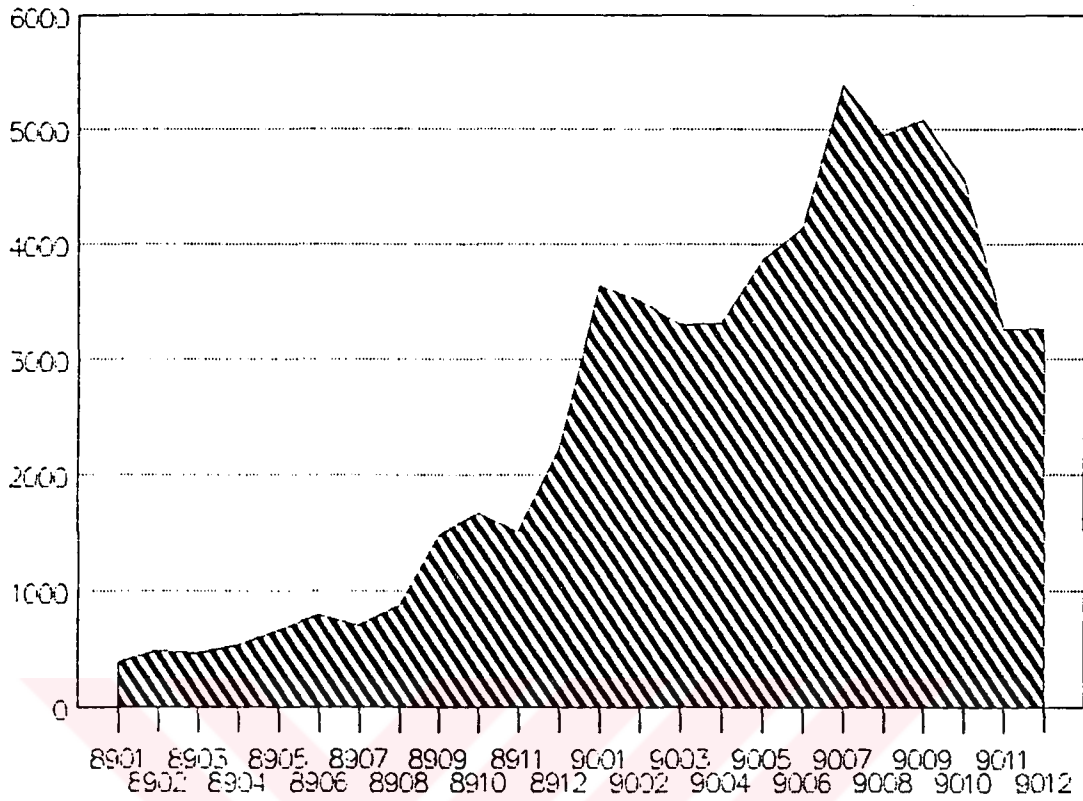
APPENDIX -3-

: Main Indicators About Shares Market at ISE

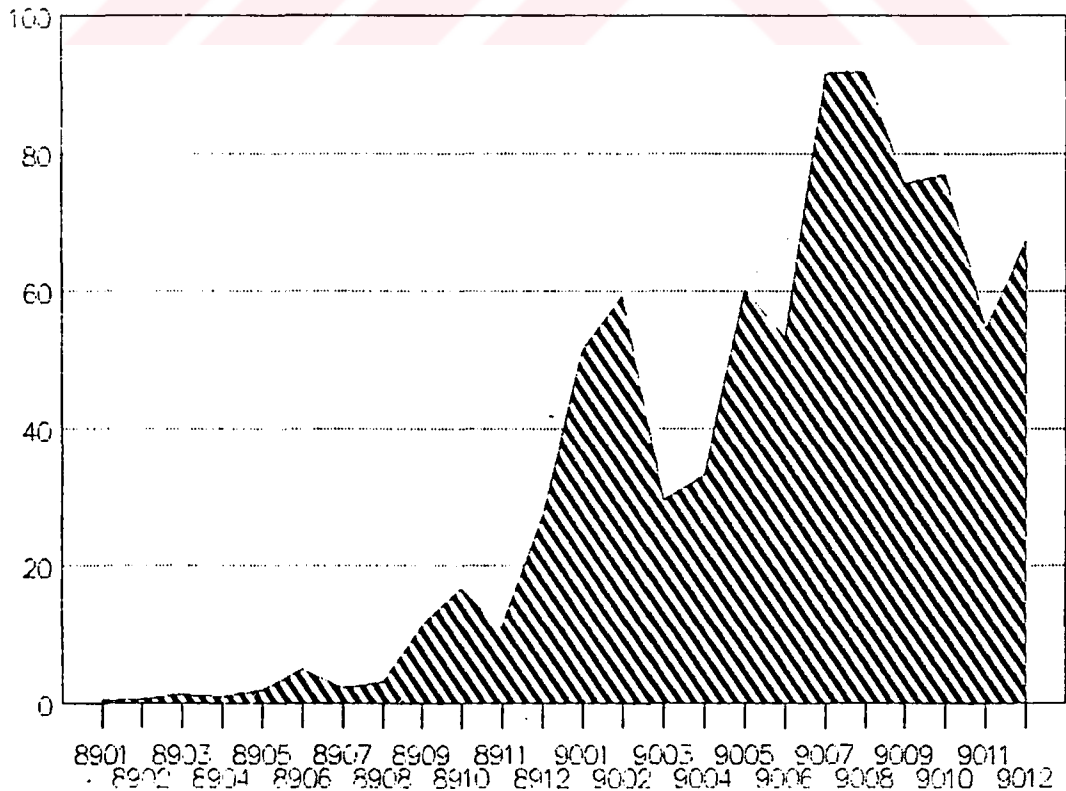
Year/Month	No. Working Days	Transactions Volume (Billion TL)	Number of Shares (Million)	Av. Daily Transactions Volume (Billion TL)	Av. Daily Number of Shares (Million)	ISE Index (8601=100)
1986	247	8.7	3.3	0.0	0.0	170.9
1987	266	105.4	14.7	0.4	0.1	673.0
1988	253	149.0	31.7	0.6	0.1	373.9
1989	255	1,735.9	238.0	6.8	0.9	2,217.7
8901	22	7.2	2.7	0.3	0.1	379.7
8902	23	9.8	3.5	0.4	0.2	487.1
8903	21	26.1	9.5	1.2	0.5	465.9
8904	18	15.9	4.1	0.9	0.2	533.6
8905	21	36.8	7.1	1.8	0.3	654.0
8906	23	113.9	26.0	5.0	1.1	795.9
8907	20	45.4	7.3	2.3	0.4	701.4
8908	20	60.5	10.5	3.0	0.5	876.0
8909	22	245.2	26.2	11.1	1.2	1,475.3
8910	22	364.5	34.3	16.6	1.6	1,664.0
8911	22	241.6	24.4	11.0	1.1	1,507.5
8912	21	569.0	82.4	27.1	3.9	2,217.7
1990	247	15,313.1	1,537.4	62.0	6.2	3,255.7
9001	22	1,128.3	104.2	51.3	4.7	3,641.3
9002	20	1,184.4	91.3	59.2	4.6	3,516.1
9003	22	649.7	61.0	29.5	2.8	3,294.3
9004	16	528.7	56.2	33.0	3.5	3,308.2
9005	23	1,383.9	138.1	60.2	6.0	3,852.1
9006	21	1,115.6	146.5	53.1	7.0	4,133.0
9007	17	1,556.7	171.5	91.6	10.1	5,384.5
9008	22	2,018.5	207.9	91.8	9.5	4,939.2
9009	20	1,512.3	130.6	75.6	6.5	5,085.1
9010	22	1,690.4	151.8	76.8	6.9	4,570.4
9011	22	1,200.5	126.4	54.6	5.7	3,257.0
9012	20	1,344.1	151.9	67.2	7.6	3,255.7

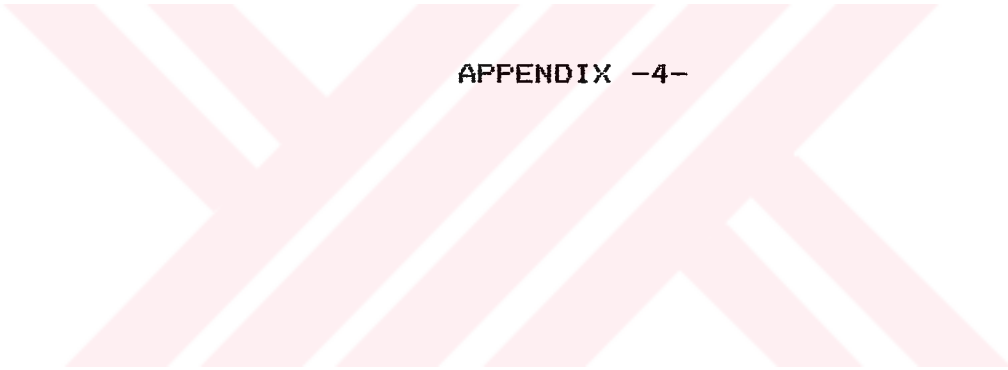
Source : ISE

: ISE Shares Market Price Index



: ISE Shares Market, Average Daily Transactions Volume





APPENDIX -4-

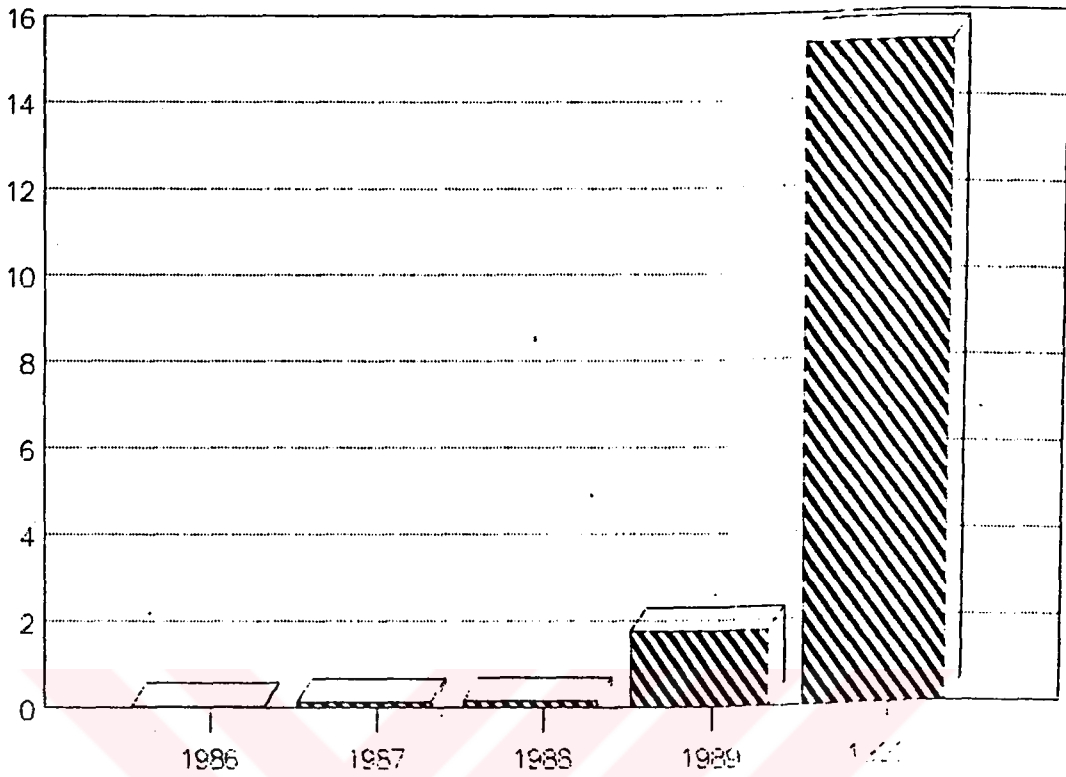


: Main Indicators About the Corporations Quoted at ISE Shares Market

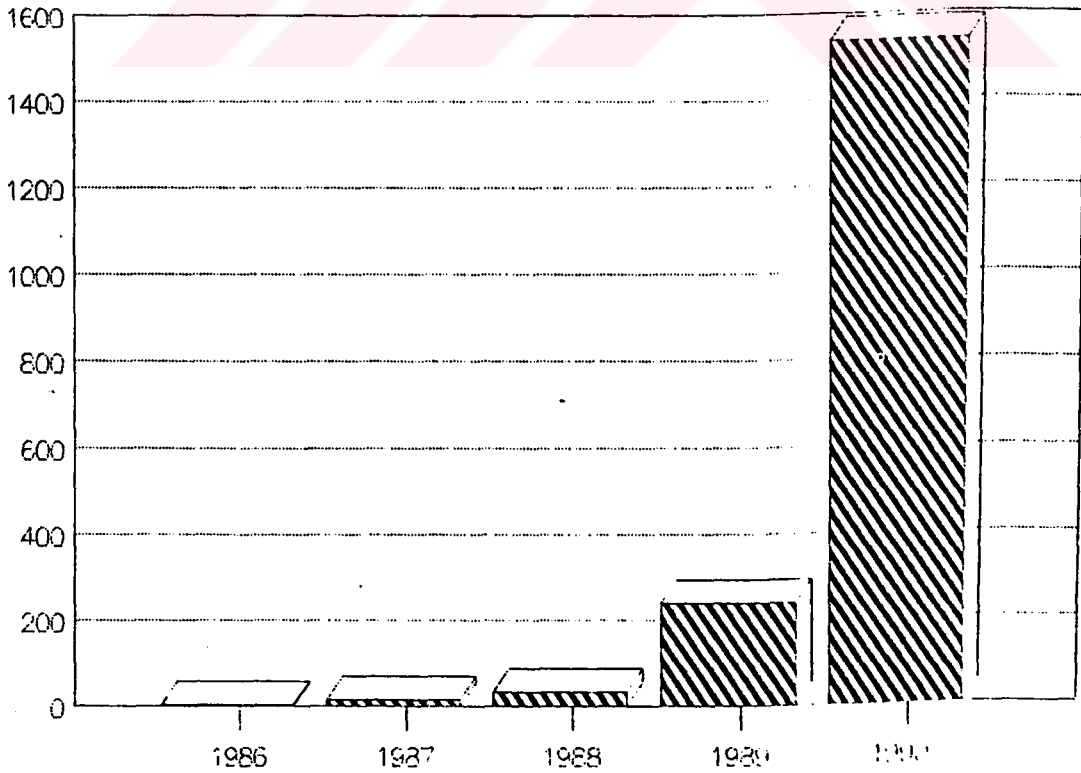
Year/Month	Number of Corporations	Total Nominal Capital (Billion TL)	Total Market Capitalization (Billion TL)	P/E Ratio (%)	Turnover Ratio (%)
1986	348	796.0	709.0	5.1	1.2
1987	414	1,614.0	3,182.0	15.9	3.3
1988	556	3,132.0	2,048.0	5.0	7.3
1989	730	6,727.0	15,535.0	15.7	11.2
8901	564	3,170.0	2,070.0	2.4	0.3
8902	578	3,689.0	2,668.0	3.0	0.4
8903	591	3,743.0	2,566.0	2.9	1.0
8904	620	4,046.0	3,007.0	3.4	0.5
8905	624	4,542.0	3,749.0	4.3	1.0
8906	654	4,723.0	4,714.0	5.4	2.4
8907	661	4,999.0	4,586.0	4.6	1.0
8908	668	5,630.0	5,498.0	5.6	1.1
8909	679	5,802.0	9,526.0	9.6	2.6
8910	694	5,951.0	10,967.0	11.1	3.3
8911	715	6,420.0	10,270.0	10.4	2.4
8912	730	6,727.0	15,553.0	15.7	3.7
1990	916	14,476.0	55,249.7	25.2	27.7
9001	743	6,896.0	25,585.0	18.1	4.4
9002	762	7,367.0	24,705.0	17.4	4.8
9003	781	7,602.0	23,172.0	16.5	2.8
9004	796	7,940.0	23,935.0	17.1	2.2
9005	830	8,365.0	27,709.0	19.8	5.0
9006	873	11,034.0	40,995.0	23.3	2.7
9007	889	11,624.0	62,000.0	30.7	2.5
9008	906	12,362.9	68,682.6	29.9	2.9
9009	906	12,769.7	71,445.5	31.0	2.1
9010	912	13,587.2	66,313.4	28.9	2.5
9011	915	14,087.3	52,638.1	25.2	2.3
9012	916	14,476.0	55,249.7	-	2.4

Source : ISE

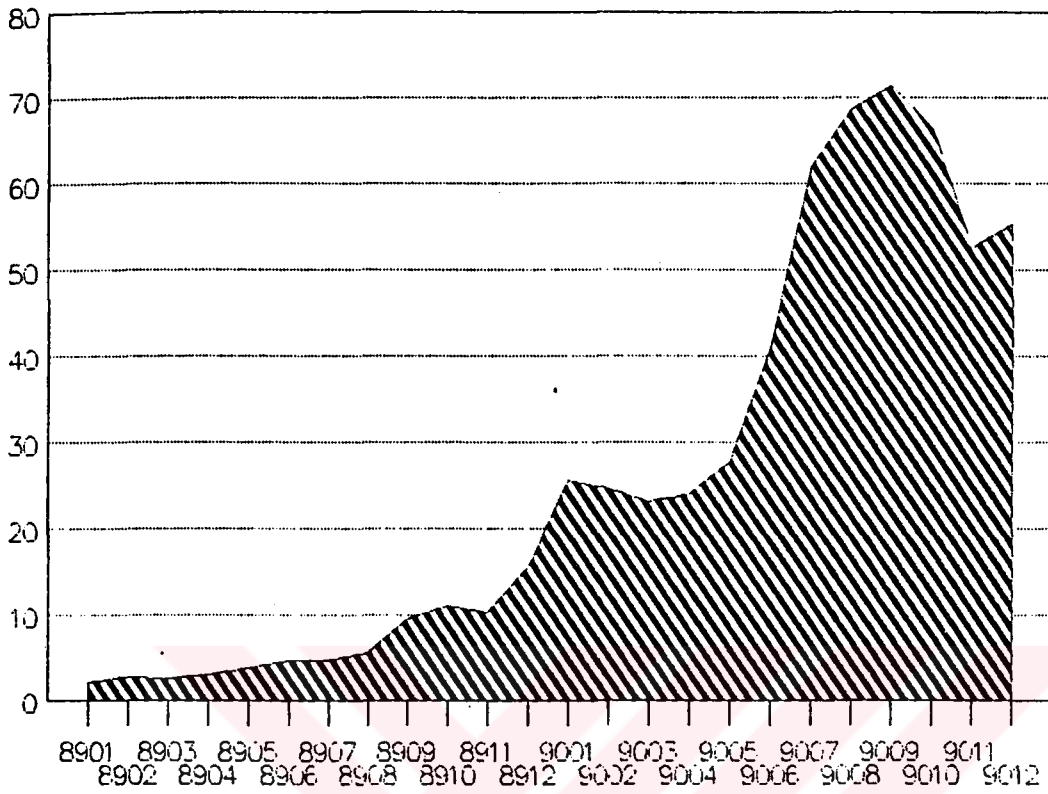
: ISE Shares Market, Total Transactions Volume



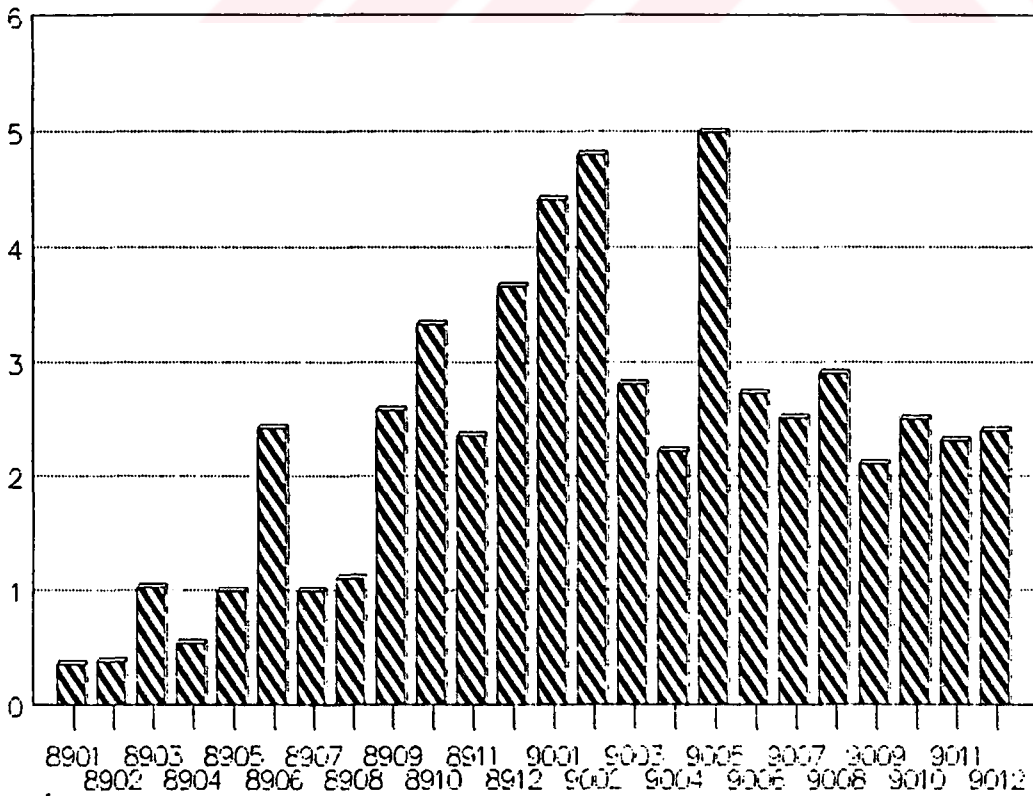
: ISE Shares Market, Number Of Shares



: ISE Shares Market, Market Capitalization



ISE Shares Market, Turnover Ratio



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## SONUC

## EKLER

## KAYNAKCA



## SUNUS

1970 lerdeki tehlikeli dalgalanmalar ulusal ekonomileri ve katilimcilarini risk faktorune karsi yeni mali araclar ve stratejiler aramaya itmistir. Temelde fikir suydu: Global islemlerin gerceklestirildigi uluslararası mali belirsizliklerle icicedir. Iste mali yenilikler ve turetilmis (Derivative) piyasalar bu ihtiyaci karsilamak icin bulunmuslardir. Gunumuzde, mali cevrenin risk yuklu olmasindan kaynaklanan bu yeni piyasalar gelismis ekonomilerde onemli roller oynamaktadir.

1973 yilinda Chicago Board Options Exchange'nin acilmasiyla bir anlamda bu alanda devrim baslatmistir. Acilisin ardindan korkunc bir hacimsel patlama gerceklestirmis ve hisse senetleri uzerindeki opsiyonlari (secmeli islemleri) hisse senedi endeksi, kisa ve uzun donemli sabit getiri enstrumanlari, nakit ve mal opsiyonlari uzerindeki opsiyonlar takip etmistir. Amerika Birlesik Devletlerinin sahiplendigi oncu rol u Ingiltere, Kanada, Hollanda, Avustralyanin da katilmasiyla tamamlanmistir.

Ote yandan Turk sermaye piyasasinda hukuki ve kurumsal gelismeler yasaniyor ve bunlar tarihindeki yapisal eksikliklerin tamamlanmasi yonunde gerceklestiyordu. Sermaye Piyasasi Kurulu'nun Sermaye Piyasasi Kanunu ile gündeme gelmesi ve 1985 te Istanbul Menkul Kiyemetler Borsasi'nin kurulmasi bir donum noktası oldu. Istanbul Menkul Kiyemetler Borsasi gelismekte olan bir borsa olarak cok hizli buyumus ve

günlük 270 milyar TL.lik işlem hacmine ulaşabilmektedir.

Sermaye piyasamızın hem katılımcıları hem politika yapıcıları vurguladığımız dünya gelişmelerini olabildiğince yakından takip etselerde mali opsiyonlar, kavram olarak hala son derece yenidir. Ben, tezimde özellikle hisse senetleri üzerinde yapılan opsiyonlardan bahsederek, bu tip bir piyasanın Türkiye gerçeğine ne zaman ve nasıl uyabileceğini inceleyeceğim.

Takip edilecek metodoloji şöyle olacaktır: İlk bölümde dünyaca bilinen opsiyon piyasalarının doğuşu ve temel tanımlamaları ve kavramlarıyla beraber ele alınacaktır. Konunun elifbesinin sunulmasından sonra okuyucuya piyasa yapısı ve katılımcıları tanıtılacaktır. Ardından opsiyonlara yakın işlem tiplerine değinilip, örneklemelerde temel taşı sayılabilecek olan Amerika Birleşik Devletleri ve Fransa'nın vadeli piyasaları anlatılacaktır. Birinci bölümün son konuları takas merkezi ve vergilendirme örneği olacaktır. İkinci bölümde potansiyel bir yatırımcı gibi okuyucu opsiyon fiyatlandırma modelleri ve değerlendirme kavramıyla tanıştırılacaktır. Üçüncü bölüm piyasalardaki opsiyonların nasıl kullanıldığını anlamak için opsiyon stratejilerinden önemli olanlarını içerecektir.

Bunların ardından Türk Sermaye Piyasası ve İstanbul Menkul Kıymetler Borsası hukuki alt yapının ele alınışı ile beraber tarihsel olarak incelenecektir. son olarak bitiş bölümü, bu tip bir mekanizmanın Türk Sermaye Piyasasına

uyarlamasi konusunda bir karsilastirma yapacak avantaj ve dezavatajlari uzerinde duracaktır. Sonuc bolumundede, hisse senetleri piyasasi gelismelerine yakin birisi olarak konunun sonuclandirilmasina calisilacaktır.



## I. SECMELI ISLEMLER (OPTIONS)(1)

### I.1 Mali Yenilik Olarak Secmeli Islemler Piyasalarinin Dogusu

Insanoglu binlerce yildir ticaret yapagelmis ve mali araclar kullanmistir. Bati Avrupanin ilk cag fuarlari, Yunanlilarin agoralari, cagimiz alisveris merkezlerinin onculeri olarak gunumuzde de kullanilan temel ticaret prensiplerini getirmislerdir.

Bildigimiz gibi mali piyasalar mali degerler (vadeli islemler) icin mevcuttur. Opsiyon, Forward ve Futures piyasalari ise sozlesme araclari icin olusturulmustur. Temel olarak bir sozlesme, karsilikli birbirlerine cesitli edimler gerceklestirme durumunda olan taraflar arasinda ki bir duzenlemedir.

Opsiyon sozlesmelerinin tarihi, fiziki mal sozkonusu oldugunda cok uzundur. Pay senetleri uzerine opsiyonlar ilk olarak Hollanda ve Ingilterede ki yari duzenlenmis borsalarda alinip satilmislardir. 17. yuzyilda baslayan bu tarih bircok kereler skandallara ve odeyememezliklere sahne olmustur.

Yuzyilin basina gittigimizde, kendilerine Put ve Call Brokers ve Dealers birligi denen firmalarin bir opsiyon piyasasi olusturmus oldugunu goruyoruz. Gunumuzde over-the-counter opsiyon piyasalari diye tanımladigimiz turun

---

(1) Muharrem Karsli tarafından Sermaye Piyasasi-Borsa-Menkul Kiyetler adli kitapta kullanilmistir.

ilklerinden olan bu piyasa, su gibi eksikliklerle karsi karsiyaydi:

- a) Opsiyon sahibi icin bitis tarihinden evvel opsiyonu satma imkani yoktu.
- b) Sadece broker (piyasa islemcisi) kurulus tarafindan opsiyon yazicisi garanti edildiginden ani bir iflas durumunda opsiyon sahibi buyuk bir problemle karsilasmaktaydi.
- c) Islem maliyeti birzda yukarida bahsettigimiz iki problem yuzunden oldukca yuksekti.

Sonunda CBOE'nin acilisi ile, sadece onalti senet uzerinde, call opsiyonlari gerceklestirilmeye baslandi. Ardindan hem ulke icinde hemde ulke disinda opsiyonlar uzerine uzmanlasmis kuruluslar kurulmaya baslandi. Buna paralel olarak over-the-counter (tezgah ustü) piyasanin islem hacmi dusme egilimine girdi.

Simdi duzenli piyasalar sayesinde ulasilan bazi noktalara deginecegiz.

- a)Duzenli fiyat akisi ve denetim kapasitesi olan bir piyasa yaratildi.
- b) Bitis tarihleri ve vade fiyatlarında saglanan tekduzelik daha akiskan bir piyasa olusturdu.
- c) Ikincil piyasanin varligi sayesinde opsiyon sahibinin vade sonuna kadar opsiyonu elinde tutma mecburiyeti kalmadi.

d) Takas merkezinin olusturulmasi ile alici ve satici garanti altina alinmis oldu.

e) Islem maliyeti klasik tezgah ustü piyasalara göre çok daha düstü.

f) Takas kurulusunun ilgili kiymetin üzerindeki sozlesmelerin fiziki teslimini sona erdirmesi, hem maliyeti dusurdu hemde sisteme kolaylik getirdi.

Simdi bazi temel kavramlari aciklayalim:

- Alim opsiyonu ( call option ) bir degerin alimi icin duzenlenen anlasmadir.
- Satim opsiyonu ( put option ) bir degerin satilmasi icin duzenlenen anlasmadir. opsiyon belirli bir omre sahip olup, ilgili degerin alim veya satimi vade sonu tarihine kadar belli bir fiyattandir.

## I.2 Secmeli Islem Sozlesmelerinin Tanimlari

Baslangicta iki temel sozlesme tipi vardir.

### I.2.1 Alim opsiyonu (call option)

Alim opsiyonu sahibine belirli bir pay senedinin belirli miktarini belirli bir fiyattan, vade tarihinden once herhangi bir zaman veya vade tarihinde satin alma hakkini verir.

Eger bir alim opsiyonu yaziliyorsa yatirimci talimat gelir gelmez bahsedilen hisse senedini belirtilen fiyattan satmak durumundadir. satici bu gorev icin daha evvelden belli bir prim almistir.

En genel alim opsiyonu yazma sekli " covered call" diye de tabir edilen karsiligi olan alim opsiyonlaridir. Yatirimci bu tip bir satisi,

- 1- Elindeki hisse senedine arti getiri elde etmek icin,
- 2- Hisse senedi fiyat dusmelerine karsi prim miktarı ile sinirli koruma elde etmek icin.

Alim opsiyonu yazicisi eger ilgili hisselerine sahip degilse ' uncovered ' pozisyonudur. Bu tip sozlesmeler fiyatların dusme egiliminde veya sabit olduğu zamanlar karlıdır. Tabii sistem gerekli "margin" miktarının opsiyon yazicisi tarafından brokerda bulundurulmasını ister. Bu marj miktarı opsiyon alıcısının sozlesme gereğinin uygulanmasını istemesi durumunda kullanılır.

#### 1.2.2 Satım opsiyonları

Bir satım opsiyonu sozlesmesi halinde sahibine belirlenen tarihten önce veya o tarihte belirli miktarda hisse senedini belirlenmiş fiyattan satma hakkı verir.

Fiyat yükseldiğinde satım opsiyonu alıcısı için en fazla kaybedilecek olan ödenen primdir. Kısa durumda ise zarar sınırsızdır. Diğer bir avantajı ise tüm ödemenin opsiyonun alımı sırasında yapılmasıdır. Kısa durumlardaki gibi marj miktarı için sürekli ödeme yapılmaz.

Bir satım opsiyonu satımının yatırımcıya yüklediği, belirlenen fiyattan belirlenen fiyatta uyarı sonrasında alım yapmaktır. Yatirimci üzerine almış olduğu riski bertaraf

etmek için opsiyonun yazımı sırasında bir prim alır. Ortulu satım yazımı çok sıklıkla kullanılmaz. Çünkü ortusuz satım yazımı aynı kazanç-odul profiline sahiptir. Ve genelde dah az komisyon masrafi ve daha fazla prim içerir.

Çogu satma opsiyonu yazicisinin esas saiki,

- a) Prim geliri elde etmek,
- b) Piyasa degeri altinda hisse senedi almak.

Eger piyasa fiyatı vade fiyatının altına inerse satım opsiyonu gerçekleştirilir. Yazıcı hisse senetlerini daha önceden üzerinde anlaşılan fiyattan almak zorunda kalacaktır. Yazıcının masrafi ise aldığı prim çıktıktan sonra kalan miktar olacaktır.

### 1.2.3 Temel Riskler

Daha evvel de bahsettiğimiz gibi opsiyonlar oldukça karlı araçlardır. Fakat diğer yandanda bazı özel riskleri vardır.

- a) Alım opsiyonlarının riskleri

1. Alıcı tüm yatırımını kısa bir zamanda kaybetmek durumuyla karşı karşıyadır. Ve tabii opsiyonun süresi biterse opsiyon değersizce bir kenara atılacaktır.

2. Opsiyon ne kadar out-of-the-money durumundaysa ve vade sonuna ne kadar az zaman kalmışsa o kadar büyük risk olduğu kabul edilir.

- b) Opsiyon yazmanın riski



1. Eger opsiyon Amerikan opsiyonu ise her an kullanılabilir. Bu demektir ki yazici herhangi bir uyarı almaksizin yukumlulugunu yerine getirmek zorunda olabilir.

2. Ortulu alim opsiyonu "covered call" yazicisi ilgili senetlerdeki fiyat artisindan yararlanma imkanini kaybetmistir. Fakat ilgili senedin deger kaybina karsi hazirliklidir.

3. Ciplak bir alim opsiyonu "naked-uncovered call" yazari yuksek miktarda riskle karsikarsiyadir. Eger uzerinde islem yapilan hisse senedinin fiyatı piyasa degerinin altinda ise buyuk kayiplar yasayabilir.

4. Satim opsiyonunun yazicisi ilgili kiymetin degeri anlasma fiyatının altına düşerse kayip riskini yuklenmek zorundadır.

### 1.3 Opsiyon Genel Tanımlamaları

Bir opsiyon aşağıda belirtilen beş özelliğten oluşur.

- 1- Stil ve tip: İki stilde opsiyon vardır; Amerikan ve Avrupa. Temel fark vade zamanının bağlayıcılığıdır. Temel tipleri ise put ve call olarak daha önce görmüştük.
- 2- Sözleşmenin üzerine yapıldığı kiymet
- 3- Vade sonu tarihi
- 4- İşlem göreceği fiyat
- 5- Opsiyonun gerçekleşeceği borsa

Bir alim opsiyonunu ele aldığımızda, eğer uygulama fiyatı piyasa fiyatından düşükse, ilgili alim opsiyonu in-the-money durumunda kabul edilir. Yani kazançlıdır. Tersini

durumu out-of-the-money olarak kabul edilir. Eger islem fiyati piyasa fiyati ile ayni ise at-the-money durumundan bahsedilir. Opsiyonun uygulanmasindan azade olarak opsiyon alicisinin odededigi meblag (premium) opsiyon saticisi tarafindan sahiplenilir. Amerikan stili opsiyonda opsiyon kullanicisi vadede ve vade tarihinden once hakkini kullanabilirken Avrupa stili opsiyon kullanicisi vade tarihini beklemek durumundadir.

Eger belirli bir seri opsiyondan alinan miktar satilan miktarı asmissa uzun pozisyondan ( long position ), tersi durumda ise kisa pozisyondan bahsedilir.

#### 1.4 Bir Yatirim Araci Olarak; Secmeli Islemler ve Hisse Senetleri.

Cok aciktir ki belli benzerlikler iki tur arasinda kurulabilir.

- Opsiyonların da alim ve satimi hisse senetlerinin izledigi yoldan gecerek gerceklestirilir.
- Hisse senetleri gibi opsiyonlarda alicilarin alim talebi saticilarin da satim teklifi ile gercekleşir.
- Opsiyon yatirimcileri da hisse senedi yatirimcileri gibi fiyat hareketlerini islem hacmini ve diger bilgileri dakika basi takip etmelidirler.

Bu benzerliklere ragmen bazi temel farklılıklarda vardır.

- Hisse senedi fiyat yükselmesi saikiyle uzun sureler elde tutulabilir. Fakat opsiyonların belirli bir suresi vardır.

- Hisse senetlerinden farklı olarak opsiyonlarda sayısal sınırlamalar yoktur.
- Hisse senedi sahipliği oy verme hakkı ve temettü kullanma hakkı sağlarken opsiyon sadece ilgili senedin fiyat değişikliklerinden yararlanma imkanı verir.

## I.5 Secmeli İşlemler Piyasalarının Yapısı

### I.5.1 Piyasa Katılımcıları;

Piyasada,

- 1- Kurumlaşmış bir borsa
- 2- Bir takas merkezi
- 3-Takas üyesi: Butun alışverişin takas merkezine geçişini yapan bu üyelerdir.
- 4-Danışman: Borsa üyeliği gerekmeksizin yatırımcıya bilgi ve strateji tavsiye edilir.
- 5-Kat işlemcisi (Floor Broker): Bir borsa üyesi olmalıdır. Çoğu borsalarda özel bir eğitimden sonra bu izin verilir.
- 6-Uye: Bu yetki genelde alınıp satılan bir özelliğe sahiptir.
- 7-Local: Alım satımı kendi hesabına yapabilir ve ( market maker ) piyasa yapıcı rolünde olabilir.
- 8-Para yöneticisi: Borsa üyeliği şart değildir ve bir nevi danışmanlık ve yöneticilik yaparlar.

Yukarıda belirtilen katılımcılar isimleri değişmekle beraber işlevsel açıdan tüm borsalarda benzerdir.

### I.5.2 Secmeli Islemlerin Onemi

A-) Modern hedge (koruma) kavrami portfoy ve is risklerinin turetilmis piyasalar yoluyla kontrol edilmesiyle ilgilenmektedir. Nakit piyasalarin tersine, bu piyasalarda zenginlik ve deger ne yaratilir nede yok edilir ama bir yerden bir yere transfer kolayca edilebilir. Bir yatirimcinin kazanci digerinin kaybidir. Kisaca risk idaresi opsiyon islemleri ile mumkundur.

B-) Opsiyon piyasalari akiskanlik ve riskle ilgili bilgiler temin ettiginden yatirimci gelecek fiyatlarla ilgili ongorulerde bulunabilir.

C-) Opsiyon piyasalari dusuk islem masraflari, daha fazla likidite, aciga satis (tehlikeyi de beraberinde getirir) imkani vermektedir.

D-) Opsiyon piyasalari almasik spekulasyon vasitalari temin ederler.

## I.6 Secmeli Islemler ve Ilgili Araclar

### I.6.1 Forward Sozlesmeleri

Forward sozlesmesi opsiyonu andirabilir. Fakat opsiyon islemin gerceklesmesi icin bir zorunluluk degil bir hak saglar. forward piyasalarinda, opsiyon piyasalarindan farkli olarak fiziki bir ticaret merkezi yoktur.

### I.6.2 Future Sozlesmeleri

Future sozlesmeleri bircok yonden Forward sozlesmeleri

ile aynidir. Ozunde daha akiskan forward sozlesmeleri olarak tanimlanabilirler. Onemli bir farklari duzenli piyasalarda alinip satiliyor olmalaridir. Diger bir farklari ise gunluk takas duzenlemelerine tabi olmalaridir. Sonucta analarindaki farklar sunlardir.

Forward sozlesmelerinde icerik konusunda tekduzelik olmadigindan taraflar ayrintili ozellikleri de duzenlemek durumundadirilar. Forward ucuncu bir kisiye transfer edilemez. Marj zorumlulugu forward islemleri icin yoktur. Takas kurumu olmadigi icin taraflarin birbirine olan guveni sarttir.

## I.7 Uygulamada Secmeli Islemler

Opsiyon islemlerindeki hacimsel artis ve yeni tip opsiyonlarin yayginlasmasi cok hizli bir sekilde surmekte ve yavaslama egilimi gostermemektedir. Hatta mali opsiyonlarin cari hacmi nakit piyasalarininkini bile Amerika'da asmistir.

Simdi yeni enstrimanlarda gercek bir dev olan Amerikan deneyiminden bahis etmek istiyoruz.

### I.7.1 Amerika Birlesik Devletleri Ornegi

Amerika'da alti tane belli basli, opsiyon islemleri ile ugrasan borsa mevcuttur. Amerikan turetilmis piyasalar tarihi basat bir devlet kontrolu ile icicedir. 1973'de CBOE'nin kurulusuna kadar islem hacmi tezgah ustü piyasada(over-the-counter) gerceklesmekteydi. Hatta ardi ardina gelen kotuye

kullanma ve dolandırıcılık olayları sebebiyle 1934 yılında ticareti yapan opsiyonların ulusal borsalara tesmil edilmesi engellenmiştir. Bu umutsuz başlangıç 1973 yılında sonlanmıştır. Ve Sermaye Piyasası Kurulu diğer birçok borsada opsiyon işlemlerinin gerçekleştirilmesi sağlamıştır.

Opsiyon işlemlerinin yaygınlaştırılmasında borsalar arası rekabetin de önemi yadsınamaz. Bu hızlı büyüme Haziran 1977'de işlemlerde görülen kotuye kullanma vakaları nedeniyle tekrar sekteye uğramış, 1980 yılına kadar opsiyonların yaygınlaştırılması durdurulmuştur. Günümüzde CBDE Amerika'da olduğu gibi dünyada da yerinin korumaktadır.

Butun bu gelişmelerden sonra NASDAQ, (National Association of Securities Dealers Automated Quotations) yakın bir zamanda devreye girmiştir.

#### 1.7.2 Fransız Deneyimi

Altı bölgesel borsa olmasına rağmen Paris Borsası işlemlerin ağırlığını üzerine almış durumdadır. Borsada sayısal olarak ulaşılan hacimde borsa içi oluşturulmuş olan dört ayrı pazarın ayrı önemleri vardır. Bunlar hazine bonosu ve hisse senetleri, nakit piyasa, forward piyasası, tezgah ustası piyasa ve ikincil pazar. Ayrıca 40 tane brokerin dikkate değer tekelleri kanunla sürdürülmekteydi. The Commission des Operations de Bourse (COB) adı verilen kuruluş denetleme görevini tüm piyasada sürdürmektedir. Devlet güdümünün açık olduğu piyasada adı geçen kuruluşun başkan ve üyeleri dört senelik dönemler için atanmaktadır.

Fransiz sistemi ile kendi sistemimiz arasinda belli noktalarda baglanti kurmak mumkun. Her iki piyasada dogrudan bir tabi orgutlenme yasamayip devlet gudumunde olagelmistir.

1981 yilinda yeni secilmis olan Mitterand hukumeti yaklasik 5 milyar \$ harcayarak bircok endustri kurulusu ve bankayi millilestirmistir. Fakat ardindan gelen secim zaferi, sag yelpazedeki partilerin tekrar ozellestirmeye donmelerini gundeme getirmistir. Ozellestirme konusu bizde de gundemde oldugu halde Fransiz programi cok daha avantajli baslamistir. Cunku enflasyon oranı % 3,5 gibi bir rakam olup, tum siyasi yelpazedeki kamuoyu destegi saglanmistir.

Turetilmis piyasalar acisindan da Fransa onemli bir yerdedir. Cunku vadeli islemler borsasini 1986'da (MATIF), opsiyon islemleri piyasasini 1987'de (MONEP) acmistir. Ayni zamanda 1988'de hisse senetleri indeksi uzerine opsiyonlar gerceklestirilmistir.

Turk piyasasinda da yasanan brokerlar arasi oligopolistik yapı SPK'nin yonlendirilmesi ile kirilmistir.

## II. SECMELI ISLEMLERIN DEGERLEMESI

Diger yatirim araclari gibi opsiyon sozlesmesinin degeri arz ve talep dengesine baglidir. Tabi bazi ozel etkenler de mevcuttur.

### 1- Ilgili hisselerin fiyatı:

Bu cok onemli bir etkendir. Cunku eger bu fiyat evvelden anlasilan fiyatin uzerinde ise opsiyonun in-the-money durumunda oldugu, tersinde ise out-of-the-money durumunda oldugu soyleneir. Bir in-the-money opsiyonun uzerinde anlasilan fiyatıyla ilgili kiymetin piyasa fiyatı arasındaki farka opsiyonun gercek degeri ( intrinsic value ) denir. Eger bir opsiyon in-the-money durumunda degil ise at-the-money veya out-of-the-money durumundadir ve gercek degeri yoktur. Fakat bu opsiyonun herhangi bir ucreti olmayacağı anlamına gelmez. Opsiyona bu durumda bir fiyat veren diger etkenler zaman degerini olusturur. Zaman degeri opsiyonun priminin gercek degerini gectigi miktar kadardir.

### 2- Vade sonuna kalan zaman:

Genelde opsiyonun vade sonuna kadar zaman kalirsa opsiyonun primi de okadar yuksek olacaktır. Opsiyonun zaman degerinin opsiyonun omrunun son gunlerinde cok hizli dustugu de bilinen bir gercektir.

### 3- Akiskanlık:

Matematiksel terimlerle ifade edilirse akiskanlık bir hisse senedinin fiyatının yuzdelik standard sapmasıdır.



Akiskanlık ne kadar yuksekse prim de okadar yuksek olur. Ve matematiksel ifadelere gore yillik bazdaki hesaplama formulu asagidaki gibidir.

$$\text{Volatility} = \sqrt{\left( \text{Var} \left[ \log \left( \frac{\text{Price}_t}{\text{Price}_{t-1}} \right) \right] \right) \times 250}$$

(yil bazında)  
 $t=1 \dots n$

$n$  = Akiskanlığın ölçüldüğü işlem günleri

#### 4- Temettu:

Hisse senetlerinin fiyatlarının nakit temettu miktarı kadar düşeceği bilindiğinden yüksek nakit temettusu düşük alım opsiyonu primi ve yüksek satım opsiyonu primi anlamına gelir.

#### 5- Faiz Hadleri:

Herşeyin sabit olduğu düşünülen bir ortamda opsiyon faiz hadleri yükseldiğinde alım opsiyon fiyatlarının da yüksek olması beklenir. Öte yandan satım opsiyonu fiyatları faiz hadleri yükseldiğinde düşer. Çünkü hisse senedi ne kadar yüksek fiyata sahipse, kaçırılan kazançta o kadar yüksektir.

### II.1 Opsiyon değerlendirme modelleri

Bu bölümde sadece Black & Scholes Modeli incelenecektir. Black & Scholes modeli günümüzde en çok kullanılan ve geliştirilen fiyatlama modelidir. Temel model şöyle yazılabilir;

$$C(S, X, T) = SN(d_1) - Xe^{-rT} N(d_2)$$

$$\rightarrow d_1 = \frac{\ln(S/X) + (r + \sigma^2/2)T}{\sigma\sqrt{T}}$$

$$d_2 = d_1 - \sigma\sqrt{T}$$

C = Alim opsiyonu primi

S = Halihazirda pazar fiyatı

X = İşlem fiyatı

T = Vadesine kadarki zaman

2

@ = Pazar fiyatının anlık zaman değişkesi (volatility)

Ln = Doğal logaritma

N(.) = Kumulatif normal dağılım fonksiyonu

r = Risksiz faiz oranı

Yatırımcılar tarafından bu formül paket programlarla kullanılır olduğundan görünüşteki karmaşıklik sorun olmaktan çıkmıştır. Bu model, opsiyon fiyatının ilgili kıymetin fiyatının vade tarihinde olası dağılımına bağlı olduğunu ileri sürer. Bazı belli varsayımlar altında olasılık dağılımının tipi dağılımın standart sapması ve beklenen değere göre belirlenir. Genelde dağılım tipi olarak log-normal dağılım kullanılır.

Opsiyon priminin türevleri delta, gama, teta ve epsilondur.

- Opsiyon deltası:

Bir opsiyonun deltası cok onemli bir kavramdır. Delta, opsiyon satıcısı tarafından depozito edilmesi gereken ihtiyat fonlarını belirlemede birçok borsada kullanılan risk faktörlerinin temel belirleyicisidir.

- Opsiyon gaması:

Bir opsiyonun deltası opsiyon 'in-the-money' deyken artar ve opsiyon 'out-of-the-money' deyken azalır. Bir opsiyonun gaması pazar fiyatında ufak bir değişiklik için opsiyonun deltasındaki beklenen değişikliğin ölçümüdür.

- Opsiyon tetası:

Bir opsiyonun tetası vadeye kalan zaman azaldıkça opsiyon priminde beklenen değişikliği ölçer.

- Opsiyon epsilon:

Bir opsiyonun epsilonu opsiyon priminin pazar fiyatı hareketlerine tepkisini ölçer.

### III. OPSIYON STRATEJILERI

#### III.1 Spreadler

Spread stratejilerinin en onemli yani kazanc ve kayip potansiyellerinin bilinmesidir.

##### III.1.1 Dikey spreadler

1- Bull alim spread: Ayni bitis tarihli ve farkli uygulama fiyatli alim opsiyonlarının alim ve satimini icerir. Alim opsiyonu yazilan opsiyona gore daha ucuz vade fiyatına sahiptir.

Pozisyon uzun alim opsiyolarından daha az masraflidir. Sinirli kazanc olmasına ragmen zarar da sinirlidir.

2- Bear alim spread: Bu ayni bitim tarihli ve farkli fiyatli alim opsiyonlarının alim ve satimini ifade eder. Pozisyon fiyat dususu beklentisiyle tutulur. Alimi yapılan alis opsiyonu yazilan alim opsiyonuna gore daha yuksek fiyatlidir.

3- Bull satim spreadi: Bu, satim opsiyonlarının ayni bitim tarihli fakat farkli fiyatlarda satim ve alimini icerir. Alinan satma opsiyonu yazilan opsiyondan daha dusuk fiyattadır.

4- Bear satim spread: Bu, ayni bitim tarihli ve farkli uygulama fiyatli satim opsiyonlarının alinip satilmasini icerir. Adi gecen varligin fiyatındaki dusme beklentisi uzerine kullanilir. Kayip sinirli oldugu gibi kazancta sinirlidir.

5- Kelebek spread: Bull ve bear spread bu baslik altinda birlestirilebilirler. Secilen bull ve bear spreadlere gore ozelligi belirlenir.

### III.1.2 Yatay spread

Bu, yakin tarihli alim (satim) opsiyonu satisi ve daha sonraki tarihli alim (satim) opsiyonunun alimini icerir. Burda amac zaman degeri azalirken degisik oranlarin avantajini yakalamaktir. Sinirli kayip ozellikleridir ve erken kullanimla pozisyon sonlanabilir.

### III.2 Straddle

1- Uzun straddle: Bu ayni vade tarihli ve uygulama fiyatli bir alim ve satim opsiyonunun alınmasını icerir. Bu akiskanlikta onemli degismeler beklendigi fakat yonunun belirli olmadigi durumlarda kullanilir.

2- Kisa straddle: Ayni uygulama fiyatli ve ayni vade tarihli alim ve satim opsiyonlarının satimini icerir. Bu pozisyonda zaman opsiyon yazicisinin lehine isler. Her iki yonde de sinirsiz zarar olasiligi vardir.

#### IV. TURK SERMAYE PIYASASINA GENEL BIR BAKIS

##### IV.1 Tarihsel Gelisme

19. yuzyilin baslarinda cok zayif olan mali piyasa sonradan Galata Bankerleri adini alacak olan bazi sarraflarca yonlendiriliyor idi. Fon akisinda gercek anlamda orgutlenme once yabanci bankalarin ardindan ikinci mesrutiyetin ilani ile yerli bankalarin kurulmasiyla gerceklesmistir.

Diger yandan organize olmus menkul kiymet piyasalarinin kokleri 19. yy Osmanli Imparatorluguna dayanir. Osmanli Imparatorlugu Kırım Savasi sirasinda Dersaadet Tahvilat Borsasini acarak bu konuda ilk adimi atmistir. Bu borsa yabanci sermayenin cok etkin oldugu bir ortam olmus Cumhuriyetin ilanindan sonra 1929 tarihindeki 1447 sayili kanunla koklu bir reforma tabi tutulmustur. Menkul Kiyetler ve Kambiyo Borsasi'na donusen borsa ticari olarak hareketsiz baskent Ankara'ya aktarildiktan sonra onemli bir faaliyet gosterememistir.

Bu gelismelere paralel olarak, tasarruf bonolarinin mali piyasaya arzi ile tezgah ustü islemler cok artmistir.

##### IV.2 Son on yildaki hukuki degisiklikler

Menkul Kiyetler Borsasi Hakkinda 91 sayili Kanun hukmunde kararname ile 1447 sayili Kanun yururlukten kaldirilmistir. Ardindan Sermaye Piyasasi Kurulu kurulmus ve 8581 sayili Menkul Kiyetler Borsalarinin Kurulusu ve Calisma

Esasları hakkında bir yönetmelik hazırlanarak yürürlüğe konmuştur. Bu yönetmeliğin 5. maddesi gereği IMKB'nin kurulması ilgili yönetmeliğin 18 Aralık 1985 tarihli resmi gazetede yayınlanması ardından gerçekleştirilmiştir.

Sermaye Piyasası Kanunu'nun 24 Ocak kararlarının ardından getirmiş olduğu yapı sunları içeriyordu:

- Çıkarılmış sermaye taban sistemini kurmuştur,
- Özel sektör bonoları, ticari kağıtlar ve yatırım ortaklıkları oluşturulmuştur.
- Pay senedi ihrac edecek şirketler için dış denetim şartı getirilmiştir.

Ayrıca hükümetin 20 Haziran 1988 tarihli tebliğiyle yabancı yatırımcıların Türk sermaye piyasasına yatırım ortaklıkları kanalıyla girmelerine ve kazanç ve ana paralarını kendi ülkelerine götürebilmelerine izin verilmiştir.

V. PAY SENETLERI UZERINE SECME LI ISLEMLERIN TURKIYE'YE  
UYARLANABILIRLIGI

V.1 Sistemimizin Durumu

Disaridan borclanma haricinde degerli kagit ihraci ile icerden borclanma yolunun hukumetce tercih edilmesi ve boylece bu kagitlarin kurumsal ve ozel yatirimcilar tarafindan alinip satilmasi, ote yandan Turk ekonomisinin yabanci sermaye ile entegrasyonu ve yuksek enflasyon oranlari karsisinda yeni riskten korunma yontemlerinin aranmasi son on yildaki sermaye piyasasinin gelismesini saglayan onemli etkenler olarak sayilabilir.

Fransa denemesinde de goruldugu gibi turetilmis piyasalarin kurulabilmesi icin uzerinde durulmasi ve duzeltilmesi gereken belli konular vardir. Oncelikle asagida sayacagimiz organlarin duzenlenmesi ve isbirligi icersinde olmalari sarttir:

- Sermaye piyasasi kurulu; tum sermaye piyasasinin duzenlenmesi ve denetlenmesi bu kurumun sorumlulugundadir.
- Borsa; gerekli isbirligi saglamali ve personelini egitmelidir.
- Piyasa katilimcileri; musterilerin ihtiyacini karsilamak durumundadirler.
- Takas merkezi; butun islemlerde anahtar roldedir.

Su an borsadaki takas merkezi fiziki teslimat esasi ile calismasi ve bilgisayarlasamamis olmasi yuzunden yeterli



degildir.

Ozellikle turetilmis piyasalarda daha da onem kazanan seffaflik ve guvenilir bilgi akisi piyasamizda halihazirda mevcut degildir. Bunun icin uzman rating (derecelendirme) kuruluslarına ihtiyac vardır.

Vergilendirmede de kurumsal yatirimcileri dikkate alacak duzenlemelere ihtiyac vardır. Ozellikle uretilmis piyasalar uygulamaya kondugunda vergi muhafiyetleriyle piyasaya giris kolaylastirilmalidir.

## V.2 Hukuksal Temel

Son olarak TBMM'ye sunulan Sermaye Piyasasi Kanunu hakkında bazi degisikliklerle ilgili oneri on yillik gecmisi olan sermaye piyasasi hukuksal yapisinin eksikliklerini belli olculerde giderebilecek olmasi acisindan, deginilmege deger gozukmektedir.

- Su an icin aile sirketi goruntusunda olan sirketlerin daha cok sermaye piyasasina intibagini saglayacak "oydan yoksun paylar" olgusu onerilmektedir.

- Ic sel bilgilendirme ile ilgili bazi cezai mueyyideler keza sistemin yatirimcinin guvenine malolacak sorunlarla karsilasma sini engelliyebilecek olmalari acisindan onemlidir.

- Sermaye Piyasasi Kurulunu turetilmis piyasaların devreye sokulmasi konusunda tek yetkili kilmasi yeni bir adimin atilacagina dair bir isarettir.

Ayrıca tahvil ve bono ikincil piyasasının açıldığı bu günlerde repo anlaşmalarına ceki düzen vermek için SPK'nin yetkilendirilmesi ayrı bir önem taşımakta çünkü ikincil piyasa işlemlerinin önemli bir kısmı repolarca oluşturulmaktadır.

- Sermaye piyasası katılımcılarının bir çatı altında toplanabilmesini sağlayabilecek olan bir derneğin önerilmesi devlet dışında başka bir düzenleyici odanın oluşturulacağına delalet etmektedir. Böylece sermaye piyasamız ayakları üzerinde durmaya hazırlanmaktadır.



Butun dunyada mali piyasalar cok carpici degisiklikler yasamislar ve hem para piyasalari hem de sermaye piyasalari olusan dalgalanmalari dengelemek ve riskten uzak fon bulabilme ihtiyacini karsilamak icin yeniden yapilanmislardir. 70 ve 80'lerdeki bu gelismelere en iyi bankalar adapte olabilmistir. Ote yandan sermaye piyasalari da fon fazlasi bulunanlar ile fona ihtiyaci olanlari dogrudan dogruya karsilastirarak firmalara ucuz fonlar bulmak ve yatirimcilara risksiz yatirim imkanlari bulmak icin araci olmuslardir.

Bu surec Turkiye gibi ulkelerde ekonominin her boyutunda hemen hemen tekelleri olan bankalarin basatligina ragmen sürdürulmüştür. Bankalar gelismis sermaye piyasasi ensturumanlari ve sabit ekonomik göstergelerin yoklugunda hep alternatif olagelmislerdir.

Yüksek enflasyon ve siyasi belirsizliklere ragmen sermaye piyasasi artan para maliyetleri yuzunden gelismisini hizlandirmistir. Hic suphe yokki firma banka kredisinden daha ucuza bono ve degerli kagit ihrac edebilecektir. Ve bu da daha getirisi yüksek olacagindan tasarruf sahibi tarafından benimsenecektir.

Gerçi Turk sermaye piyasasi kisa zamanda cok onemli basarilar gosteremis olsa da 80 sonrasi menkul kiymetlerin mali piyasalarda yerini almasi basat bankaciliginin tekalini kiramamistir. daha gelismis duzeye erismek icin atilacak bazi adimlar vardir.

Oncelikle cok iyi calisan bir ikincil pazara ihtiyac vardir. Boylelikle sermaye piyasasinin hizli ve saglikli gelismesi mumkun olacaktir.

Ayrlica kayıt girişi uzerine kurulmuş olan takas ve saklama sistemi bir an evvel düzenlenmelidir. Tabi bürokrasiyi elimine edici tedbirlerde bir an evvel alınmalıdır. Vergi sisteminin düzenlenmesi de çok önemlidir.

Kısaca su söylenebilir opsiyon piyasalarının kurulması tamamen gerekli talebin oluşmasına bağlıdır, çünkü diğer yandan SPK ve IMKB teorik açıdan altyapıyı hazırlamaktadırlar.

Tabii ki opsiyon piyasalarının şu anki şartlarda kurulması imkansızdır, fakat ekonomik büyümenin motoru olan sermaye piyasasının önemi kavrandıkça durum değişecektir. Yaptığımız analizlerimizde göstermektedir ki piyasa yakında yeni gelişmelere yönelebilir.

Halihazırdaki banka basatlığının hakim olduğu piyasa karakteri değiştirilememiş olduğundan ikincil piyasaların gelişmesi türetilmiş piyasalara doğru atılan adımlara yeni bir soluk demektir. Günümüzde yetersiz arz ve talep yüzünden ikincil piyasalar derinlik ve genişlik açısından yetersizdir. Diğer yandan ikincil piyasaların idari ve kurumsal boyutları bazı sınırlamalar getirmektedir.

Devlet ve özel sektör borç senet ve tahvilleri için

gerçekleştirilen ikinci piyasa ve ve bu piyasa geniş olarak kullanılan repo anlaşmalarının düzenlenmesi hiç şüphesiz altyapı inşasında önemli adımlardır.

Ayrıca kayıtlar üzerinde takas gerçekleştirecek bir merkezi sisteme çok ihtiyaç vardır. Hisse senedi basımı sırasında zaman yiyici bir bürokrasi mekanizması vardır, bu enflasyonist bir ortamda firmaların gözünü korkutmaktadır. Basitleştirme burada önemli anahtar rolü oynayacaktır.

Aracılar arasında rekabet ortamını arttırabilmek için banka dışı aracı kuruluşlara geçici finansman imkanları sağlanmalıdır.

Gerçi borsa denen kuruluş spekülasyon olmaksızın düşünülmesi de derinlik ve genişlik açısından gelişmeye muhtac olan bir borsada küçük yatırımcıyı korumak için işin özünde bazı tedbirlere gerek vardır. Hele türetilmiş piyasalardaki yüksek risk faktörü düşünülürse bu daha da önem kazanır.

Vergilendirmede muafiyet ve pay senedi ihrac eden kuruluşlara da bunu uygulamak gerekmektedir.

Sonuçta Sermaye Piyasası Kurumu ve IMKB'nin beraber çalışarak altyapıyı hazırlamalarından sonra konu sadece talep ve arzı oluşturmak olacaktır. Yaptığımız incelemelerin ışığında görülmektedir ki piyasa gelişmeler hazır olmak üzeredir, zaman lehte çalışmaktadır.

Fakat temel sorunlar: IMKB'deki siglık, fiyat hareketlerindeki devasa dalgalanmalar yuksek enflasyon gercegidir. Tabi diger bazı ulkelerin yapilanma orneklerinde oldugu gibi once vadeli islempiyasalarinin olustulmasi ve tahvil icin gelistirilmis ikincil piyasanin guclendirilmesi kolaylik saglayacaktır.

