KOÇ UNIVERSITY

THE GRADUATE SCHOOL OF BUSINESS

MARKET TIMING IN ISTANBUL STOCK EXCHANGE AND ECONOMIC INDICATORS

MBA Thesis

by

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Submitted in Partial Fulfillment of the Requirements for the Degree of
Master of Business Administration

ISTANBUL
1996

MARKET TIMING IN ISTANBUL STOCK EXCHANGE

AND

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Date of Approval June 17th, 1996

ABSTRACT

This study consists of three parts. In the first part Istanbul Stock Exchange (ISE) is introduced and general information is given about history, structure, trading rules and regulations. In the second part, an analysis, of to which degree an investor should have a predictive ability in order to beat a buy and hold strategy, is made. In the third part some plausible economic indicators which may improve investor's investment decision, are introduced.

ÖZ

Bu çalışma üç bölümden oluşmaktadır. Birinci bölümde İstanbul Menkul Kıymetler Borsasının tarihi, yapısı ve işleyişi hakkında bir takım genel bilgiler verilmekte, sıkça kullanılan bazı terimler açıklanmaktadır. İkinci bölümde İstanbul Borsasında zamanlama yapan bir yatırımcının al-tut stratejisi izleyen bir yatırımcıdan daha yüksek getiri elde edebilmesi için hangi derecede tahmin yeteneğine sahip olması gerektiği araştırılmaktadır. Üçüncü bölümde ise yatırımcının doğru tahmin olasılığını yükselteceği düşünülen ekonomik indikatörler ortaya konulmustur.

ACKNOWLEDGEMENT

I would like to thank Assoc. Prof. Mustafa Gültekin for his patience to my questions, and guiding me with his questions throughout the study. In addition I would like to thank the following people who helped me whenever I had a problem and whatever it was. It was a pleasure to feel their support for what I was trying to do:

(in alphabetical order)

Asst. Prof. Alpay Filiztekin

Asst. Prof. Barış Tan

Asst. Prof. Hakan Orbay

Hüsniye Şentürk

Lütfiye Kayacan

Nursel Cebeci

Asst. Prof. Ömer Yedekçioğlu

Sedef Çelik

Ülkü Köknel

Utku Özdemir

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INTRODUCTION

"Market timing is like flying, those who have no special equipment or training could injure themselves trying." These are the words of an investment manager at Bankers Trust Australia, Wilson Sy. This may or may not be true, but first the question should be asked are there any substantial gains from market timing compared to simply buying and holding securities. If there are, what kind of equipment might help "flying"?

Being an emerging market, Turkey offers substantial investment and diversification opportunities to investors. In the first part of this study Istanbul Stock Exchange (ISE) is introduced. In the second part, an analysis of to which degree an investor should have a predictive ability in order to beat a buy and hold strategy is made. In the third part some plausible economic indicators which may improve investors investment decision, are introduced.

1. ISTANBUL STOCK EXCHANGE

1.1. Istanbul Stock Exchange And Trading Systems In the World

There are different types of stock exchange systems in world according to the price mechanisms and trading systems (IMKB, 1994). For example, in some stock exchanges there is a trading floor and there is one auctioneer or auction leader to whom ask and bid prices are given. The auction leader directs the operations and terminates. In some other stock exchanges, the orders are exercised by the brokers. It is a self-operating stock-exchange type. The auctioneers can only control the session not direct it. In some other stock exchanges, like Tokyo or South Korea stock exchanges, floor brokers can bargain freely and they give the necessary results to the clerks.

1.1.1. Centralized-Decentralized Stock Exchanges

In centralized stock exchanges, all stock members deal with each other whereas in decentralized stock exchanges there are specialists. Certain stocks are given to these specialist stock exchange members and the other stock exchange

members can only buy or sell stock from these specialists. Before the session begins, opening price is found for every stock and specialist determines a buying or selling price for each stock and he can change these limits in the session. One example to decentralized stock-exchanges is New York Stock Exchange.

1.1.2. Collective Opening Price Method-Continuos Dealing

In some stock exchanges, the opening price is very important and to compare the demand and supply effectively the opening price is found collectively. The order prices are given to auctioneers at the opening of the stock and auctioneers arrange these orders in a decreasing order and write the amounts to both ask and bid sides. If one price is on both ask and bid sides, this means transaction, and the opening price is the price for which the maximum number of transactions are held. The collective opening price has an advantage of finding the most accurate opening price since the largest amount of demand and supply can be met. But, the problem is that, since this method compares the most of the daily trading volume at the opening, so, there is not sufficient trading volume for next sessions. Also, the fluctuations will be low and the time priority rule can not applied in this method. Therefore, it is a complicated and difficult method. In the continuous method, each company has a board and every buying or selling order is written on these boards.

In ISE, up to 17th of October 1988, *collective opening price* is used, but due to the disadvantages of this model described before, the continuos trading

method has been used since that time. In January, 1st of 1993, ISE changed into a computerized system in which all orders are transferred to computer.

1.2. Brief History Of Istanbul Stock Exchange

Istanbul Stock Exchange is the central securities market of Turkey where equities, bonds and bills, revenue-sharing certificates and private sector bonds are traded.

ISE started its operations on December 25,1985. 41 stocks were traded by January 1986 and the number of member firms authorized to deal in transactions was 36. Trade was conducted in a single session using quotation boards.

In July 1994, the number of sessions was increased to two and the duration was extended from two to four hours and on November the trading system was completely computerized. This increased transaction volume, speed of transactions, timely reporting and information distribution.

On May 15,1995 ISE moved to its new building employing the latest technology.

9:00-9:15 Wholesale Market and Special Transactions	Wholesale Market Trades Primary Market Official Auction
9:30-9:45 Regional Markets and New Companies Markets	Secondary Market(old and new stocks market) Odd Lot Transactions Rights Issues
10:00-12:00 National Market- First Session	Secondary Market(old and new stocks market) Odd Lot Transactions Rights Issues
14:00-16:00 National Market- Second Session	Secondary Market(old and new stocks market) Odd Lot Transactions Rights Issues

Table 1. *Session Hours*

1.3. Stock Exchange Regulations And Common Terms

Broker:

Broker is the stock exchange representative who handles the transactions on behalf of the stock exchange member. By stock exchange member, it's meant the financial intermediary.

Dealer:

The dealer is the person who generally determines the decisions of buying and selling and give directions to brokers. Dealer actually establishes the link between the customer and the broker.

Trading Volume and Value of Trading:

Each day trade volume is calculated for two sessions in the Stock Exchange. The amount is shown in ISE daily bulletin under the heading of number of stocks exchanged or the number of transactions for each stock. The sum of these separated numbers are equal to the trading volume (Traded number of shares). The value of trading for each stock is found by multiplying number of stocks of each order with the transaction price of that stock. The sum of these trading values for each stock is equal to the stock exchange traded value.

Transaction Unit:

The transaction unit in stock exchange regulations is a lot. One lot of stock is equal to 1000 unit of stock or stock of 1,000,000 nominal value (Each stock has a nominal value of 1,000 TL).

Weighted Average Price:

The weighted average price is the price which is used for determining the next sessions' base price. For each stock, the weighted average price is determined according to the last sessions' price. The weighted average price is equal to sum of the multiplication of the price of the order exercised times the number of stocks related with that order divided by the sum of the total number of stocks exercised. WAP = Total (A*P) / Total (A), where A = Total amount of stocks and P = The price of the order .

Base Price:

Base price constitutes a base for the maximum and minimum prices and the tick size of a stock. This price can be found by rounding weighted price to the nearest tick.

Tick Size:

Tick size is the minimum price movement for a stock at once. Tick size is calculated according to its base price. The table given below shows the relation between the base price and the tick size:

Base Price Of The Stock At Previous Session	Tick Size Of The Stock
Up to 1,000 TL.	10 TL and multiples
1,001-2,500 TL.	25 TL. and multiples
2,501-5,000 TL.	50 TL. and multiples
5,001-10,000 TL.	100 TL. and multiples
10,001-20,000 TL.	250 TL. and multiples
20,001-50,000 TL.	500 TL. and multiples
50,001-100,000 TL.	1000 TL. and multiples
100,001-500,000 TL.	5000 TL. and multiples
500,001-1,000,000 TL.	10000 TL. and multiples
1,000,001 and Upper values	50000 TL. and multiples

Table 2. Base Prices and Tick Sizes

For example, if weighted average price of a stock at previous session is 2278 TL, the new session base price is going to be 2300 TL. The tick size for this base price is equal to 25 TL. so this stock price can increase or decrease by 25 TL. and multiples at each transaction.

Price Margin:

For each stock, there is a price margin which shows the maximum and minimum price that stock can hold. These limits are calculated according to the base price of the stock. The price margin of the stock can be 10% below or above the base price of the stock. The above limit is rounded to upper value and the below limit is rounded to lower value according to the tick size. For example, if a certain stock has a weighted average price of 6730 TL, then the base price is 6700 TL The above limit is 7400TL (6700*1.1=7370 TL, since the tick size is 100 TL, it is equal to 7400TL), and the below limit is 6000 TL (6700*0.9=6030TL, 6000 TL).

General Rules about trading:

There are two preferences in transactions of securities:

a) Price Priority: The higher price for buying activity and the lower price for selling activity have the priority on others.

b) Time Preferences: If the prices of different orders are same, the order which is given to system before has a time priority.

1.4. Stock Price Index

Stock price index gives information about the performance of the market based on the prices of the stocks included in the index. The index is generally a spontaneous reflection of the market.

Three methods are used for calculation of stock price indices:

1. Arithmetic average (Dow Jones, Nikkei)
2. Geometric average (Financial Times, Value Line)
3. Weighted average method using market capitalization (NYSE, S&P, ISE)

Stock price indices are used for:

- comparing the changes in the market to the changes in the economic indicators
- comparing the returns on the portfolios of the individual and institutional investors and the general performance of the market
- as inputs in portfolio analysis models
- options and futures

1.4.1. Characteristics of the ISE Index:

- The index is weighted by the publicly-held portion of each constituent company.
- Its base is taken as 100.
- Base is the January, 1986 average market value.
- The prices used in calculation are those of the orders which are approved.

Currently 100 companies are included in the float-capitalization weighted Composite Index. There are two sub-indices: the Industrials Index and the Financial Index. All three indices are computed on the basis of closing prices as well as the weighted average prices. Computing three different indices provides information in the process of pricing the stocks of the companies which will be privatized or offered to public.

Currently, all three indices are calculated by dividing the total market value of the publicly-held portion of all constituent companies by the total market value in the base period and multiplying by the base value.

Formula :

$$\text{ISE INDEX}_t = \frac{\sum_{i=1}^{n} P_{it} * N_{it} * W_{it}}{\sum_{i=1}^{n} P_{io} * N_{io} * W_{io}} * \text{Base Value}$$

n : number of constituent companies

t : the day the index is computed

P_{io} : price of the i^{th} company in the base period

N_{io} : number of stocks of the i^{th} company in the base period

W_{io} : the publicly-held portion of the i^{th} company in the base period

P_{it} : price of the i^{th} company at time t

N_{it} : number of stocks of the i^{th} company at time t

W_{it} : the publicly-held portion of the i^{th} company at time t

In order to ensure the continuity of the index, adjustments are made when a constituent firm makes a rights issue or the publicly-held portion of a company changes, and when there are entries or exits among constituent firms. No adjustments are required when there are bonus capital increases and dividends are paid.

When comparing two indices of different dates to compute the yield, dividend yields are not taken into account since dividend payments are not included

in index computation and only the yield resulting from price appreciation are taken into account.

1.4.2. How Are The Constituent Firms Chosen?

- The company must have at least three years of price history.
- The latest annual or interim financial statements must be approved by external auditors.
- The stocks of the company must be traded at least for three months in ISE without any interruption.
- The number of days the stock has been traded in the market must constitute at least 80% of the number of days it could be traded for the last year.
- The market value of the publicly-held portion of the company must be at least 1/1000 of the market value of the publicly-held portion of all the companies (daily average in the last year)
- The daily trade volume and number of contracts per day, both excluding special and block orders, must be greater than 2/1000 of the market (in the last year).

According to the latest regulations, the constituent companies must represent 85% of the stock market and this ratio is calculated as :

$$\frac{\dfrac{\text{Total Market Value of the Publicly-held Portions}}{\text{Total Market Value of the Publicly-held Portions of all the companies in the market}} + \dfrac{\text{Total Daily Average Trade Volume}}{\text{Total Daily Average Trade Volume in the market}} + \dfrac{\text{Total Number of Contracts per day}}{\text{Total Number of Contracts per day in the market}}}{3} >= 85\%$$

1.5. Markets In ISE

The markets in the ISE can be categorized as follows:

1. National market
2. Regional markets
3. Wholesale market
4. New companies market

1.5.1. National Market

This is the market where the stocks of the companies quoted in ISE are traded. The stocks are classified according to whether they are taken into account in the calculation of the ISE Index or not. By March 24, 1995 100 out of the 174 stocks traded in the market are included in index calculation. The companies included in the calculation of the index must represent at least 85% of the stock exchange market in terms of daily average trading volume, the average number of contracts per day and market value of the publicly-held portion of the company.

The market is divided into submarkets as follows:

- Secondary Market
  - Old Stocks Market
  - New Stocks Market
- Odd-Lot Market
- Rights Issue Coupon Market

Secondary Market:

This is the market where securities that have been issued formerly are traded. Trade is realized by matching the buyers and sellers on a multiple price-continuous auction basis. The buy and sell orders match one another at different prices throughout the trade activity and therefore multiple prices are observed. That is why this method is named as the multiple price-continuous auction method. The market is divided into new and old stocks markets.

New Stocks Market **:**

This market is established on two occasions:

1. If capital increases of companies traded in the market are realized before payment of dividend.
2. If the time period for the publication of the circular concerning the exercise of warrants after the rights issue of companies with an authorized capital is over.

After the last day of the accounting period, the profit share coupons left over from the previous period are canceled and coupon-bearing securities and no coupon securities are issued. Coupon bearing securities are accepted as "old" and no coupon securities are accepted as "new". In order to facilitate the determination of old and new price differences, the new stocks market is established. The market is closed and combined with the old stocks market when companies pay their dividends or announce that they will not pay dividends.

Odd-Lot Market:

This is the market where amounts less than 1 lot are traded. The transactions can be realized both inside and outside the Bourse. Transactions can be realized in the head offices and/or branches of the ISE members outside the Bourse. Members can buy and sell up to 5 lots in a day.

Rights Issue Market:

Companies can increase their capital by the participation of their stockholders. Shareholders pay the capital increase cost and get ownership of new stocks. The capital increase cost is the total value of the rights issue coupons on the stocks. The stockholders can sell their rights within a specific period which is between 15 and 60 days. The market is opened during the regular market session. The trade unit is 1 lot but 1 lot here consists of 200 shares of rights and it has a nominal value of 200 000 TL.

1.5.2. Regional Markets

The objective in establishing this market was to contribute to the development and promotion of the small and middle scale companies operating in various regions of the country in an organized market and within a competitive and transparent environment. This market began operations on January 2, 1995. The stocks traded in this market are those which do not meet the requirements of trade in the national market and those which are temporarily or permanently off the list in the national market. Companies which cannot satisfy both of the requirements below can be registered in the regional market instead of national market with the decision of the ISE Directory Board.

- Daily average trade volume should exceed 1% of the average of the daily trade volume of the companies trading in the national market
- Daily contracts should exceed 4% of the contracts of the national market companies

The number of stocks traded in this market was 10 by March 24,1995.

1.5.3. Wholesale Market:

This is the market where transactions involving amounts more than a certain level are realized. Since large amounts are in question, safety and transparency is very important. With the establishment of the market, privatization in

form of block sales is realized in an organized way in the stock market and auction sales are made possible under certain restrictions.

Transactions which can be carried out in this market are of companies regardless of whether they are traded in the stock market or not;

a) Stocks which will be offered to the market through capital increase,

b) Wholesale of stocks which are already owned by partners to buyers.

Transaction Limits:

For companies whose stocks are traded in the market, the minimum transaction amount cannot be less than the amount valid for special orders.

For companies whose stocks are not traded in the market, the minimum level is 1 billion TL nominal. Even if below this level, at least 10% of the company's paid-in capital or amounts exceeding 10% of the total voting rights is an acceptable level in the market.

Preferred stocks and stocks of companies which will be privatized and participation stocks of public banks are exceptions for this minimum level requirement.

1.5.4. New Companies Market

This market is established with the aim of providing a basis for trade to the companies, which are newly established but bearing potential for growth, through

initial public offerings. Through the establishment of this market, it will be possible to provide funds to companies which are in need of cash and thus help them undertake new investments. The market also facilitates provision of capital to companies that produce goods and services requiring latest technology. In this way, the idle funds in the market are put to use and incentives are given to new companies and new alternatives are offered to investors who want to earn higher return through risky projects.

ISE Directory Board, with the permission of the Capital Markets Board, can impose regulations about preparation and auditing of financial statements on companies that are going to be traded in this market. The companies have to make certain information public that will be determined by ISE every month. In this context, companies traded in this market, until their first end of year statements are audited, have to send their monthly interim statements to ISE and all their interim and end of year statements must be audited.

1.6. Orders

The orders are the directions of the investors to purchase or sell securities to the stock exchange members. It is considered as an approval of investor to the transaction carried out by the member. There are two stages in orders; the above definition resembles the customer or investor order and when these orders are exercised in the market by the broker it is called as stock exchange orders.

Restrictions on orders :

a) Maximum number of orders: A certain number of orders is specified for each stock at once according to transaction volume, stock price, etc. criteria by the Stock Exchange Market Department. Three degrees of 100.000, 200.000, and 400.000 lots are the limitations for each stock and the changes can be offered to Stock Exchange Board by the Stock Exchange Market Department.

b) The transaction value limit: For each order, the upper limit of transaction is 150 billion TL.

Type of orders:

There are mainly three type of orders;

a) Limit orders: These are the orders which have a transaction unit of 1,000 stocks (1 lot) and multiples. The number of shares and the purchasing or selling price is determined by the investor. The minimum price for the purchasing activity and the maximum price for selling activity is specified to the stock exchange member. For buying activity, the transaction is carried out only if the price formed in stock market is lower than or equal to the investor's specified price, whereas for selling activity, the transaction is handled only if the price formed in the stock market is higher than or equal to the investor's specified price. If there are not enough bids or asks available for that stock in the market with the investor's specified price to fulfill the order, it may not be exercised or may be exercised partially. For limit orders, if the price for selling is too high or the price for buying is too low according to the

stock market conditions, the broker can warn the investor to decrease the price for selling and increase the price for buying. This is so called **"order improvement"** operation. The orders can not be changed or eliminated by other means in Stock Exchange.

b) Special Orders: These are the orders which incorporate higher number of shares than the limits of the Stock Exchange. The number of shares for special orders are determined according to the method which links the base price and the maximum lot number as follows;

Base Price Range	Minimum number of stocks for special order
..... - 50,000	The maximum lots that can be transacted for that stock times 5
50,001 - 100,000	The maximum lots that can be transacted for that stock times 3
100,001 -	The maximum lots that can be transacted for that stock times 1

Table 3. Special Orders, base price and maximum lot numbers

Example:

Base Price Range	Maximum Lots in Limits:	100 Lots	200 Lots	400 Lots
.....- 50.000	Minimum Number of Stocks for Special Order:	100*5 = 500 Lots	200*5 = 1000 Lots	400*5=2000 Lots
50001-100000	Minimum Number of Stocks for Special Order:	100*3 = 300 Lots	200*3 = 600 Lots	400*3=1200 Lots
100001-.....	Minimum Number of Stocks for Special Order:	100*1 = 100 Lots	200*1 = 200 Lots	400*1 = 400 Lots

The maximum number for special orders is the limit for block sale which is the 10% of paid-in-capital of the company. The margin is 10 percent for special order and the special order can be canceled or changed before transaction is held. The stock number is specified to the system as the nominal value of the company divided by 1000 TL (nominal value for one stock) for special order. There are no partial fulfillment of special order, they can only be exercised completely or not.

c) Partial Orders: The orders which has transaction number of less than 1 lot are called partial orders. This partial number of stocks is called *odd lot* and these orders are transacted at different section than the limit or special orders. The stock number is specified to the system as the nominal value of the company divided by 1000 TL (nominal value for one stock) as in the case of special order. At one time, the sum of the partial orders for one broker can not be greater than one lot.

d) Best Available Price Orders: There are no price specifications on this orders. All the initiative is taken to the broker and generally these orders are exercised at the prices on the system, in other words, active type of orders are used by brokers in applying this customer order.

e) Stop Orders: In limited orders, there is an upper limit for the buyer and lower limit for the seller. But, if the price is continuously decreasing for a stock that you give limit order for buying, then it is logical to stop the buying process and wait

for a certain period of time. So, in limit orders for buying you can give a lower limit whereas you can give an upper limit for the selling order.

The validity time for orders :

a)Daily orders: The order is exercised only in the session it is given and canceled if it is not exercised until the end of the session. All orders are considered daily unless it is specified as different type. If order is exercised partially, the rest is maintained till to the end of session and if not exercised, it is canceled. The daily order given in first session is not valid for second session.

b)"*Cancel the rest" type orders:* This restriction on order means for the broker as a direction for him to handle the transaction in largest amounts he can and cancel the rest. If a certain price limit is specified in the order, then the transaction is exercised up to the limit specified by the investor at different price alternatives and if the certain amount specified by the investor can not be transacted, the rest is canceled. These orders are called special limit price order.

c) Dated order: The order is given for a certain date to be valid. The limit is 15 days for these type of orders. The amount of a dated order can not be increased. The period can be decreased but not increased in dates orders. So, a daily order can not be changed into a dated order whereas a dated order can be changed into a daily order. If a dated order is changed in terms of the price, the specified date will be valid for the operation.

Order and transaction functions:

a) Order change: The price or the amounts of the orders can be changed. The price can be increased for buying activity and the price can be reduced for selling activity. For special orders, both of them can be changed whereas for partial orders only the amount can be reduced.

b) Order split: A given order can be divided into maximum three different orders with three different prices. The sum of the amount of the divided orders should be greater than or equal to the initial amount. The orders which has different price after division have a different order for the system.

c) Order Cancellation: The broker can cancel only the last order given to the system at buy or sale section. This order should not be a divided order and the order becoming last order after cancellation can be canceled. Special orders and partial orders can always be removed.

d)Transaction change or cancellation: If both parties want to decrease the amount of transaction or cancel the transaction, they can apply to Controller and the approval is in the initiative of Controller.

1.7. Sectors In ISE

There are mainly six sectors and 201 companies in ISE as of September 1995. The most of the companies are from manufacturing industry and the most of the contribution to traded value comes from manufacturing industry as well.

Table 4. summarizes the companies in the sectors.

SECTOR	Number of Companies	Number of Shares Traded ('000 Shares)	Traded Value (TL Million)	Value Turnover Ratio(%)
MANUFACTURING	137	133,314,750	1,173,832,124	147.60
FOOD, BEVERAGE AND TOBACCO	18	5,510,573	92,534,990	94.14
TEXTILE, WEARING APPAREL AND LEATHER	21	11,403,105	92,764,744	195.88
WOOD PRODUCTS	2	766,445	10,347,302	528.38
PAPER AND PAPER PRODUCTS, PRINTING	13	19,184,584	184,344,868	358.42
CHEMICALS PETROLEUM AND RUBBER PRODUCTS	21	26,677,939	303,260,638	113.46
NON-METALLIC MINERAL PRODUCTS	25	7,832,507	80,681,088	86.51
BASIC METAL	11	45,825,183	267,740,089	420.7
FABRICATED METAL PRODUCTS, MACHINERY AND EQUIPMENT	26	16,114,415	142,158,405	82.64
ELECTRICITY GAS AND WATER	3	5,729,369	133,410,086	1152.57
CONSTRUCTION AND PUBLIC WORKS	1	16,175	113,073	83.76
WHOLESALE AND RETAIL TRADE, HOTELS AND RESTAURANTS	13	3,736,724	37,309,831	125.45
WHOLESALE TRADE	4	830,221	11,756,790	194.32
CONSUMER TRADE	4	1,796,609	18,113,000	97.23
RESTAURANTS AND HOTELS	5	1,109,894	7,440,042	147.01
TRANSPORTATION COMMUNICATION AND STORAGE	2	1,948,638	23,250,596	30.56
FINANCIAL INSTITUTIONS	45	68,262,921	346,114,760	97.22
BANKS	13	22,940,025	120,861,999	55.68
INSURANCE COMPANIES	6	1,251,670	8,805,180	53.55
FINANCIAL LEASING AND FACTORING COMPANIES	8	3,266,178	14,682,471	218.28
HOLDING AND INVESTMENT COMPANIES	17	40,522,368	199,801,960	178.37
BROKERAGE HOUSES	1	282,680	1,963,150	51.94
TOTAL	201	213,008,577	1,714,030,470	135.09

Table 4. *Sectoral distribution of companies traded in ISE*

2. GAINS FROM TIMING

The second part of this study is based on the article of William F. Sharpe "Likely Gains from Market Timing". The article explores the potential gains from market timing and shows how they relate to the manager's ability to make correct predictions in US security markets.

An investment manager who would like to call every market turn can move all the assets under management into stocks or into cash equivalents, as used in the study government securities, whenever he foresees a change large enough to cover transaction costs. By choosing the stocks the manager is assumed to be indifferent and to hold the average, the ISE Index. The manager is assumed to make decisions at the beginning of each month and transaction costs are assumed to be 1% for each shift.

2.1. Good versus Bad Market Months:

Each month in the period is categorized either a good or a bad market month. In a good market month the return in stocks exceeds the return on government securities, and in a bad market month the reverse holds. In Table 5. the

DATE	ISE INDEX	CHNG. ISE	MRRGS	DELTA	GOOD/BAD
31-Jan-86	100.00				
28-Feb-86	119.87	19.87%	4.00%	16.21%	GOOD
31-Mar-86	115.75	-3.44%	3.60%	-7.03%	BAD
30-Apr-86	112.28	-3.00%	3.59%	-6.58%	BAD
31-May-86	115.13	2.54%	3.54%	-1.00%	BAD
30-Jun-86	115.43	0.26%	3.52%	-3.26%	BAD
31-Jul-86	121.45	5.22%	3.41%	1.81%	GOOD
31-Aug-86	138.60	14.12%	3.55%	10.57%	GOOD
30-Sep-86	146.67	5.82%	3.53%	2.29%	GOOD
31-Oct-86	150.24	2.43%	3.40%	-0.97%	BAD
30-Nov-86	160.31	6.70%	3.22%	3.48%	GOOD
31-Dec-86	170.86	6.58%	3.05%	3.53%	GOOD
31-Jan-87	216.90	26.95%	3.04%	23.90%	GOOD
28-Feb-87	260.76	20.22%	3.09%	17.14%	GOOD
31-Mar-87	245.83	-5.73%	3.25%	-8.97%	BAD
30-Apr-87	269.40	9.59%	3.28%	6.31%	GOOD
31-May-87	394.79	46.54%	3.29%	43.25%	GOOD
30-Jun-87	446.31	13.05%	2.93%	10.11%	GOOD
31-Jul-87	1012.10	126.77%	2.98%	123.79%	GOOD
31-Aug-87	1149.03	13.53%	3.32%	10.21%	GOOD
30-Sep-87	1029.25	-10.42%	3.55%	-13.98%	BAD
31-Oct-87	786.38	-23.60%	3.55%	-27.14%	BAD
30-Nov-87	890.61	13.25%	3.41%	9.84%	GOOD
31-Dec-87	673.00	-24.43%	3.60%	-28.04%	BAD
31-Jan-88	857.74	27.45%	4.05%	23.40%	GOOD
29-Feb-88	721.03	-15.94%	4.17%	-20.11%	BAD
31-Mar-88	635.27	-11.89%	4.25%	-16.14%	BAD
30-Apr-88	553.98	-12.80%	4.31%	-17.11%	BAD
31-May-88	553.07	-0.16%	4.13%	-4.30%	BAD
30-Jun-88	468.90	-15.22%	3.74%	-18.96%	BAD
31-Jul-88	492.88	5.11%	3.94%	1.17%	GOOD
31-Aug-88	428.06	-13.15%	3.91%	-17.06%	BAD
30-Sep-88	455.22	6.34%	4.63%	1.72%	GOOD
31-Oct-88	404.12	-11.23%	4.53%	-15.76%	BAD
30-Nov-88	405.84	0.43%	4.40%	-3.97%	BAD
31-Dec-88	373.93	-7.86%	4.39%	-12.25%	BAD
31-Jan-89	379.74	1.55%	4.23%	-2.67%	BAD
28-Feb-89	487.09	28.27%	3.66%	24.61%	GOOD
31-Mar-89	465.90	-4.35%	3.47%	-7.82%	BAD
30-Apr-89	533.62	14.54%	3.70%	10.84%	GOOD
31-May-89	653.95	22.55%	3.94%	18.61%	GOOD
30-Jun-89	795.88	21.70%	3.99%	17.72%	GOOD
31-Jul-89	701.43	-11.87%	4.31%	-16.18%	BAD
31-Aug-89	875.98	24.88%	4.30%	20.59%	GOOD
30-Sep-89	1475.26	68.41%	3.85%	64.56%	GOOD
31-Oct-89	1664.01	12.79%	3.34%	9.26%	GOOD
30-Nov-89	1507.54	-9.40%	3.48%	-12.88%	BAD
31-Dec-89	2217.66	47.10%	3.48%	43.62%	GOOD
31-Jan-90	3641.25	64.19%	3.45%	60.74%	GOOD
28-Feb-90	3516.12	-3.44%	3.46%	-6.90%	BAD
31-Mar-90	3294.31	-6.31%	3.47%	-9.78%	BAD
30-Apr-90	3308.23	0.42%	3.46%	-3.03%	BAD
31-May-90	3852.08	16.44%	3.46%	12.98%	GOOD
30-Jun-90	4132.98	7.29%	3.46%	3.83%	GOOD
31-Jul-90	5384.48	30.28%	3.46%	26.82%	GOOD
31-Aug-90	4939.23	-8.27%	3.47%	-11.74%	BAD
30-Sep-90	5085.15	2.95%	3.37%	-0.61%	BAD
31-Oct-90	4570.44	-10.12%	3.65%	-13.77%	BAD
30-Nov-90	3256.96	-28.74%	3.93%	-32.67%	BAD
31-Dec-90	3255.75	-0.04%	4.00%	-4.04%	BAD
31-Jan-91	4213.48	29.42%	4.28%	25.13%	GOOD
28-Feb-91	5102.57	21.10%	4.51%	16.59%	GOOD
31-Mar-91	4519.95	-11.42%	4.67%	-16.09%	BAD
30-Apr-91	3554.25	-21.37%	4.78%	-26.14%	BAD
31-May-91	3626.36	2.03%	4.05%	-2.02%	BAD
30-Jun-91	3587.36	-1.08%	4.05%	-5.12%	BAD
31-Jul-91	3041.44	-15.22%	4.18%	-19.39%	BAD
31-Aug-91	3301.29	8.54%	4.55%	3.99%	GOOD
30-Sep-91	2937.64	-11.02%	4.78%	-15.80%	BAD
31-Oct-91	2746.84	-6.50%	4.87%	-11.37%	BAD
30-Nov-91	4058.47	47.75%	4.67%	43.08%	GOOD
31-Dec-91	4369.15	7.66%	4.62%	3.04%	GOOD
31-Jan-92	4926.19	12.75%	4.60%	8.15%	GOOD
29-Feb-92	3664.36	-25.61%	4.60%	-30.21%	BAD
31-Mar-92	4076.62	11.25%	4.65%	6.60%	GOOD
30-Apr-92	3686.37	-9.57%	4.74%	-14.32%	BAD
31-May-92	3297.36	-10.55%	4.89%	-15.45%	BAD
30-Jun-92	4407.23	33.66%	4.93%	28.73%	GOOD
31-Jul-92	4264.13	-3.25%	4.90%	-8.15%	BAD
31-Aug-92	4157.83	-2.49%	4.89%	-7.38%	BAD
30-Sep-92	3976.40	-4.36%	4.90%	-9.26%	BAD
31-Oct-92	3642.70	-8.39%	4.90%	-13.30%	BAD
30-Nov-92	3786.24	3.94%	4.91%	-0.97%	BAD
31-Dec-92	4004.18	5.76%	4.93%	0.83%	GOOD
31-Jan-93	4383.01	9.46%	5.02%	4.44%	GOOD
28-Feb-93	5923.61	35.15%	5.13%	30.02%	GOOD
31-Mar-93	5864.17	-1.00%	5.21%	-6.21%	BAD
30-Apr-93	7807.64	33.14%	5.29%	27.85%	GOOD
31-May-93	8375.75	7.28%	5.33%	1.95%	GOOD
30-Jun-93	10778.67	28.69%	5.37%	23.32%	GOOD
31-Jul-93	10077.62	-6.50%	5.42%	-11.92%	BAD
31-Aug-93	12357.02	22.62%	5.35%	17.26%	GOOD
30-Sep-93	15079.87	22.03%	5.34%	16.69%	GOOD
31-Oct-93	14500.69	-3.84%	5.40%	-9.24%	BAD
30-Nov-93	18977.16	30.87%	5.46%	25.41%	GOOD
31-Dec-93	20682.89	8.99%	5.68%	3.31%	GOOD
31-Jan-94	20104.84	-2.79%	6.99%	-9.79%	BAD
28-Feb-94	15003.59	-25.37%	7.19%	-32.56%	BAD
31-Mar-94	14087.16	-6.11%	7.05%	-13.16%	BAD
30-Apr-94	13096.68	7.17%	10.27%	-3.10%	BAD
31-May-94	14749.10	-2.30%	7.61%	-9.91%	BAD
30-Jun-94	19766.44	34.02%	7.11%	26.91%	GOOD
31-Jul-94	21752.21	10.05%	6.49%	3.56%	GOOD
31-Aug-94	25282.43	16.23%	6.13%	10.10%	GOOD
30-Sep-94	26825.53	6.10%	5.83%	0.27%	GOOD
31-Oct-94	24889.50	-7.22%	5.70%	-12.91%	BAD
30-Nov-94	28181.04	13.22%	7.10%	6.12%	GOOD
31-Dec-94	27257.14	-3.28%	6.46%	-9.74%	BAD
31-Jan-95	25228.78	-7.44%	6.60%	-14.04%	BAD
28-Feb-95	29122.91	15.44%	6.92%	8.51%	GOOD
31-Mar-95	39837.33	36.79%	5.86%	30.93%	GOOD
30-Apr-95	46615.19	17.01%	6.62%	10.39%	GOOD
31-May-95	47370.92	1.62%	5.91%	-4.29%	BAD

Table 5.

classification of months is shown between February 1986 and June 1995. The dates and the value of the ISE index are given in the first two columns, respectively. The third and fourth columns show the rate of return in ISE and the monthly rate of return of government securities (MRRGS) for the periods, respectively. The fifth column with the label delta shows the difference between the monthly returns of ISE Index and government securities. The months are classified as, either good, if delta is positive, or bad, if delta is negative. So, the manager with the perfect timing ability should invest in stocks in good months, and in government securities in bad months. Transaction costs should only be considered if there is a shift necessary. This is to say, if the manager is in stocks, and predicts that the following month will also be a good one, there are no transaction costs incurred.

2.2. Gains From Perfect Timing:

For the purpose of comparison three different investment strategies are used. The results are summarized in Table 6. The first strategy is to buy government securities in February, 1986 and to sell in June, 1995. Although it has the lowest average monthly return, 4.54%, it also has the lowest standard deviation, 1.26%, which means less variability. The second is to buy and hold stocks for the same period. As stated above, no particular securities are chosen, instead the ISE composite Index is used to calculate the returns. The average return with this strategy gives us higher returns, 7.48% per month, but the volatility also increases, 21.56%. Since no transactions are made there are no transaction costs incurred in these two strategies.

	BUY & HOLD GOV. SEC.	BUY & HOLD STOCKS	PERFECT TIMING
TOTAL RETURN	14825.00%	47371.00%	54034747.00%
AVERAGE MONTHLY RETURN	4.56%	7.48%	13.48%
GEOMETRIC MEAN RETURN	4.54%	5.65%	12.51%
NET RETURN	4.54%	5.65%	11.99%
STANDARD DEVIATION OF RETURN	1.24%	21.56%	16.88%

Table 6. Overall Performance of Three Different Strategies

(February, 1986 - June, 1995)

The third strategy is a timing strategy with perfect prediction ability. Beginning in February, 1986 the manager is assumed to assess the outlook for the market at the first day of the month, and then place the assets under management accordingly in either stocks or in government securities. For the good months the return is the change in Index, and for bad months the return is the monthly rate of return of government securities. The resulting total return is very striking, if you have had invested 1,000,000 TL. in February, 1986, you would have approximately 540 Billion TL. in June 1996, which is a huge amount compared to 148 million and 473 million you would have with the first and second strategies. After deducting the transaction costs you would have 323 billion TL. in cash. The transaction costs are

calculated by reducing the value of the portfolio by one percent in each switch from stocks to government securities or visa versa.

The fifty-one switches made, reduce the total return by approximately 40%. Average monthly return with perfect predictive ability is 13.48% and geometric mean return is 12.51%. Transaction costs decrease the return by 52 basis points, to 11.99%. We also see that timing decreases the volatility of returns compared to a buy and hold strategy. The standard deviation of timing strategy is 468 basis points lower than the second strategy.

2.3. Gains from Less-Than-Perfect Timing:

Up to this point the manager is assumed to have perfect prediction ability in managing funds. Now, it will be examined to which degree a manager should have a predictive ability to have an excess return on buy and hold strategy. A relative simple characterization is used to define the process.

At the beginning of each month a prediction is made either the month will be good or bad. Funds will be accordingly invested either in stocks or in cash equivalents as it was the case in the previous analysis. Transaction costs are again assumed to be 1% for each shift in the funds. Figure 1 describes the process.

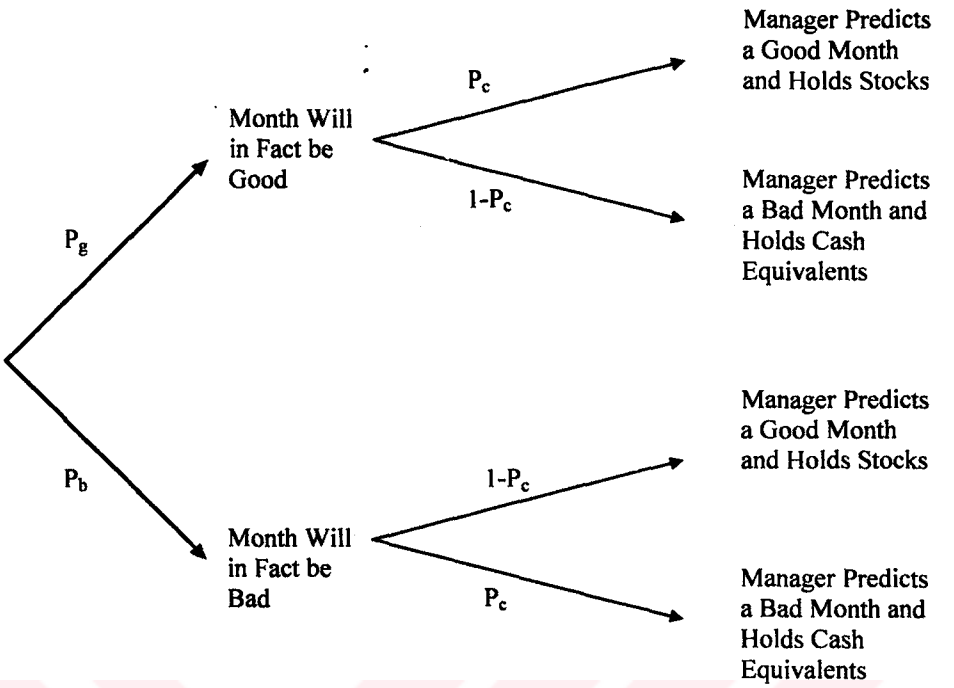

Figure 1. The Assumed Predictive Process

In this process, the manager can make correct predictions with a probability of P_c. That means, he will predict a good month which in fact will be a good one with a probability of P_c, while the probability is $(1-P_c)$ that he will predict a bad month when actually a good month is in store. His predictive ability when a bad month is coming assumed to be same. The actual probabilities of good and bad months are P_g and P_b, respectively.

To analyze the situation, assumptions must be made about occurrences of good and bad months and the results associated with each possible combination.

Out of 113 months in the scope 57 have been good and 56 have been bad,

so there is approximately 50% probability for each outcome. The overall expected return for any given degree of predictive ability is the weighted average of expected values for the four outcomes presented in Figure 1, with probabilities of the outcomes used as weights:

$$E = P_g \times [P_c \times S_g + (1-P_c) \times B_g] + P_b \times [P_c \times B_b + (1-P_c) \times S_b]$$

where E is the overall expected return and P_g and P_b are the proportion of good and bad months, respectively. The expected return in a given month constitutes of the expected return in a good month plus the expected return in a bad month. According to the managers ability to make correct predictions represented by P_c, there are stocks in the portfolio in good months and there are bonds in the portfolio in bad months which retrieve a return of S_g and B_b, respectively. Since the prediction ability is not perfect, incorrect predictions are made with the weight $1-P_c$, and consequently, in good months bonds, in bad months stocks are held in the portfolio with the return B_g and S_b, respectively. These returns are summarized in Table 7.

Table7. *Performance During Bad and Good Months*

Average Monthly Return on Stocks in Bad Months; S_b:	Average Monthly Return on Bonds in Bad Months; B_b:	Average Monthly Return on Stocks in Good Months; S_g:	Average Monthly Return on Bonds in Good Months; B_g:
-7.66%	4.545%	22.09%	4.549%

Using these returns and the expected return formula above monthly returns are calculated for different degrees of predictive ability. In Table 8. the first column represents the ability to make correct predictions beginning with the best situation, to be right all the time ($P_c = 1$). In the second column the expected returns are shown accordingly. These returns do not consider the transaction costs. To include the effect of transaction costs we have to determine the probabilities of making shifts in the funds. A transaction cost could be incurred in two ways: The funds could have been invested in stocks in month t and in bonds in month t+1 or visa versa. The investment in stocks could have been made;

1. By making a correct prediction of a good month with a probability of $[P_c \times P_g]$,
2. By a making a wrong prediction of a good month with a probability of $[(1-P_c)xP_b]$.

The cumulative probability of being in stocks is the sum of these two probabilities:

$$P_s = [P_c \times P_g] + [(1-P_c) \times P_b]$$

The same methodology can be applied to the state being in bonds. The investment in bonds could have been made;

1. By making a correct prediction of a bad month with a probability of $[P_c \times P_b]$,
2. By making a wrong prediction of a bad month with a probability of $[(1-P_c) \times P_g]$.

The cumulative probability of being in bonds is the sum of these two probabilities:

$$P_B = [P_c \times P_b] + [(1-P_c) \times P_g]$$

By assuming that outcomes in successive months are uncorrelated, the probability of making a switch can be determined by multiplying the probabilities of being in bonds P_b and being in stocks P_s with two since a switch can be made in two ways:

$$P_{sw} = 2 \times P_s \times P_B$$

After defining the probabilities of each state, the expected cost of a switch can be calculated easily by multiplying the assumed cost C, with the probability of a switch P_{sw}:

$$E_c = P_{sw} \times C$$

Table 8. Returns with Less Than Perfect Timing

Pc	EXPECTED RETURN	EXPECTED TRANSACTION COST	NET EXPECTED RETURN	ADVANTAGE NET RETURN vs BUY & HOLD STOCKS
1.00	13.32%	0.50%	12.82%	5.34%
0.99	13.17%	0.50%	12.67%	5.19%
0.98	13.02%	0.50%	12.52%	5.04%
0.97	12.87%	0.50%	12.37%	4.89%
0.96	12.72%	0.50%	12.22%	4.74%
0.95	12.58%	0.50%	12.08%	4.60%
0.94	12.43%	0.50%	11.93%	4.45%
0.93	12.28%	0.50%	11.78%	4.30%
0.92	12.13%	0.50%	11.63%	4.15%
0.91	11.98%	0.50%	11.48%	4.00%
0.90	11.83%	0.50%	11.33%	3.85%
0.89	11.68%	0.50%	11.18%	3.70%
0.88	11.53%	0.50%	11.03%	3.55%
0.87	11.39%	0.50%	10.89%	3.41%
0.86	11.24%	0.50%	10.74%	3.26%
0.85	11.09%	0.50%	10.59%	3.11%
0.84	10.94%	0.50%	10.44%	2.96%
0.83	10.79%	0.50%	10.29%	2.81%
0.82	10.64%	0.50%	10.14%	2.66%
0.81	10.49%	0.50%	9.99%	2.51%
0.80	10.34%	0.50%	9.84%	2.36%
0.79	10.20%	0.50%	9.70%	2.22%
0.78	10.05%	0.50%	9.55%	2.07%
0.77	9.90%	0.50%	9.40%	1.92%
0.76	9.75%	0.50%	9.25%	1.77%
0.75	9.60%	0.50%	9.10%	1.62%
0.74	9.45%	0.50%	8.95%	1.47%
0.73	9.30%	0.50%	8.80%	1.32%
0.72	9.15%	0.50%	8.65%	1.17%
0.71	9.01%	0.50%	8.51%	1.03%
0.70	8.86%	0.50%	8.36%	0.88%
0.69	8.71%	0.50%	8.21%	0.73%
0.68	8.56%	0.50%	8.06%	0.58%
0.67	8.41%	0.50%	7.91%	0.43%
0.66	8.26%	0.50%	7.76%	0.28%
0.65	8.11%	0.50%	7.61%	0.13%
0.64	7.96%	0.50%	7.46%	-0.02%
0.63	7.81%	0.50%	7.31%	-0.17%
0.62	7.67%	0.50%	7.17%	-0.31%
0.61	7.52%	0.50%	7.02%	-0.46%
0.60	7.37%	0.50%	6.87%	-0.61%
0.59	7.22%	0.50%	6.72%	-0.76%
0.58	7.07%	0.50%	6.57%	-0.91%
0.57	6.92%	0.50%	6.42%	-1.06%
0.56	6.77%	0.50%	6.27%	-1.21%
0.55	6.62%	0.50%	6.12%	-1.36%
0.54	6.48%	0.50%	5.98%	-1.50%
0.53	6.33%	0.50%	5.83%	-1.65%
0.52	6.18%	0.50%	5.68%	-1.80%
0.51	6.03%	0.50%	5.53%	-1.95%
0.50	5.88%	0.50%	5.38%	-2.10%

Here, we assume the transaction cost to be C = 1% for each shift. In column three of Table 8, the net expected return is calculated by subtracting the expected cost from the expected return. The correspondence can be seen by comparing the value in the final row of Table 8. with the actual result shown in Table 6. for perfect prediction ability.

To determine to which degree a manager should have a prediction ability, in the fifth column of Table 8. the difference between buy and hold strategy and the net expected return is shown. We see that a timing strategy has no advantage over a buy and hold strategy unless the manager can make correct predictions 65% of the time. A lesser degree of prediction ability brings a disadvantage because of two reasons. First, the manager who is trying to time the market should pay transaction costs by shifting funds. Second, he should bare the opportunity cost of not being in stocks in good market years.

CONCLUSION

As explained in the first part of the study, Istanbul Stock Exchange is a relatively new market compared to the markets in developed countries. It is only ten years old which makes any study using historical time series questionable in terms of creating statistical evidence for any results obtained. Despite this fact, based on the comparison of two different strategies, namely buy and hold strategy versus timing strategy, the following conclusions are reached:

1. The average monthly return from a buy and hold strategy over the period February, 1986 and June, 1995 is 7.48%.
2. The average monthly return from a timing strategy with perfect prediction ability is 13.48%.
3. A portfolio manager who wants to time the market and beat the buy and hold strategy should be able to make predictions correctly 65% of the time.

These results are obtained under the assumptions;

1. The manager makes a prediction at the end of each month whether the following month will be good or bad*.
2. All the funds under management are placed in stocks in good months and in government securities in bad months.
3. For each shift of the funds transaction cots assumed to be 1%.

* See section 2.1. for the definition of good and bad months.

3. STOCK MARKET AND ECONOMIC INDICATORS

Until now it is examined to which degree a manager should have a predictive ability to beat a buy and hold strategy. In the third part of the study it will be examined whether the economic indicators help to increase the ability to predict whether the following month will be good or bad. One might raise the question why economic indicators should affect the stock market. Fluctuations in security markets are related to changes in the aggregate economy. The price of a firms stock reflects investor expectations about an issuing firm's performance in terms of earnings and cash flow, and that performance is likewise affected by the overall performance of the economy. To determine the relationship between the economy and stock prices various studies are made. In the United States the National Bureau of Economic Research has conducted studies about security prices and economic behavior (Tainer, 1993). Based on the relationship of alternative economic series to the behavior of the entire economy, the NBER has classified numerous economic series into three groups: Leading, coincident, and lagging indicator series. Further extensive analysis of the relationship between the economy and the stock market has shown that the consistency of the relationship makes stock prices one of the better leading indicator series. There are two possible reasons why stock prices lead the economy. One is that stock prices reflect expectations of earnings, dividends, and interest rates. As investors attempt to estimate these future variables, their stock price decisions reflect

expectations for future economic activity, not current activity. A second possible reason is that the stock market is known to react to various leading indicator series, the most important being corporate earnings, corporate profit margins, interest rates and changes in the growth rate of money supply. Because these series tend to lead the economy, when investors adjust stock prices to reflect these leading economic indicator series, it makes stock prices a leading indicator series as well. Because stock prices lead the aggregate economy, the macroeconomics approach to market analysis concentrates on economic series that likewise lead the economy by more than stock prices do.

In Turkey there are no studies investigating which indicators are leading or lagging. State Institute of Statistics (SIS) publishes a quarterly bulletin called "Main Economic Indicators". In addition, accuracy of data is in question because of numerous reasons. First calculation methods are changed several times. Second different sources report different numbers about the same statistics. There are no standards for the reports and calculation methods and even gathering the data in a time series might sometimes be impossible.

3.1. Choosing Indicators

There are a number of indicators that might affect stock prices. In choosing the indicators that will be included in the model interviews with portfolio managers from different brokerage houses are conducted. It is observed that although they are using similar economic indicators, there are differences in the interpretations

of the indicators. For example, some of them consider an increase in foreign exchange rate as a sign in favor of stock market, some of them consider it in the opposite direction. Here, it will be examined the relationship of the indicators chosen and the stock market.

The most common indicator used is inflation. Other indicators are the growth in M2 relative to inflation, foreign exchange rate relative to inflation, and the exchange rate risk (the ratio of foreign exchange assets to foreign exchange liabilities). In addition to these variables, auto sales and bills protested are other indicators that non of the managers suggested but considered to be valuable and included in the study for the reasons which will be explained later.

3.1.1. Inflation And Equities

There are three main reasons why equities might perform poorly in high inflation periods. Economic prospects may worsen, risk may increase. With inflation, firms may suffer adverse cost and price impacts. Some firms may not be able to achieve price increases as quickly as they suffer cost increases, and may face government pressure to restrain prices and be subject to increased international competition. Capital investments and stocks will be more expensive and affect cash flow. Company accounts will become more inaccurate (Lofthouse, 1994). Investors may feel that prospects have been damaged and may demand higher risk premium.

To make it more concrete, we can illustrate these effects in terms of the constant growth dividend discount model:

$$P = \frac{D}{k - g}$$

Here, P is the index value, D is the current dividend, k is the discount rate, required rate or expected return, and g is the growth rate of dividends. We can rearrange terms so that:

$$k = \frac{D}{P} + g$$

In equilibrium, we would expect the returns from equities to equal the return from bonds plus an equity risk premium to compensate for the greater risk of equities, that means,

Dividend Yield + Dividend Growth Rate = Bond Yield + Equity Risk Premium

If something happens to affect one component of the expression, some adjustment must take place in another component to keep the expression true. If equities are seen as riskier, the equity risk premium will increase and dividend yield will rise, i.e., prices will fall. If economic prospects deteriorate, dividend growth will

be lower, and this too will lead to a higher dividend yield, which means share prices will fall again.

3.1.2. Monetary Variables

Money supply can be measured in several ways, including currency plus demand deposits referred as the M1 money supply, M1 plus time deposits referred as M2 and M2 plus foreign exchange deposits referred as M2Y. Governments control the money supply in several ways. In Turkey the Central Bank controls the money supply with open market operations. In actuality, the money supply influences stock prices as an offshoot of its influence on the aggregate economy. Numerous studies in the United States have been made to identify the relationship between money supply and stock prices. These studies have found that changes in the growth of money supply are strongly related with the changes in stock prices (Reilly, 1994). However, there are differences in the timing of the relationship, some arguing a lagging and some a leading.

Some other analysts look to the money supply from a different point of view with a more reasonable argument to explain the short run influence of it on stock prices. According to this theory the excess liquidity is the relevant variable that influences stock prices (Einhorn, 1993). Excess liquidity is defined as the year to year percentage change in the M2 money supply less the year to year percentage change in GNP. It is reasoned that the growth rate of nominal GNP indicates the need for liquidity in the economy. If the money supply growth rate exceeds the GNP growth

rate, this indicates that there is excess money (liquidity) in the economy available for buying securities. This excess liquidity should lead to higher security prices.

In Turkey, portfolio managers also consider the affect of inflation and measure the growth of money supply relative to inflation considering the inflationary affect of excess liquidity without an increase in production. It should also be considered that stock market might not be the only address of excess liquidity when inflationary pressures are present. If the economy has been experiencing steady inflation for an extended period of time, like the Turkish case, the money supply will tend to increase to accommodate the inflationary expectation of people and not the industrial output. Therefore, a more meaningful evaluation of the money supply is to adjust the increase in M2 by the rate of inflation (Schaefer,1993). Consequently, real M2 money supply growth relative to the GDP growth should be included in the model in order to reflect the impact of excess liquidity.

3.1.3. Exchange Rate

In the foreign exchange market the economic conditions of all countries matter since it is a global market. The key factors effecting foreign exchange markets are; relative prices, relative interest rates, relative economic growth rates and the countries current account balance. Relative prices consider inflation rates of the countries in question. The acceleration of inflation rates will lead to a lower domestic currency value against other currencies. A weak foreign exchange value

should be conductive to rising stock prices. A weak or depreciated domestic currency is associated with healthy export growth and sluggish import growth because, as demand shifts from foreign-produced goods, domestic producers benefit from a depreciated currency at the expense of foreign producers. A weak currency will make it more expensive for domestic consumers and producers to buy foreign goods, and some are likely to shift to domestically produced goods, which are now lower priced. At the same time, consumers in other countries may find the exported products to their countries cheaper than their own products and thus shift their demand to these products. The dilemma here is that the costs of producers using imported materials will increase which may cause an increase in prices and lead to a decrease in their profits. The premise that a weak currency is in favor of the stock market because it improves trade balance assumes that higher sales of domestic goods will offset higher prices paid by producers using foreign materials.

In the high inflationary environment of Turkey there is another point that we should consider. Because of harmful affects of inflation government focuses to decrease it in several ways. One of them is controlling the exchange rate and keeping the imported inputs cheap, like petroleum products. However, the negative impacts of this policy on trade deficit because of cheap imports and expensive exports raises the question how accurate this policy is. Another impact of this policy is that the devaluation rate is kept below the inflation rate which increases the expectations about a possible devaluation of Turkish Lira. When summed up with political instability these expectations increase the demand for foreign currency. The control

capability of the government on foreign exchange rates is highly dependent on the Central Bank Reserves among other factors. So, a person trying to time the market should keep an eye on the devaluation rate in accordance with the inflation rate since available funds in the market can be shifted immediately to foreign currency to use the opportunity to make immediate profits from a possible devaluation.

3.1.4. Exchange Rate Risk

Exchange rate risk here mentioned is the Central Banks'. It is defined as the ratio of foreign exchange assets to the foreign exchange liabilities. Among other financial institutions its importance from stock market point of view arises from a possible devaluation of TL. The Central Bank is the institution controlling exchange rate with open market operations. An increase in the exchange rate risk (a decrease in the ratio) decreases the capability of the bank to control the market. So, this ratio should be considered together with the exchange rate and inflation in the model.

3.1.5. Auto Sales

An increase in auto sales signals a healthy economy. Most of the Turkish consumer see cars as an investment as well as transportation vehicles. In addition such an increase promise good earnings in auto and related industries which constituted approximately 15% of total market capitalization of ISE, as well as companies in general.

3.1.6. Protested Bills

The number of protested bills are announced by the Central Bank weekly. The percentage change in the number of protested bills signals liquidity problems in the market, which will also effect the stock market as explained earlier.

CONCLUSION

There are numerous books and papers about economic indicators and stock returns presenting different approaches to the interpretation of indicators and their relationships with the stock returns. The plausible indicators introduced here may not be plausible for someone else because of various reasons.

Although the economic conditions in a country are very important for the stock returns, it is also important how the investors perceive them. The differences among their perceptions make it extremely difficult to forecast the stock returns with the economic indicators. There are perceptions in opposite directions about economic indicators which may nullify their affect on stock returns. To determine the relationship between stock returns and economic indicators a model can be created with the relevant variables. The next step would be to test the model using available data and statistical techniques.

If we also consider that one have to make correct predictions 65% of the time, a buy and hold strategy in Istanbul Stock Exchange is more suitable especially for small investors who have limited access to data.