

Investigation of Volatility Relation Between BIST Indexes and Corporate Governance Index

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Extensive Summary

Introduction

Volatility has been a well-documented phenomenon since it is a general indicator of risk. Proper measurement or estimation of risk and return plays a major role in equity investment for the investors. Institutional structure and corporate mechanisms of companies in developing countries are also important as well as the expected return and risk for the portfolio managers who especially manage funds at global scale. Due to the increasing importance of corporate governance, BİST corporate governance index was established on 31.08.2007 with the initial value of 48.082,17. The main motivation in establishing the corporate governance index is to increase the volume of transactions and market depth through providing internationally accepted corporate governance principles for the companies. Thus, global and local market players tend to invest in the companies that meet the obligations.

Corporate governance mechanism can be defined as the principles set that include the roles of stakeholders. Shareholders, managers, creditors, investors, suppliers or any third party feel secure about their investment because of these principles. The historical development of corporate governance also put forward the subject of stakeholder and management issues. Thus, the corporate governance principles published by the CMB were collected in four main categories. These are; shareholders, public disclosure and transparency, stakeholders and board of directors. Many empirical studies reveal that

sound corporate governance practices bring out many advantages such as low capital cost or improved company's image.

The main objective of financial investors is to endure the minimum risk while obtaining maximum return on investments. However, the fluctuations of markets with the macro factors such as globalization, technological developments, competition, exchange rate, etc. or company-specific factors have highlighted the volatility concept. Volatility can be generally described as short turbulent fluctuations in a market or in any securities. Since corporate governance and volatility are vital issues for the investment, we examine the association between the main BIST indexes (BIST30, BIST50, BIST100) and corporate governance index (XKURY) in terms of volatility. The main purpose is to compare the volatility spread of main indexes with the corporate governance index.

Data and Method

In this study, the relationship between L XKURY, LBIST100, LBIST50 and LBIST30 indexes is analyzed for the periods between 31.08 2007 and 27.10.2017 with 2.555 observations. Since the calculation of the corporate governance index started on 31.08.2007, the same date range was used in other indexes.

The stationarity of time series is investigated by the Augmented Dickey-Fuller (1979, 1981) and Phillips-Perron (1988) unit root tests. Since the variables are stationary at their first difference, the cointegration relation among variables is tested by Johansen Cointegration test. Although Johansen Cointegration test states the long – run relationship between the variables, it does not give information about the direction of causality. Therefore, the direction of causality is determined through using Vector Error Correction Model (VECM). In the next stage of the analysis, the ARCH-LM test is separately used to investigate whether the variables have the ARCH effects to compare their volatility. Since all variables have ARCH effects, the mean model is estimated with the appropriate ARMA (p, q) model according to the Schwarz information criterion and the conditional variances models are estimated by using GARCH (a, b).

Findings and Discussions

The trace and maximum eigenvalue statistics show that there is a cointegrating vector between variables for three VAR model. In addition, L XKURY, LBIST100, LBIST50 and LBIST30 indexes are cointegrated. The cointegration relations between L XKURY, LBIST100, LBIST50 and LBIST30 indexes are separately estimated. According to the estimation results, the variables with the highest speed of adjustment are L XKURY and LBIST50. In addition, the speed of adjustment of LBIST100 and LBIST30 are equal. As another analysis of the study, the Granger Causality test based on the VECM is also analyzed. According to the results of Granger Causality, L XKURY is not the Granger cause of LBIST100 but LBIST100 is the Granger cause of L XKURY. Among other variables, there is a two-way causality.

According to the ARCH-LM test results, ARIMA (0,1,0) -GARCH (1,1) model for L XKURY; ARIMA (1,1,1) -GARCH (1,1) for LBIST100; ARIMA (1,1,1) -GARCH (1,1) for LBIST50 and ARIMA (1,1,2) -GARCH (1,2) models for LBIST30 are estimated. The conditional variance with the highest variance is the result of LBIST ARIMA (1,1,1) -GARCH (1,1). In addition, 95% confidence intervals of the conditional variances are included in the study. In all the conditional variances, the effect of the

2008 crisis is clearly visible. Furthermore, when the variances of the conditional variances are examined, LBIST50 which has the highest value.

The volatility between L XKURY and other BIST indexes is estimated by the diagonal BEKK (DBEKK) method, because the volatility of these variables move together over time. For each model, the result of the estimation with the appropriate VECH-GARCH (1,1) -DBEKK model is obtained as the variable pair L XKURY-LBIST100 with the highest cross ARCH effect and the variable pair L XKURY-LBIST50 with the highest GARCH effect. When the conditional correlations are examined, LBIST 30 and L XKURY are close to one almost the whole period; LBIST50 also returns to the negative conditional correlation in December 2012 and is close to one in the other periods. The conditional correlations between LBIST100 and L XKURY are more sensitive than the other two indexes. Since September 2010, the conditional correlation, which is close to 1, has quickly turned negative, and this negative conditional correlation has reverted to positive conditional correlation again in October 2010 and has reached values close to 1 again since January 2011. However, according to the other two indexes, the conditional correlation between LBIST100 and L XKURY reaches the old level with small fluctuations over time.

As a consequence, the index with the highest return is XKURY and the index with the highest volatility is BIST30. According to the estimation results, the variables with the highest speed of adjustment (cointegration) are XKURY and BIST50. According to the results of Granger Causality, XKURY is not the Granger cause of BIST100 but BIST100 is the Granger cause of XKURY. Among other variables, there is a two-way causality. Firms included in the corporate governance index have relatively higher return and lower volatility. Future studies may concentrate on global indexes and different ARCH-GARCH models to contribute to the literature.