THE DYNAMICS BETWEEN MUTUAL FUNDS FLOWS AND STOCK RETURNS: EMPIRICAL EVIDENCE FROM THE TURKEY MARKETS

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─**Abstract**─

The aim of the study is searching the relationships existence and its directions between investment funds flow and earnings of market stock in Turkey for the period of 2001:4-2011:2. Specifically, we investigate the possibility of a causality mechanism through which mutual funds flows may affect stock returns and vice versa. Time series techniques used for searching this relationship between variances. Primarily to state stagnancy Phillips-Perron unit stem text techniques used, then to state the longer period relationships existence between variances Johansen- Juselius test techniques used. Because of variances are observed as integrated, by considering the possibility of existence at least there is a one way causality between variances, Granger causality test was made. As a result, findings show that there is a relationship between investment funds flow and earnings of market stock by the way there isn't a causality relationship between investment funds flow and earnings of market stock.

Key Words: *Mutual Funds Flow, Stock returns, Causality, Market efficiency*

JEL Classification: G1,G14

1.   INTRODUCTION

It is seen that businesses desiring to invest money in economical system don't have enough funds and some people and institutions have funds surplus.

 There is a need of market that provides gathering the parts having fund surplus and the ones demanding fund in order that current resources can be used most effectively and be inclined to investment areas. Through this market structure an interactive relation is obtained with the help of various financial intermediaries between the account owners who have fund surplus and want to make an investment but don't have enough fund (Kılıç, 2002:3).

One of these intermediaries is investment funds that pools the saves of individual investors and makes portfolio management on behalf of them (Doğanay, 2002:32). The place of investment funds in financial market is as below.
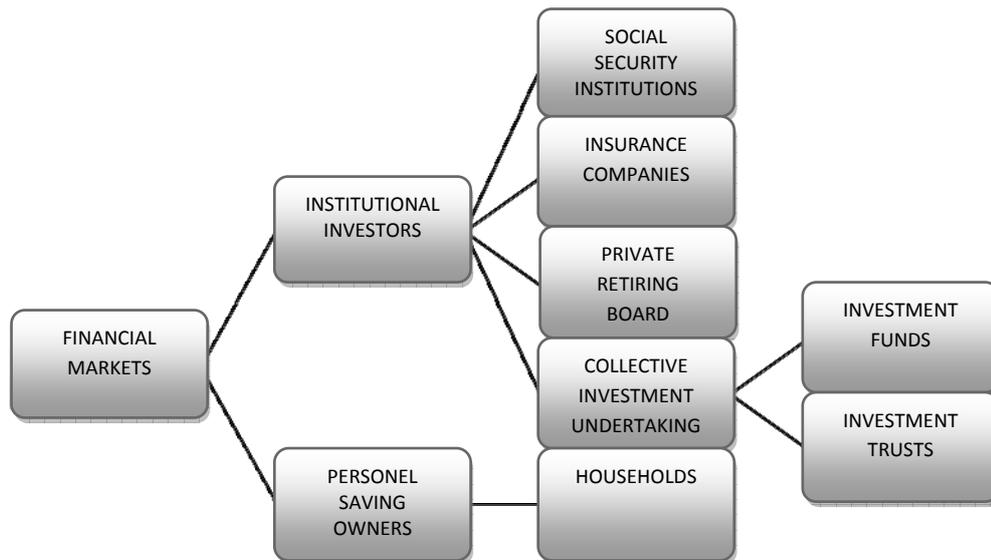

Figure 1: Principles of Financial Market

Primarily founded in London in 1868 and started to developing in the USA in 1920s, investment funds depend on the principle that is to management properly with funds contract. Legal structure of it is not in a mutual way has no legal personality. Wealth of fund is different from various stocks and shares (Ceylan,2008:477) . The most important increase happened in 1993 to investment funds which Turkısh Capital Market first- time met with in 1987 and since afore said date, nearly all institutions which have been enabled to be founder in Capital Market legislation happen in their product portfolios (Özütürk,2009:2).

1.1. Classification of Investment Funds

In respect to principles based on , investment funds split into anony types and most basically can be treated as below.
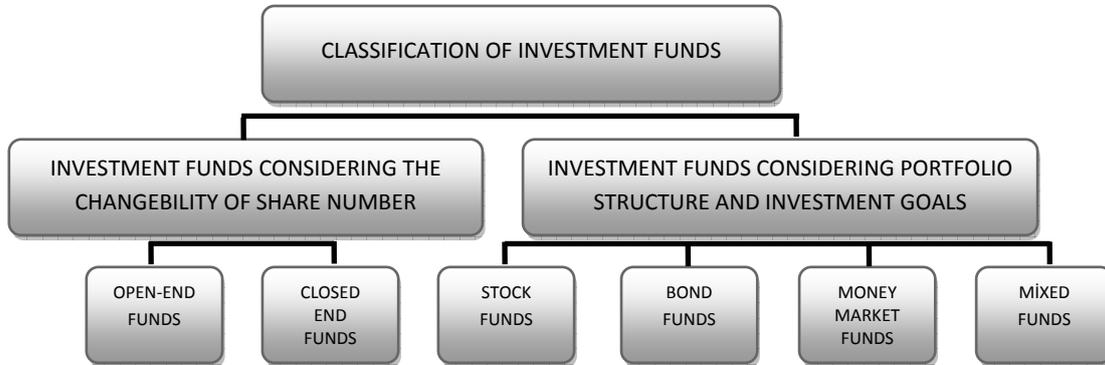

Figure 2: Types of Investment Funds

It can be mentioned about "stock funds" composing of at least %51 Turkish Stock Funds. "Bonds Funds" composing of at least %51 private sector or public bonds, "Mixed Funds" including capital market intermediarries such as stock , bond , gold etc., "Closed End Funds" considering whether the participation certificates are recall "Money Market Funds" whose liquidity is composed of high values and whose due date is continually fewer than 180 days. With the classifications of portfolio, the types of funds that are not included in any type above are "variable fund". Another division is carried out in relation to whether there is stock in fund portfolio. According to this, funds go into division as type A funds and type B funds. Type A funds, supposing they should be indicated in their internal regulation, are the funds at least %25 of portfolio values of which is reserwed to stocks of shareholder   founded   in Turkey, and participation certificates af these funds are processed in IMKB . Type B funds are bond funds that provide less amount of stock an deven not at all are processed in.
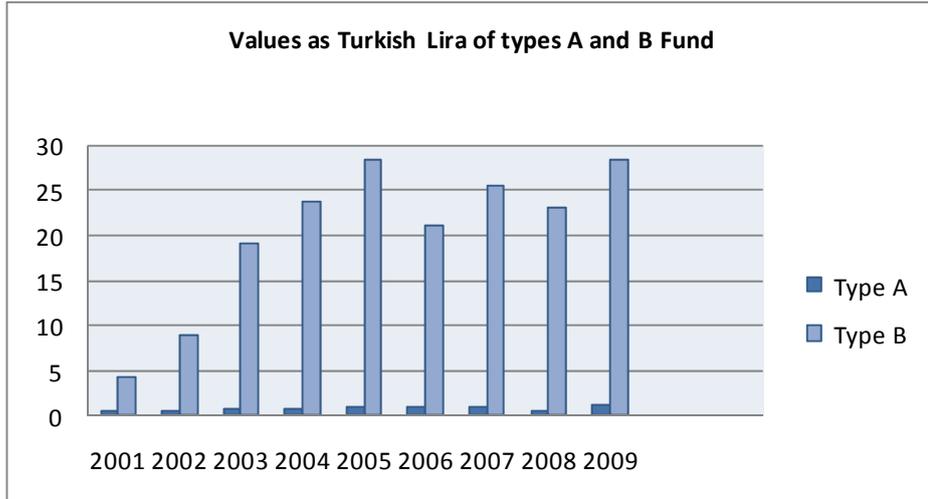
Graphic 1: Values as Turkish Lira of types A and B Fund. In 2009, total value of type A funds, compare to previous years reached 1.125 millon TL from 598 million TL by increasing in the rate of %88. Portfolio value of Type B investment funds comporate to previous years, went up to 28.4 Billion TL from 23.1Billion TL increasing in the rate of %200
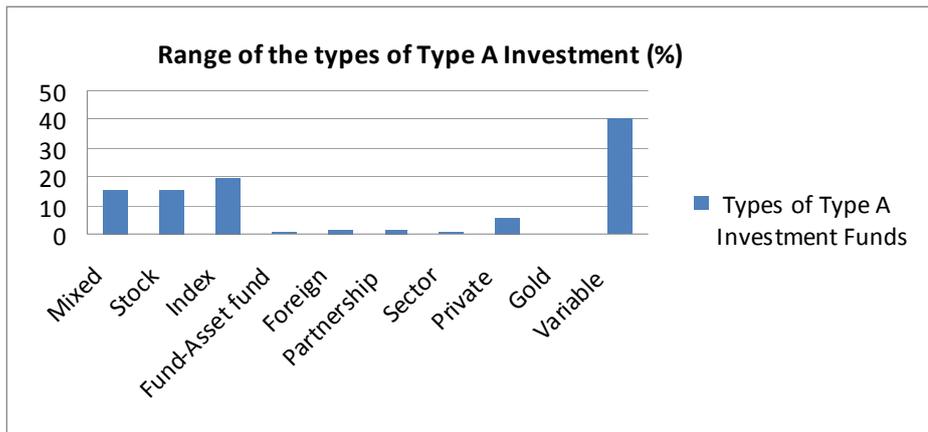
Graphic 2: Range of the types of Type A Investment (%).

In respect of 2009, 131 Type A funds, whose value of fund in turkish capital market is 1.125 Million TL , have gotten into the act. Most common one among type A funds is a variable funds with the rate of %40.5

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1.2. Process of Investment Funds

Investment interaction conducted through investment funds differs from country to country, besides, it basically occurs with the interaction of four basic principles.These principles are founder, fund maneger, depository institution and account owners.Founder is the institution which is responsible toward account owners who make a partnership in this fund by founding on investment fund and shareholders and organizing institutions that response any kind of proccesses of fund.Manager is the person who is appointed by the founder and is the responsible for managing the fund values properly.Depository institution is the branch which is responsible for saving the values in fund portfolio and collecting the incomes such as dividend and interest occuning in relation to these values.Account owners are either people or institutions that have rights and obligations on fund and make a partnership in fund.These ones get into a partnership by means of buying the participation certificotes and stocks that represents the portfolio belonging to related fund (Kılıç,2002:6-7).

In valvation day, fund portfolio values are calculated considering the prices which occur in markets that values existing in portfolio are bought and sold.By induding account receivaldes and incum brances of fund to the calculated value, total value of fund is acquired.This acquired value is divided into the number of share that is on circulation in the day of valuation and reaches the price of unit participation certificate (SPK Yatırımcı Bilgilendirme Kitapçıkları,2007:3).

1.3. Literature Review

Although many studies have been carried out about investment funds and stock returns,it hasn't been encountered a study connected with this subject examined domestically.The closest investigation to the subject is the study conducted by Alexakisa et all., (2005) by using the data of Greek Money Market with the objective of trying to explain the relationship between stock returns and investment fund flows in 2005.This paper, specifically, conducts a study of the possibility of a causality mechanism through which mutual funds flows may affect stock returns and vice versa. As cointegration results,this study shows that mutual funds flows cause stock returns to rise or fall.Thereby, inflows and outflows of cash in equity funds are likely to cause higher and lower stock returns in Greek stock market. Oh and Parwada (2007) carry out a study called "Standard causality tests".These studies present that it is predominantly returns that drive flows, while stock sales might comprise information about returns. The results suggest that Korean equity fund managers tend to increase stock purchases in

times of rising market volatility after the step of controlling for declining markets. Frazzinia and Lamont (2008) use mutual fund flows as a measure for individual investor sentiment for different stocks, and figure out that high sentiment predicts low future returns at long horizons. So,High sentiment, as a result, is related to high corporate issuance, explainable as companies increasing the supply of shares in response to investor demand. Caporale et all., (2004) examine the dynamic interactions between mutual fund flows and security returns in an emerging capital market, namely the Greek one. With gathering causality tests and generalized impulse response analysis (as in Pesaran and Shin,1998, Economic Letters, 58, 17–29), it is discovered that momentum trading is the most plausible explanation for dynamic feedbacks, and that temporary price pressures may also be a related factor, while information revelation does not appear to play a role. Rakowski and Wang (2009) make an analysis the dynamics of daily mutual fund flows. Probit regressions offer that fund investment objective, marketing policy and level of active management explain cross-sectional variation in the behavioral patterns monitored in daily flows.The results are sound to the different methods of calculating daily flows depended on whether or not the day-end TNA figures include the current-day's flow. They do contrast, through analysis, the dynamics of daily flows with established results for monthly fund flows and find important differences between the two**.** *Thanou* and *Tserkezos* (2009) carry out an investigation on the nonlinear interaction between mutual fund flows and stock returns in Greece.They investigate the probability of a nonlinear causality mechanism through which mutual funds flows might influence stock returns and vice versa.The result shows that the statistical evidence obtained from linear and nonlinear causality tests suggest that there is actually a bidirectional nonlinear causality between mutual fund flows and stock returns. Greene et all., (2002) examine how mutual fund flow flows that are correlated with following fund returns can have a dilution impact on the performance of open-end funds.The total sample of domestic equity funds indicates no dilution impact, but we find out an annualized negative impact of 0.48% in international funds (and nearly 1% for a subsample of funds whose daily flows are particularly large).As a consequence, the Exchange and pricing policies of mutual funds can thereby have important performance-related implications

Berk and Green (2004) develop a simple rational model of active portfolio management which enables a natural benchmark against which to evaluate observed relationship between returns and fund flows. In the model, investments with active managers do not surpass passive benchmarks because of the

competitive market for capital provision.Consequently, past performance cannot be used to foretell future returns, or to deduce the average skill level of active managers. Cao et all., (2009) examine their country's listed companies as the sample to study the relationship between mutual funds' ownership and firm performance from two aspects of market value and operating performance. The consequence indicates that mutual funds' stock ownership has a positive effect on firm performance significantly. Shrider (2009) provide evidence that the determinants of fund flow depend on market conditions for both redemptions and purchases by using a proprietary data set to study how past performance affects the determinants of mutual fund flows for a sample of load fund investors. He specifically indicates for redemptions, relative performance and risk adjusted performance are important determinants during a period of record flows into mutual funds. Conversely, during a period of poor performance, absolute performance becomes much more important and relative performance and risk adjusted performance become less important. Dahlquist et all., (2000) conduct a study on the relation between fund performance and fund attributes in the Swedish market. Performance is calculated as the alpha in a linear regres- sion of fund returns on several benchmark assets, allowing for time-varying betas. As a consequence, this indicates among other things, that good performance is to be found among small equity funds, low-fee funds, funds whose trading activity is high, and in some cases, funds with good past performance. Shu et all., (2002)examine the investment flow of open-end equity mutual funds. They are able to investigate the buy and sell behavior of mutual investors separately with the help of a unique data. They figure out that most investors that invest in large mutual funds are small-amount investors, while those that invest in small funds invest a much larger amount. As a result,they are more likely to keep performance-improving funds, redeem the losers, and pay higher management fees. Ivkovic and Weisbenner (2009) studies the relation between individuals'mutual fund flows and fund characteristics, laying down three key results.First, consistent with tax motivations. Second, redemption decisions.Third, individuals' fund-level in flows and outflows.Inflows are associated only with ''relative'' performance, offering that new money chases the best performers in a mission. Outflows are related only to ''absolute'' fund performance, the relevant benchmark for taxes.

Sirri and Tufano (1998) examine the flows of funds into and out of equity mutual funds. High performance seems to be most conspicuous for funds that utilize higher marketing effort, as measured by higher fees. Flows are directly associated

with the size of the fund's complex as well as the current media attention obtained by the fund, which lower consumers' search costs. Engström and Westerberg (2004) investigate how investor and capital flows into mutual funds in the Swedish pension system are associated with fund characteristics. They indicate that individuals chase past returns and have a strong preference for lower-fee funds like U.S studies.Yet, Their results recommend that past returns are less important than previous studies suggest. Bengtsson (2009) writes this article to determine whether stock market performance affects investment fund flows and whether fund flows affect stock market performance.Thus,findings show that investment fund flows are not likely to contribute financial instability by inflating or deflating stock market prices.He also find some (statistically insignificant) indications of price pressure effects on global stock market returns, and noise trading and investor sentiment influences on European stock market returns. Huang et all., (2007) provide a basic rational model to foreground the effect of investors' participation costs on the response of mutual fund flows to past fund performance.They indicate that mutual funds with lower participation costs have a higher flow sensitivity to medium performance and a lower flow sensitivity to high performance than their higher-cost peers by embodying participation costs into a model in which investors learn about managers' ability from past returns,They use,in this model,various fund characteristics as proxies for the reduction in participation costs, they enable empirical evidence backing up the model's implications for the asymmetric flow-performance relationship.

Breton et all, (2010) analyzes competition between mutual funds in a multiple funds version of the model of Hugonnier and Kaniel [18]. They characterize the set of equilibria for this delegated portfolio management game and suggest that there exists a unique Pareto optimal equilibrium. The ultimate result of this study shows that the funds cannot discriminate themselves through portfolio choice in the sense that they should offer the same risk/return tradeoff in equilibrium.

Johnson and Poterba (2008) compare daily shareholder transactions by taxable and non-taxable investors in the mutual funds of a single no-load fund complex around distribution dates. This finding recommends that some taxable shareholders time their buying of mutual fund shares to void the tax acceleration related to distributions. The cost of the distribution-related tax acceleration for pre-distribution buyers is thereby somewhat less than that for those who buy after the distribution.

According to study conducted by Akel (2007), monthly incomes of 51 Type A
and 51 Type B funds in Turkey and considering the surviving tendencies,
performances and performance permanence of these types were measured in
relation to single indexed method . As a result, it was reported that Type A fund
managers don't have the ability of timing of both choosiness and market and
that have relative and absolute performance permanence together in a short time.
In relation to measurement of investment fund performance , in another study by
Yıldız (2006), during 2001-2003 period , 53 investment funs, variable, stock an
mixed funds were evaluated by using data envelopment analysis. As a result
variable funds showed the highest performane. In another study by Korkmaz
and Uygurtürk (2008), it was targeted to determine the timing abilities of fund
managers by comparing retiring funds with investment funds. As a consequence,
during the analysis period it was confirmed   that retiring funds showed beter
performance than investment funds . Atan et all., (2008) conducted a study on
evaluation of performances of some investment funds processed in Turkey by
using the returns in 2003-2008 . In the study investment funds were both one-by-
one analysed and offered an approach that can form an alternative to traditional
methods.

Sarıtaş (2005) analysed the effect of characteristics of investment funds on return
with the regression method . In the study, he confirmed that that there was a
negative relatinship between the return of fund and age of fund risk rate of fund
and standart deviation and a positive relationship   between   the returns of
investment funds and asset values.

Arslan and Arslan (2010) analysed the risk return relation of nvestment funds that
consist of four different groups (Type A Variable funds, Type B Variable fund,
Type A stock fund and Type Market Investment Fund) and relation performance
levels. They diagnosed that investment funds performances were nt in harmony
with each other. By using single regression and quatratic regression techniques,
they showed choosiness and timing abilities of investment funs.

2. RELATIONSHIP BETWEEN   MUTUAL FUNDS AND IMKB 100 INDEX

2.1. Scope and data set

In this study, the effect of the mutual funds on the   IMKB 100 index is
econometrically investigated. As for the the estimation of the effects concerned,
the daily data ranging between 01.04.2001 - 18.02.2011 were used. The data of

the study consist of the daily change of A-Type mutual funds and time series belonging to the variables of the IMKB 100 stock composite index.

2.2. Methods

In the current study, the interaction of the mutual funds and IMKB 100 index for Turkey was investigated.

Firstly, by means of the variables, the data concerned were exposed to a test of stagnation. For this purpose, the variables whether they were stagnated and if they were, at what level they were stagnated were tested by means of the unit root test developed by Phillips-Perron. Then, a co-integration test investigating whether long term relation existed among the variables included in the models was conducted. The study, the Johansen-Juselius co-integration test was used for this purpose. In this method, in order to test if the series was cointegrated with another series, the eigenvalue of the parametre was used.

Finally, through the relation of cointegration, the causal relation and the direction of the relation were investigated by means of Granger causality test. Firstly, the dependent variable was exposed to regression. 'Primarily by putting dependent variable to regression with the delayed values of its own,length of deferment which makes akaike information criterion (AIC) or Schwartz information criterion (SIC) minimum, is determined to be proper length of delay.After the dependent variable was included into the model with appropriate delaying length, the second variables to be included in the model, AIC and SIC values of all regression models with all delays of the second variable were obtained, and the delaying number of the second variable that had the smallest information criterion was determined as the most appropriate delaying number of the second variable (Kadılar, 2000: 54).

2.3. Analysis Results

In the time series analysis, the data should be stagnated. A model that is estimated through non-stagnated data , generally cause spurious regression. Whether regression reflects a real relationship is akin to series' being stagnated.(Gujarati,1995:709). Therefore, in the study, in order to estimate the effect of mutual funds in Turkey on IMKB 100 index, Phillips-Perron (PP) unit root index was applied. Table 1 shows PP unit root test results:

In table 1, the Exchange value used in the mutual funds became stagnated at the level of 1% siginificance , with level values [I(0)], the variable of IMKB 100

index became stagnated with the first difference at the level of 1% significance or that the unit did not include root was also observed.

Results show that the Null hypothesis claiming that there is no cointegration between the variables is rejecetd. Therefore, the mutual funds Exchange and IMKB 100 Index are cointegrated and   there is a longterm relationship between each other.

Table 1. Phillips-Perron Unit Root Test Results

Variable		Level values		1. Spread Values	
		Fıxed	Fıxed/Trendy	Fıxed	Fıxed/Trendy
IMKB		-0.49	-2.09	-47.92[a]	-47.93[a]
A-Type Funds		-34.07 [a]	-34.08[a]	-	-
Critical Values	a=%1	-3.432	-3.961	-3.456	-3.961
	b=%5	-2.862	-3.411	-2.873	-3.411
	c=%10	-2.567	-3.127	-2.573	-3.127

Note: The letters (a), (b), (c) in order display variable's stagnation at the level of 1%, 5%, 10% significance.

Table 2. Johansen-Juselius Co-Integration Test Results

Variables	Null Hypothesis	Alternative Hypothesis	Core Values	İz İst.	Max core value ist	Crtical Value	
						%5 İz	%5 Max
A type fund (4) IMKB (1)	r = 0 r ≤ 1	r = 1 r = 2	0.047 0.001	123.32[a] 3.52	119.80[a] 3.53	18.39 3.84	17.14 3.84

Note:a= The importance shows at the level of 1% significance. The number in paranthesis are the appropriate delaying length,and they were obtained on the basis of AIC and SIC.

Table 3. Granger Causality Test

Variables	Direction Of Causality	F statistics	Probablity
IMKB100–A Type Fund (5) A Type Fund(5) – İMKB100	→ →	1.465 0.343	0.20 0.88

Note: The number in paranthesis are the appropriate delaying length, and they were obtained on the basis of AIC and SIC.

In Table 3, there seem no causality from IMKB 100 Index to mutual funds variable and from the mutual funds variable to IMKB 100 Index

3. CONCLUSION

The aim of this study is to examine the presence and the course of the relationship between investment fund flows for the periods of 2001:4-2011:2 and stock returns.Time-series analysis is used to investigate the relations between these variables.First,Phillips-Berron conducted unit root tests on to specify the stability of series and,then,Johansen-Juselius conducted cointegration tests on to diagnose the presence of long relation among variables.Because variables seem to be co-integrated,Granger Causality Test is carried out having regard to a possibility of being at least one-way causality among variables.

If we look at the studies on this subject in literature,we reach a common impression of which either positive or negative influence of investment fund flows on the stock returns.Johansen-Juselius cointegration tests conducted in the examination showed the presence of a long term relationship between investment funds and stock returns.Besides,Granger Causality Tests conducted on the study of causality couldn't confirm any causality relations between investment fund flows and stock returns.

As a conclusion, acquired evidences show that there isn't any causality between investment fund flows and stock returns although they indicate the presence of a long-term relation between investment fund flows and stock returns in Turkey.

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