

A PANEL DATA ANALYSIS OF THE RELATIONSHIP BETWEEN LEAGUE PERFORMANCE AND THE SHARES OF THE PUBLICLY-TRADED FOOTBALL CLUBS

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Abstract

Financial analysis of football clubs have gained great importance with the increase in the added value created by these institutions which have had a large share in the sports industry in recent years. The aim of this study is to investigate the relationship between the financial performance of the joint-stock companies belonging to the sport clubs which are traded in Istanbul Stock Exchange (BIST) and the sporting achievements of the professional football branches of sports clubs in Spor Toto Super League. Within this scope, it is aimed to determine in what aspects the share earnings that belong to Beşiktaş, Galatasaray, Fenerbahçe and Trabzonspor Clubs are affected by the match results (win, defeat or draw), and by the difference between the numbers of scored and conceded goals in five seasons between the years 2010 and 2015 by using panel data analysis. Moreover, to analyze the effect of the current market, the variables BIST Sporting Index and BIST 100 Index return values were included in the model.

Keywords: Sports, Stock Market, Panel data

Introduction:

Today's sports business is a fast-growing global industry derived by the consumer demand. Sports Market 2015 Report released by PwC predicts that the annual revenue of the global sports industry could rise above USD 145.3 billion by 2015. Today, sports has come to mean a lot more than professional sports activities. The fact that there exists a kind of sport or sports activity for each age group proves that sports is a part of human life from birth to death (Erdemli, 1996:104). Sports, too important to be only a

recreational activity, has gained an industrial dimension, and has taken on a new identity. Sports has become an interdisciplinary field in terms of its goods and services production as well as its consumption aspects. Today, sports and industry are two complementary fields, and even an essential part of each other. Indeed, sports market has a higher money volume than the economies of some countries. Such that, sports market has been separated from the others and evolved into a unique structure. (İyem, 2012:88). In the competitive sports market, all the big clubs, after their incorporation, have been introduced to the capital market with the aim of informing investors about their activities and of meeting their fund needs. Both the finance and sports authorities emphasize the importance of sporting achievement in attracting the attention of investors to the clubs that are open to the capital market.

When considering the financial analysis of the football in Turkey, the clubs which are called "Big Four" and listed in the stock exchange should be taken into account. These four teams with the most significant share of the huge football cake have been incorporated and began to be traded on the Istanbul Stock Exchange in order to liaise with the industrial football market. Among these clubs, Beşiktaş's listing model had been realized in the form of transferring the entire football related income/expenses to the established company. This model is called the English Model. Other three clubs had been listed on the stock exchange in accordance with the model known as the "Income Weighted". However only the revenues of these three football clubs were offered to the public, while one of the most significant cost item in the financial statement of the clubs namely the costs associated with the technical staff were excluded.

The aim of this study is to investigate how the sporting achievements of the professional football branches of publicly traded sports clubs in the largest national league of Turkey, namely in the Spor Toto Super League affect share earnings ratios. To that end, match results will be evaluated in terms of the differences between wins, defeats and draws as well as the numbers of scored and conceded goals; and it will be explored whether there is a relationship between these elements and share earnings. Accordingly, performances of Spor Toto Super League of Turkey football clubs in five seasons from 2010 to 2015 will be analyzed via panel data analysis. This analysis will identify the size and direction of the relation between the results of matches and the clubs' share earnings ratios. Although financial and sporting achievements have, around the world, long been a widely inquired and researched subject, relevant literature in Turkey has remained relatively limited. In previous literature, league success is measured on the basis of wins, defeats and draws. However, in this study it will be assessed in terms of the difference between the numbers of scored and conceded goals.

Additionally, its effect on stock shares will be explored. Accordingly, it will be determined if lopsided wins or defeats financially matter.

Literature

In recent years, football industry has developed a strong bond with capital than ever before, and been nearly taken under the control of capital. Match results are followed closely by large audiences from individuals investing in the stock shares of football clubs to sponsors; and their effect on the shares of a company or financial performance have been widely researched in literature. Szymanski and Hall (2003) make a panel data analysis of the performance of 16 English football clubs that acquired stock exchange listing. In the study; profits, league orders and expenditures of these clubs are assessed for five years before and after listing. They study three different models. The first model shows how salary expenditures affect league performance, while the other two models show how league performance affect stock returns and company profits. The study concludes that there is a strong correlation between league performance and returns and company profit.

Akgören and others (2008) investigate the performance of four big football clubs during the 87 derbies and 90 champions league and UEFA games between the years 2001 and 2007. In doing so, they aim to understand if league performances of these clubs have an effect on share earnings. Survey results suggest that investors gain over-normal profits a day after the matches. On the other hand, in derbies this is true only after defeats. Since over-normal earnings are higher for matches played in Europe, it is possible to say that investors attach higher importance to these matches than derbies. Bell and others (2009) investigate the effects of match results on share earnings of 19 English football clubs between the years 2000 and 2008. They consider some matches (when there is a possibility of championship or a risk of relegation) more important, and accordingly weigh them, because they expect these matches to have a different impact than ordinary matches. They create separate models for each of these 19 clubs and later on reach a single model by using pooled panel data. As result, they come to the conclusion that lopsided wins or defeats have an impact on shares and that results of important matches have a higher effect on the shares.

Benkraiem, Le Roy and Louhichi (2010) analyze the effect of sporting performances on the volatility of the stock shares of English football clubs for the July 2006 – June 2007 period; and utilize ARCH group models for these purposes. According to the results of their analysis, stock valuation of football clubs is affected by the sporting performance. Besides, the size of this reaction depends on the results and venue of the match (home or away game). It is stated that when teams are defeated in their own stadiums, the

level of volatility is higher. Uludağ and Varan (2013), via case study method, analyze how the Super League and National Championship performances of Beşiktaş, Fenerbahçe, Galatasaray and Trabzonspor, all publicly traded football clubs in Istanbul Stock Exchange, affect share earnings. They, for the periods of 2009 – 2010, and 2012 – 2013, assess 633 matches in total. As a result, they find out that defeats and/or draws have a negative effect on earnings. Another point they reach is that investors of Fenerbahçe and Beşiktaş react more strongly to defeats and draws than do the investors of Galatasaray and Trabzonspor. Godinho and Cerqueria (2014) analyze how results of national league matches of 13 football clubs of six different European countries affect stock returns between the years 2012 and 2013 and adopt MGARCH method for these purposes. They assume match results should reflect unexpected components. In view of these, an expectation point is defined in the light of pre-match betting odds. At the end of the study, they define a meaningful correlation between match results and stock performance. Güngör (2014) analyzes how national and international sporting achievements of football clubs affect financial performance indicators, based on the data from the 2007-2012 period via artificial neural network method. As a result, it is concluded that there is a strong correlation between sporting achievement and the total revenue derived from professional football activities; that there is a medium level correlation between sporting achievement and advertisement/sponsorship. It is also concluded that there is a strong correlation between royalty, license revenue and commercial income. Similarly, sporting achievement is found to be strongly related to youth setup expenditures.

Methodology

Panel Data Analysis requires a special kind of data called panel data, which provides the values of each variable for two or more time intervals. It is a viable method in which variables involve multiple regression data (Stock and Watson, 2011: 351). In mathematical terms, it can be expressed as follows:

$$y_{it} = \alpha_i + x'_{it}\beta_{it} + \varepsilon_{it} \quad t = 1, 2, \dots, T; \quad i = 1, 2, \dots, n$$

In the equation, y_{it} represents the value of the i^{th} unit of the dependent variable at the time t , x_{it} represents the value of the i^{th} unit of the independent variable at the time t ; additionally α_i represents mean zero and constant variance error term, and finally β_{it} represents linear trend coefficient. Panel data enriches empirical solutions via methods which wouldn't be applicable if pure cross-sectional or pure time series data was adopted. This should not come to mean that panel data models are free from problems. Advantages of panel data when compared to cross-sectional data or time series data are as follows (Gujarati and Porter, 2014: 592-593);

Panel data estimation methods allow for variables peculiar to individuals, firms, provinces, countries etc.; and take heterogeneous structures of these variables into account. Panel data, which combines cross-sectional data with time series data, “gives more information, is more variable, has lower levels of common linearity among its variables, has higher and more efficient levels of degree of freedom.” Panel data which works on cross-section of observations repeatedly is more suitable in analyzing dynamics of change. Impacts that are not visible in pure cross-sectional data or pure time series data are more visible and better measurable in panel data. For instance, impacts of minimum wage regulations on employment and income can be assessed more profoundly when the successive waves in minimum wages in the respective province or country are taken into consideration. Panel data enables us to analyze more complicated models of behavior. While handling thousands of units of data, panel data minimizes the aberration that might occur when individuals or firms are aggregated in large intervals.

Panel data is classified into two categories, namely balanced and unbalanced data. Balanced panel represents cases when observations are available for each unit and each time interval; while unbalanced data represents cases which lack a value for at least one unit and one time interval (Stock and Watson, 2011: 353). In our study, since all units and observation dates are available, we adopt balanced panel data. At the estimation phase of panel regression, there exist three methods that handle both the time and cross-sectional data dimension of the model. They are “Pooled Panel Data Regression Model”, “Fixed Effects Model” and “Random Effects Model” (Gülaç, 2014:99).

In fixed effects and pooled models, slope parameters are fixed for all cross section observations. In such models, variability of constants is assessed, while time effects are disregarded (Alp, 2011:36). In fixed effects model, variables of the disregarded unit are considered to be constants which are not variable along the time. (Cameron and Trivedi, 2010:261). The assumption underlying the Random effects model is that error components are drawn randomly from a ground mass (Gujarati and Porter, 2014: 606), because it aims to prevent the loss of degree of freedom that appear in fixed effects model (Pazarlıoğlu and Gürler, 2007:38). In regression analysis, it is conventionally assumed that there are factors which affect dependent variable, but are not included in independent variables and that these factors are expressed through random error variable (Alp, 2011: 37). What bears importance in random effects model is not defining specific coefficients of a given unit and time; but defining error components. Random effects model attaches importance to the impact of differences that occur in the observed sample in accordance with the sections, units and time. Finally, it takes off-

sample effects into consideration, as well (Pazarlıoğlu and Gürler, 2007:38). The idea about the best model is based on the assumptions on possible relations among the single i.e. error components peculiar to a given section and the explanatory variables (Gujarati and Porter, 2014: 606). Keeping the basic differences of the two models in mind, some observations conducted in relation to the preference between the two models are:

If the time series data inspected is large, while the number of section units is low; there is not much difference between the estimated coefficient values defined by fixed effects model and random effects model. Choosing between the two models depends on the ease of calculation; however fixed effects model might be more viable. If the number of cross section units is high, and time series data is small, it is called short panel data; and the estimations made through two methods might yield quite different results. If single error component and one or more explanatory variables are related, estimators of random effects model are biased, while fixed effects model estimators are unbiased. Unlike fixed effects model, random effects model can estimate coefficients of such time-constant variables as gender, and race. Besides, fixed effects model can control all time-constant variables, while random effects model can estimate only time-constant models explicitly placed in the model.

Briefly explained, if it is assumed that error component and explanatory variables are not related, random effects model is more applicable. However, if they are assumed to be related, then fixed effects model will serve our purposes better (Gujarati and Porter, 2014: 606-607). Seemingly Unrelated Regression (SUR) method, which, due to its nature, is more advantageous in panel data analysis, is adopted in the study. The method was first suggested by Zellner in 1962 to be used in solving system equations. In Seemingly Unrelated Regression estimation method, all equations are estimated one by one (Aktaş and Hatırlı, 2010). SUR method assumes that estimated equation systems are correlated only in terms of their error terms, and that equations do not form simultaneous equations. Coefficients are estimated by taking a couple of aspects into consideration. More clearly, the correlation of error terms among each other and their correlation with the error terms in other equations as well as heteroscedasticity problem are taken into consideration. In such cases, instead of OLS, Generalized Least Squares Technique (GLS) is adopted (Etkin Özen, 2010: 46). When working on panel data, advantages of using SUR method are as follows (Etkin Özen, 2010: 47): This method allows correlations among different equations that are found in panel data. Since any correlation not explained by the variables of a model is represented by the error term; it is assumed that an external shock which affects a unit has

an impact on other units, as well. SUR method utilizes GLS. This method is more advantageous if error terms are related.

Data identification

The aim of this study is to investigate the relationship between the financial performance of the joint-stock companies belonging to the sport clubs which are traded in Istanbul Stock Exchange (BIST) and the sporting achievements of the professional football branches of sports clubs in Spor Toto Super League. The main hypotheses of the study, which aims at defining the size and direction of the relationship between match results in league matches and share earnings of the four football clubs that take part in Spor Toto Super League of Turkey, are; H_{01} : Share earnings of football teams are not affected by the difference between the numbers of conceded and scored goals. H_{11} : Share earnings of football teams are affected by the difference between the numbers of conceded and scored goals. H_{02} : Share earnings ratios of football teams are not affected by their match results (win, defeat, or draw). H_{22} : Share earnings ratios of football teams are affected by their match results (win, defeat, or draw).

In accordance with these aim and hypotheses, the difference between the numbers of scored and conceded goals of these four football teams as well as their match results and share earning values for five consecutive seasons between 2010 and 2015 are defined as the data set.

Table 1: Defining the Variables

Variables	Definition
WIN	“1” if football team wins the match, and “0” in other cases.
DEFEAT	“1” if the team is defeated, and “0” in other cases.
DRAW	“1” if the result is a draw, and “0” in other cases.
AVERAGE	Difference between the numbers of scored goals and conceded goals.
Earning	Share Earnings of Football Clubs
Sports return	BIST Sporting Index Return Value
BIST return	BIST 100 Index Return Value

If the difference between the numbers of scored goals and conceded goals i.e. average is positive, it means that the team in question has won that given match; while negative values mean that the team in question has been defeated in that given match. If the match results are expressed as “zero”, it means the match has ended in a draw. For instance, on 18.08.2013, Beşiktaş won the game by two points and its average point became 2; while on 22.09.2013, it lost the game by 3 points and therefore the average point is -3. Similarly, its match on 09.12.2013 ended in a draw, and therefore its average point became zero. Clubs’ share earnings series (Earning) is calculated by

dividing the price of trading stocks on a given t day, by the realized value on $t-1$ day. In mathematical terms, it is as follows:

$$Earnings = \left(\frac{price_t}{price_{t-1}} \right)$$

BIST 100 Index Return series and BIST Sporting Index Return series are also calculated by utilizing the same method. The model to be used in the study is developed in order to investigate the effects of lopsided wins and defeats on stock shares. Which is also a convention in the studies by Bell and et.al.(2009) and Cerqueria (2014). In view of these; Model 1: Earnings = $\alpha + \alpha_1 * \text{Average} + \alpha_2 * \text{Sporting return} + \alpha_2 * \text{BIST return}$, Model 2: Earnings = $\beta_0 + \beta_1 * \text{Win} + \beta_2 * \text{Draw} + \beta_3 * \text{Lose} + \beta_4 * \text{Sporting return} + \beta_5 * \text{BIST return}$

Match results of individual teams are obtained from the official statistics of the Football Federation of Turkey, while share values are obtained from FOREX website. In analyses, Eviews 8 and STATA package software are used.

Empirical findings

As a first step in the study, descriptive statistics for share earning series are calculated. When earning series which consist of 1131 observations are analyzed in terms of clubs; earning average for Beşiktaş is equal to 1.001, while it is 1 for Fenerbahçe. As to the earning average for Galatasaray, it is 0.999. Finally, the average for Trabzonspor is 0.999. Throughout the study term, maximum earning value belongs to Trabzonspor (1.21), while minimum earning value belongs to Fenerbahçe (0.80). When coefficient values of kurtosis of the series are analyzed, it is found out that the series have a pointy structure and that they have a positively skewed distribution because coefficients of their symmetrical structure are positive (See Table 2). Graphs for the earning series of teams are provided in Figure 1.

Tablo 2: Descriptive Statistics for Stock Return Series of Clubs

Clubs	Average	Maximum	Minimum	Standard Deviation	Skewness	Kurtosis
BJK	1.001	1.189	0.842	0.034	1.040	9.713
FB	1.000	1.2	0.807	0.031	0.903	12.159
GS	0.9991	1.176	0.870	0.028	0.852	10.166
TS	0.9999	1.219	0.850	0.035	1.045	8.702
Total	1.000	1.219	0.807	0.032	0.997	10.221

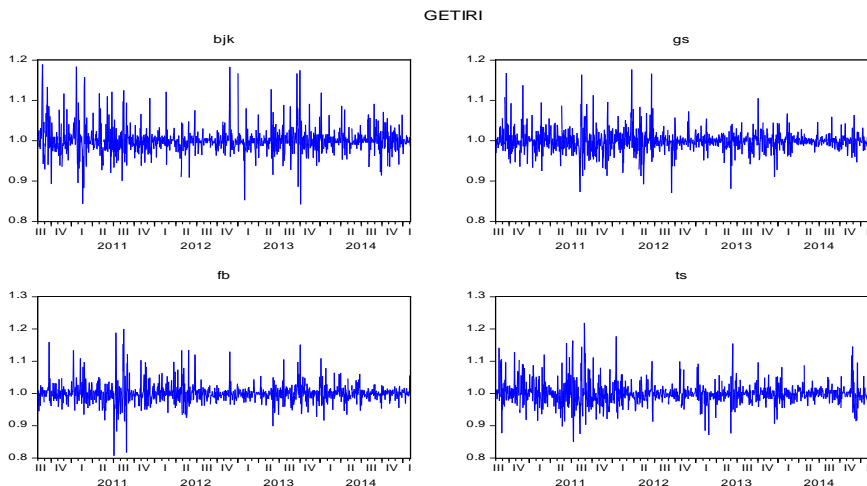


Figure 1: Earning Series Graph

Correlation coefficients of variables which are thought to explain share earning series are provided in Table 3. In the light of the data provided in the table, it is found out that there is a strong and positive directional relationship between earning series and BIST Sporting Index return series. On the other hand, when the dummy variables formed in accordance with the aim of the study are analyzed, it is seen that earning has a positive but weak relationship with the “win” variable, while it has a negative and weak relationship with “both draw and defeat” variables. Apart from this, when compared to other dummy variables, earning is affected more by the “defeat” variable.

Table3: Correlation Matrix of Variables

	Earnings	Win	Draw	Defeat	Average	Sporting return	BISTreturn
Earnings	1.00						
Win	0.04	1.00					
Draw	-0.08	-0.05	1.00				
Defeat	-0.09	-0.05	-0.03	1.00			
Average	0.08	0.62	-0.02	-0.40	1.00		
Sporting return	0.67	-0.02	-0.03	0.00	-0.01	1.00	
BIST return	0.30	0.03	-0.01	0.00	0.03	0.42	1.00

Before starting panel data analysis, it is necessary to check if the data to be used is stationary or not. Unit root tests used in panel data analysis are statistically stronger than conventional unit root tests. All variables should be equally stationary in order to avoid spurious regression which is common in econometric analyses and lead to miscalculations (Halaç and Kuştepli, 2008:7). Levin – Lin – Chu and Im, Pesaran and Shin unit root tests can be

utilized to understand whether the series are stationary or not. LLC test, one of the very first tests to be developed in the area, is used to check if each group in a given panel contains a unit root or not. However, alternative hypothesis of LLC test requires autoregressive coefficient to be homogenous. IPS test, on the other hand, is an expanded version of LLC test and yields heterogeneity in short term dynamics. Besides, it suggests that autoregressive coefficient should be heterogeneous not homogenous as is the case in LLC test. In zero hypothesis of IPS test, not all series are stationary, while in its alternative hypothesis, first degree difference of panel series is assumed to be stationary (Gül and Kamacı, 2012: 85). Within this context, unit root test results for the variables used in analysis are given in Table 4.

Table 4: Unit Root Test Results

Unit Root Test	Earning	Sporting Return	BIST Return
Levin, Lin & Chu t*	-33.63*	-30.16*	-39.09*
Im, Pesaran and Shin W-stat	-31.02*	-30.15*	-31.30*

*, ** and *** stand for significance at the levels of p<%1, p<%5 and p<%10, respectively.

Earning series is accepted to be stationary because tail probability values for all unit root tests are lower than 0,01; 0,05 and 0,1. As of this point, two models, also mentioned previously, are formed by using the variables of the study. Then, it is questioned whether it is fixed effects model or random effects model that is more effective on these two models. In order to answer this question, Hausman test, which is compatible with chi-squared distribution with k freedom degree, is adopted. Hausman test refuses the zero hypothesis which suggest the coefficients of random effects model are identical to the coefficients of fixed effects model. This fact can be taken to mean that fixed effects model yields more efficient results (Bayraktutan and Demirtaş, 2011:9). Hypotheses of the test are: H₀: Random effects model is valid. H_a: Random effects model is invalid.

Table 5: Hausman Test Results

	X ² Statistics	P
Model 1: Cross-section random	16.32	0.0000
Model 2: Cross-section random	45.95	0.0000

*, ** and *** stand for significance at the levels of p<%1, p<%5 and p<%10, respectively.

Model 1: Earnings = $\alpha + \alpha_1$ *Average + α_2 *Sporting return + α_2 *BIST return
 Model 2: Earnings = $\beta_0 + \beta_1$ *Win + β_2 *Draw + β_3 *Lose + β_4 *Sporting return+ β_5 *BIST return

According to the test results, since p value is lower than 0.05 significance level, zero hypothesis is rejected. There is no random effect in the model. As of this point, it will be assumed that there is fixed effect in the model. As of this point, it is questioned whether the error terms of the

formed models involve autocorrelation and heteroscedasticity problems. Hence, Wooldridge Test, which is used to detect autocorrelation problems in panel data analysis, is driven; and its zero hypothesis (Model 1: F statistics tail probability value=0.03, and Model 2: F statistics tail probability value=0.005), which suggests that “there is no autocorrelation”, is rejected. Then, Wald Heteroscedasticity Test is applied to analyze error heteroscedasticity problem, and as a result, its zero hypothesis (Model 1: X2 tail probability value=0.0000, and Model 2: X2 tail probability value=0.0000), which suggests that “there is no heteroscedasticity”, is rejected. In order to eliminate autocorrelation and heteroscedasticity problems, model SUR method is estimated. Coefficients of fixed effects model are provided in Table 6. In mathematical terms, equation of the model can be expressed as follows: EARNING RETURN = 0.022 + 0.002 * AVERAGE + 0.95 * SPORTING RETURN + 0.09 * BIST RETURN + [C_x]

In the light of the model results, the explanatory power of independent variables on dependent variables i.e. R² value is defined to be 87.29%, and the model is statistically valid (F Statistics p<0.05). Constant term and BIST Return variables exhibit significance at the level of 0.05, while the other variables exhibit significance at 0.01. In the model, coefficients of the independent variable express the degree of change occurring in dependent variables in the face of one-unit-change occurring in independent variables. An analysis of the coefficients implies that if the other variables in the equation are “0”, share earnings of football clubs will be equal to the constant term. Besides, thanks to fixed effects model, individual effects for football clubs can be defined by a calculation in which constant coefficients of the clubs are added on the constant coefficient of the model (C+C_x). The coefficient which represents the effect of average point on earnings has a positive relation with share earnings of the clubs. This relation implies that, when the other variables are constant, a one-unit increase in the average point results in a 0.002 level increase in returns in a given period of *t*. Sporting index and stock index returns are included in the model to be able to detect how earnings of the clubs are affected by the current market and by the return of their competitors. Returns of these indices affect earnings of the clubs positively. A possible one-unit change in BIST 100 Index return leads to an increase of 0.09 in stock returns, while a possible one-unit change in Sporting Index leads to an increase of 0.95.

Table 6: Results of the Model-1

Dependent Variable: Return				
Method: Panel EGLS (Cross-section SUR)				
Variables	α	Standard Deviation	t-statistics	P
C	0.022	0.008	2.57	0.01**
AVERAGE	0.002	0.0004	4.54	0.00*
SPORTING RETURN	0.95	0.012	85.05	0.00*
BIST RETURN	0.09	0.012	2.34	0.01**
C_{BJK}	0.0007			
C_{GS}	-0.00074			
C_{FB}	6.35E-05			
C_{TS}	-5.50E-0			
R^2	0.873	Adjusted R^2	0.87	
F-Statistics	5170.7	p (F-statistics)	0.0000*	
Durbin-Watson stat	1.92			

*, ** and *** stand for significance at the levels of $p < 1\%$, $p < 5\%$ and $p < 10\%$, respectively.

Coefficients of shares according to the fixed effects model are provided in Table 9. It is confirmed that match results of the teams, which are assumed to be variables that run the probability of affecting share earnings, are statistically significant according to the fixed effects model. In model, 2 all coefficients are statistically significant. Besides, constant term and BIST Return variables exhibit significance at the level of 0.05, while other variables exhibit significance at 0.01. Equation of the model can be expressed in mathematical terms as follows: $Earning = 0.022 + 0.0034 * Win - 0.0034 * Draw - 0.006 * Defeat + 0.953 * Sporting\ return + 0.026 * BIST\ return + [C_x]$

Table 9: Results of the Model-2

Dependent Variable: Return				
Method: Panel EGLS (Cross-section SUR)				
Period: 8/03/2010 2/03/2015				
Variables	β	Standard Deviation	t-statistics	P
C	0.022	0.009	2.53	0.01**
WIN	0.0034	0.0008	4.39	0.00*
DRAW	-0.0034	0.001	-3.54	0.00*
DEFEAT	-0.006	0.001	-4.28	0.00*
SPORTING RETURN	0.953	0.011	84.62	0.00*
BIST RETURN	0.03	0.01	2.41	0.02**
C_{BJK}	0.00078			
C_{GS}	-0.00085			

C_{FB}	5.50E-05		
C_{TS}	1.63E-05		
R^2	0.862	Adjusted R^2	0.8616
F-Statistics	3522.267	p (F- Statistics)	0.0000*
Durbin-Watson stat	1.91		
*, ** and *** stand for significance at the levels of $p < 1\%$, $p < 5\%$ and $p < 10\%$, respectively.			

When the results of the model are analyzed, in the Model-2, the explanatory power of independent variables on dependent variables i.e. R^2 value is defined to be 86.2% which is lower than that of the Model 1. An analysis of the coefficients of the variables implies that wins of a team have 0.003-high positive effect on earnings, while draws and defeats affect earnings negatively. If a team loses a match, earnings depreciate at the ratio of 0.006, while they depreciate at the ratio of 0.003 if a match ends in draw. In the light of these, it is possible to say that earnings are affected more by defeats while profits and losses in cases of draw or win are equal. As was the case in the previous model, it is found out that share earnings of clubs are affected positively by the current market and by the return of their competitors. Furthermore, a possible change in BIST 100 Index return leads to a change level of 0.03 in stock returns, while a possible change in Sporting Index leads to a change level of 0.95.

Results

Incorporation of football clubs is accompanied not only by institutionalization and professionalism but also by diversification of income sources. Entrance into capital market, as the next step after incorporation, makes it possible to transfer new fund resources to clubs. UK has the highest level of public offering of sports clubs, and the market values of these clubs are pretty high. UK serves as a model in public offerings of sports clubs; and its public offering model, namely “English Model” is accepted by other clubs, as well. This model is the type of public offering which requires the entire sports club to be transferred to the newly established company. As to the public offerings in Turkey, it began with incorporation of football clubs and the transfer of professional football clubs to the newly founded or to-be-founded joint-stock companies. In Turkey, Fenerbahçe, Galatasaray, Beşiktaş, and Trabzonspor football clubs have been offered to public. These clubs became eligible to be offered to public after their incomes were transferred to football A.Ş. or sports A.Ş. (A.Ş. is an acronym for joint-stock company) which were open to stock market. An important point is that except for Beşiktaş, which adopted “English Model”, all the other clubs kept expenditures within the structure of their clubs and

transferred only their income to the newly-founded stock companies of theirs. This can be an interesting point in explaining why clubs except for Beşiktaş are not much affected by the league. Since Beşiktaş has both income and expenditures in the stock market, its investors share not only their profits but also their losses. Therefore investors can be psychologically affected by the situation of their clubs. However, investors of other clubs do not share losses; they might not be interested in league performance, because a faulty transfer case, excessive spending or loss of a cup is not a particular concern for investors.

In line with the aim of this study, match results of the clubs are evaluated in terms of their wins, defeats, draws and the difference between the numbers of scored and conceded goals; and it is explored in two separate models via panel data analysis whether there is a relationship between these elements and share earnings. The resulting models are statistically significant. It is seen that the model formed with average point exhibits a better performance than the one formed in the light of the match results. Besides, as the average point rises, stock shares appreciate in value. Accordingly, it is possible to say that lopsided wins or defeats in leagues have an effect on earnings, and investors care about the number of goals, which is one of the most important criteria in the evaluation of league performance. In the model formed in the light of the match results, it is, as expected, seen that stock shares appreciate in value after win while they go through depreciation after defeats or draws. Moreover, BIST Sporting Index and BIST 100 Index return values were included in both models to be able to understand if earnings of the clubs are affected by the current market and by the returns of their competitors, and as result it was found out that returns of these indices affect stock shares of the clubs positively and that share values of football clubs run parallel to the market.

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