

THE IMPACT OF DOMESTIC AND FOREIGN MACROECONOMIC NEWS ON STOCK MARKET VOLATILITY: ISTANBUL STOCK EXCHANGE

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ABSTRACT

The purpose of the present paper is to examine the impact of domestic and foreign macroeconomic news announcements on the Istanbul Stock Exchange for the period between 2002 and 2010. The market reaction to the news announcements is tested within a research window through which the reaction can be filtered. The results indicate that foreign announcements do not have a significant effect, whereas domestic announcements are responsible for observed volatility in the market. In other words, within two consecutive sessions after the news is released, the market shows a marked reaction to the news.

Key words: macroeconomic news announcement, volatility, emerging markets, ISE. **JEL Classification:** E20, G14.

YERLİ VE YABANCI MAKROEKONOMİK HABERLERİN HİSSE SENEDİ PİYASASI OYNAKLIĞI ÜZERİNDEKİ ETKİSİ: İSTANBUL MENKUL KIYMETLER BORSASI

ÖZET

Bu çalışmanın amacı, yerli (iç) ve yabancı (dış) makroekonomik haberlerin yayınlanmasının İstanbul Menkul Kıymetler Borsası üzerindeki etkisini 2002-2010 dönemi için incelemektir. Piyasanın haberlerin yayınlanmasına verdiği reaksiyonun filtrelenebildiği bir araştırma yöntemi çerçevesinde, haberlerin yayınlanmasının etkisi test edilmiştir. Sonuçlar; dış haberlerin anlamlı bir etkisinin olmadığını, diğer yandan iç haberlerin piyasa oynaklığını etkilediğini göstermektedir. Bir başka ifadeyle piyasa, haber yayınlandıktan sonra birbirini takip eden iki seans içerisinde haberlere belirgin bir biçimde tepki göstermektedir.

Anahtar sözcükler: makroekonomik haberlerin yayınlanması, oynaklık, gelişmekte olan piyasalar, İMKB. **Jel Sınıflaması:** E20, G14.

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Scheduled macroeconomic news announcements release new information on the financial market. The impacts of macroeconomic variables are followed closely by the market participants. Investors may react to the domestic macroeconomic news; also foreign news may play a significant role in the investor strategies.

There are many studies focusing on the effects of news on the stock markets. Although these are commonly discussed subjects, the literature generally concentrates only on the effects of firm-related or economy-related news on the stock markets. But the effect of macroeconomic news on the stock markets is a gap in the literature. Although macroeconomic news is released on periodic and preannounced dates, it may have an impact on asset returns and asset return volatility.

The objective of the paper is to analyze the response of the stock market to the release of macroeconomic news. We focus on the impact of domestic and US macroeconomic announcements. US announcements are of interest because the US economy has a leading role in the world economy. As an emerging market, the Istanbul Stock Exchange (hereafter ISE) is attractive to foreign investors. In the recent years more than 70% of the stocks are held by foreigners. Hence, it is likely that foreign news would have an impact on the stock market.

This paper considers the impact on the Turkish stock market of the release of the news related to the most important US and Turkish macroeconomic indicators. Unlike previous studies in this area which have included only a few indicators of one market, this paper takes a more comprehensive approach. Furthermore, it incorporates expectations on macroeconomic indicators into the analysis. The impact of US and Turkish macroeconomic news on stock market volatility is investigated.

The macroeconomic news announcements investigated in the study are consumer price index, GDP growth, current account deficit, interest rate, and the US dollar rate of Turkey. These reports are considered to be the major economic announcements. The role of expectations will be examined. For macroeconomic news releases in the US, macroeconomic variables include producer price index, consumer price index; import and export price index, and regional and state employment and unemployment.

This study contributes to the literature in four main aspects. First, it investigates the effect of the announcement on the stock market by combining the impact of the domestic and foreign news announcements on the ISE. Second, the US macroeconomic news releases are reflected in the ISE market volatility. Third, the paper focuses on a developing country's (i.e. Turkey's) stock exchange, which is one of the leading stock exchanges in terms of return all over the world. Fourth, it includes expectations related to macroeconomic factors in the analysis.

The paper is organized as follows: The first section is a review of the relevant literature. Section two is a brief overview of empirical studies. Section three outlines empirical framework, while the results are presented in section four. Finally, section five concludes the paper.

LITERATURE REVIEW

Kim and Verrecchia (1991) explain the effect of scheduled news announcements with a model which assumes that it is possible for investors to get private information before the announcements and then to trade until the announcements according to their opinions by using this information. The unexpected part of the news explains the price changes after the announcement. In another study, Kim and Verrecchia (1994) alter the model by assuming that investors do not have a chance to get private information, and that results in the increase in volatility after the announcement.

Cutler et al. (1989) find evidence for the negative effect of the inflation rate on stock returns. Pearce and Roley (1985) do not get results supporting the idea that surprises in industrial production and the unemployment rate have a significant effect on the market. On the other hand, Hardouvelis (1987) proves the significant effect of the unemployment rate, trade deficit and personal income.

Bomfim (2003) states that near-term revisions in the Federal Open Market Committee's (hereafter FOMC) policy expectations, like change in the expected average daily value of the funds rate, affect stock returns negatively. There is an abnormally high volatility on FOMC meeting days, although the days around the scheduled FOMC meetings are like other days. When the period is divided into two, such as pre-1994 and post-1993, implying the change in news arrival process for monetary policy decisions in 1994, the results empirically prove both pre-announcement and news effects. The inclusion of surprise in policy announcements does not change the results for the pre-announcement effect but does for the news effect by increasing its magnitude. On the other hand, while the scheduled announcements have preannouncement effects, unscheduled announcements do not. The one-day response of market volatility to scheduled announcements does not differ from those unscheduled.

Another study (Nikkinen et al., 2006) focusing on the effects of U.S.-related news by investigating the reaction of global stock markets to macroeconomic news announcements, indicates that uncertainty is greater than normal during the release days in the G-7 region, European countries, and emerging Asian countries but not in the transition countries and Latin American countries. The results for testing the hypothesis that market uncertainty associated with the announcements of the U.S. economic indicators is reflected differently in volatilities on local stock exchanges show that the employment situation is the most important news announcement. Consistent results are achieved also by Bollerslev et al. (2000), Nikkinen and Sahlström (2004), and Kim (2003). Similarly, Graham et al. (2003) analyze the importance of macroeconomic news releases for stock valuation by focusing on the relative importance of news. The findings indicate that the employment situation and the National Association of Purchasing Managers' Survey on manufacturing have the greatest influence.

McQueen and Roley (1993) reexamine the impact of macroeconomic news on the stock market by taking the business conditions into consideration. They provide evidence that the U.S. stock market's response to macroeconomic news depends on the state of the economy. Despite news of higher-than-expected real activity when the economy is already strong results in lower stock prices, the same surprise causes higher stock prices in a weak economy. In a similar context, Boyd et al. (2005) specifically focus on unemployment news and find an announcement of rising unemployment is good news for stocks during economic expansions and bad news during economic contractions.

Kim et al. (2004) concentrate on the effects of scheduled news both on risk and return. They point out that it is not the act of releasing macroeconomic information which the market considers to be important, but rather the news component of each release. The difference between the expectation of the market and the actual figure is noticeable in the market price. Consumer and producer price information are the news that have the highest impact on the stock market. Furthermore, financial market volatility is found to have increased in response to some classes of announcements and fallen for others.

Albuquerque and Vega (2009) analyze the effect of both domestic and foreign news on fundamentals, and find that US news affects the Portuguese stock market returns.

RESEARCH METHODOLOGY

We designed the research settings in order to explore the possible effects of macroeconomic news on the ISE for the period between 2002 and 2010. Despite the fact that the idea behind this research question has been analyzed for several stock exchanges, this paper is the first attempt to conduct such an analysis for Turkey. The impact window, before and after the news release, has been determined arbitrarily to make sense for this research. The window will be explained in detail in the consecutive sections.

We conducted a time series analysis in exploring the news effect on the ISE 100 Index. To start, we investigated the series, designed for the purpose mentioned, by considering whether the series shows time dependence characteristics or not. Using the ARCH-GARCH family investigation, we selected the relevant model for identifying the volatility of the series. In three identified series, we report an ARCH effect. In addition to this step, we looked at whether the series shows an Autoregressive Process. Choosing the relevant lags and adding the dummy variables, we report the results. In the next sections, we explain the data and variables along with the descriptive statistics of these and the research settings in which our main focus is emphasized. The econometrical investigation is explained in detail in the forthcoming sections, including the inferences.

Data and Variables

The selected macroeconomic news from Turkey and the US are demonstrated in Table 1. The US news includes Import and Export Price Indexes, the Consumer Price Index, the Producer Price Index, and the Regional and State Employment and Unemployment figures. The distinguishing characteristic of the US news is that these are realized values not expectations of the macroeconomic indicators. On the other hand, we examine also the release of expectations about several macroeconomic indicators in Turkey rather than the announcement of their actual values. The idea behind this is that the announcement of actual US macroeconomic news provides more informative characteristics than do the expectations. In contrast, the expectations of the selected Turkish macroeconomic news are more informative than their actual values.

Table 1
Data and Variables

Country	Macroeconomic News	News Type	Frequency	Release Time
USA	U.S. Import and Export Price Indexes	Actual	monthly	8:30
USA	Consumer Price Index	Actual	monthly	8:30
USA	Producer Price Index	Actual	monthly	8:30
USA	Regional and State Employment and Unemployment	Actual	monthly	10:00
TURKEY	Expectation of Consumer Price Index (%)	Expectation	Bi-monthly	16:30
TURKEY	Expectation of the Annual Compound Interest Rate of the 6-month Treasury Bill Auction (%)	Expectation	Bi-monthly	16:30
TURKEY	Expectation of the Annual Compound Interest Rate of the 5-year Semi-Annually Couponed Government Bond Auction (%)	Expectation	Bi-monthly	16:30
TURKEY	Expectation of the Money Market Overnight Annual Simple Interest Rate (%)	Expectation	Bi-monthly	16:30
TURKEY	Expectation of US Dollar Rate in the Interbank Foreign Exchange Market (TL)	Expectation	Bi-monthly	16:30
TURKEY	Expectation of the Current Account Balance (Billion \$)	Expectation	Bi-monthly	16:30
TURKEY	Expectation of the GNP Growth Rate (%)	Expectation	Bi-monthly	16:30

Note: Since the beginning of the announcement of expectation figures in 2001, the Central Bank of Turkey (hereafter CBRT) has made two adjustments for these figures: (i) Due to the information requirements of the fully-fledged inflation targeting, which became effective as of 2006, the questions of the survey were revised. So the longer-term expectations have been reflected better since April 2006. (ii) As it is announced within the Monetary Policy Exit Strategy, which was put into implementation in 2010, one-week repo auction interest rate of CBRT has been declared to be the policy interest rate by the end of May 2010. The source for the US news is the National Bureau of Labor Statistics.

The effects of the above-mentioned macroeconomic news are investigated on the Istanbul Stock Exchange 100 Index. This index is the only index that is being computed since its establishment; hence, it is the most appropriate one to represent the market. It is a type of weighted average index and is computed as follows:

$$E_t = \frac{\sum_{i=1}^n F_{it} \times N_{it} \times H_{it}}{B_t}$$

E_t indicates the index value at period “t”; n is the number of stocks in the index (which is 100); F_{it} is the price of the stock “i” at period “t”; N_{it} is total number of shares outstanding of the stock “i” at period “t”; H_{it} is the ratio of stocks registered as tradable by the Central Registry Agency of the stock “i” at period “t”; and B_t is the adjusted base market value.

Descriptive Statistics

The description of the series investigated is reported in Table 2. We used the ISE-100 Index sessions which produced 4274 valid observations. We excluded those sessions that are closed at 12.00 noon for the reason that we included the closing session in the research framework. Therefore, for the sake of consistency, those sessions are excluded from the analysis. However, this adjustment did not affect the results since the number of these days is quite limited (less than 20) and almost no news was released on these days (less than 2 items).

We produced the artificial series based on the news released and the time that it arrived on the ISE. Series DP is simply the differential of two sessions in which the news is released. Series DR is the differential of one day in which the news is released. Series DT is the differential of two consecutive sessions after the news is released. The number of days in which the US news and the Turkish news are released is 441 and 209 respectively.

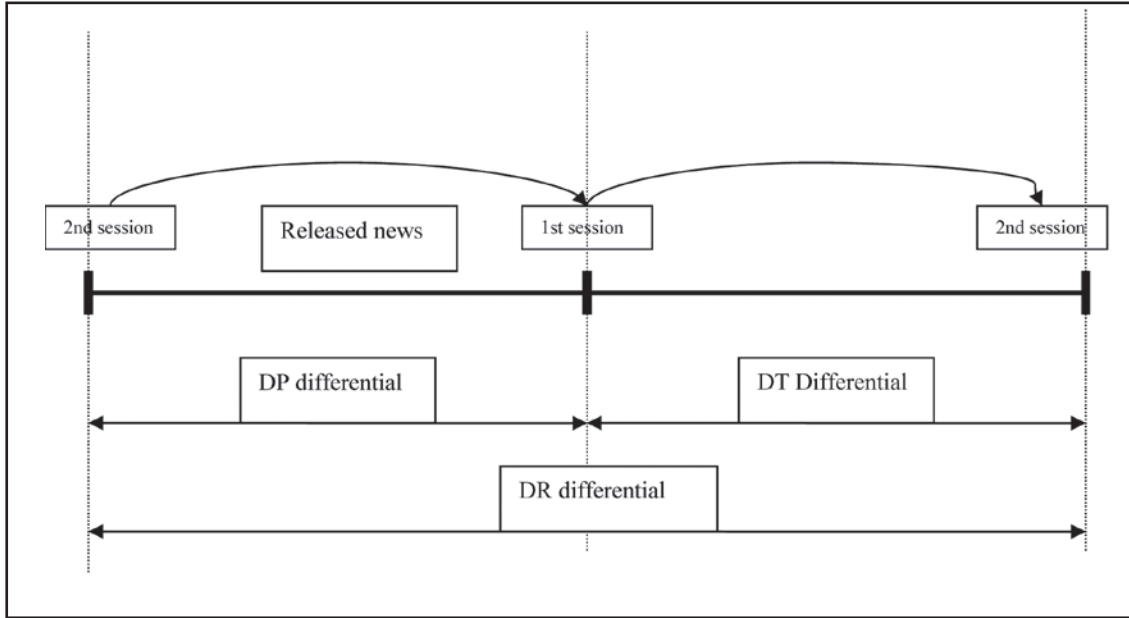
Table 2
Series Identity

Name of the Series	Number of Observations
ISE 100 Index Daily sessions	4274
Series DP	2138
Series DR	2138
Series DT	2138
The US News Dummies	441
Turkish News Dummies	209

Research Setting

The research window is designed to analyze the news effect on the ISE-100 Index based on the session differentials. Figure 1 simply demonstrates how the mechanism works. Within the sessions when the news is released, we calculated the DP differentials in addition to calculating the differentials for the period between session 1 and session 2 when the news is not released. The last differential is the period between two consecutive sessions after the news is released. These combinations are limited for the research conducted here whereas it could be extended for more lags and types. The reason behind the DP differential is that we might explore the actual reaction to the news in the first closing session. However, the other two types of the series have more or less the same significance for evaluating whether the news has any impact. We used the medium frequency data that are session-based whereas the best results could be gained through using high frequency data such as hour-based. This is the critical limitation of the paper.

Figure 1
Research Window



EMPIRICAL FINDINGS

In this part of the paper we analyze whether the US news has a significant effect on the closing prices of the ISE. Here, it is important to note that because of the time difference between the US and Turkey, the effect of the news is expected to be shown on the day after the news arrives. Nevertheless, we take account of all the possibilities, and make the analyses accordingly.

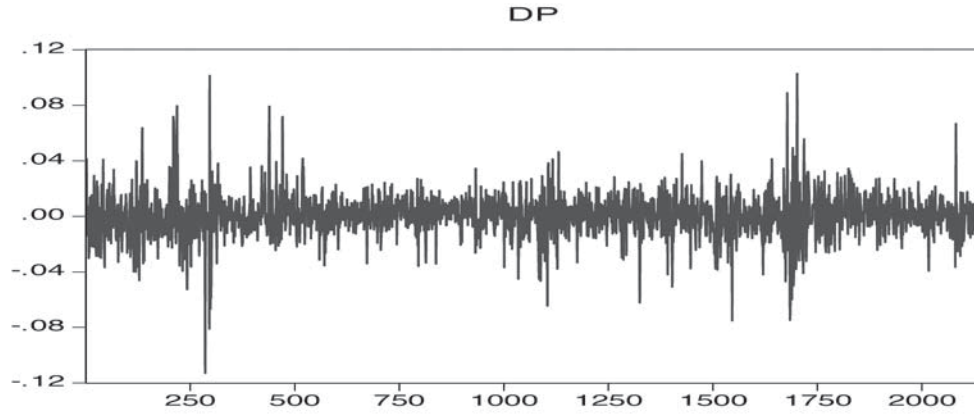
The Effect of the US Macroeconomic News on ISE

In the first place, we look at the effect of the US news on the percentage change of the difference between the closing price of the first session of the day and the closing price of the second session of the previous day. We expect that important news in the US may affect the stock exchange in Turkey. We consider the percentage change of the difference between the two different days and two different sessions because of the time difference.

The first series can be defined as:

$$\Delta P_t = (P_{t(1)} - P_{t-1(2)}) / P_{t-1(2)} * 100 \quad (1)^{(1)}$$

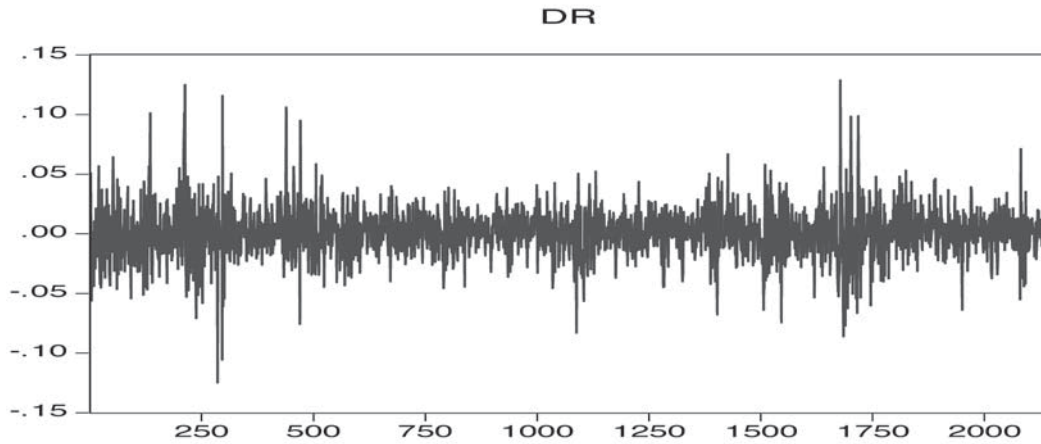
Graph 1
DP Differential



Secondly, we consider the effect of the US news on the percentage change of the difference between the second sessions of two consecutive days. The reason behind this analysis is that the effect of the news can be seen over the whole day after the news occurs. The series can be defined as:

$$\Delta R_t = (R_{t(2)} - R_{t-1(2)}) / R_{t-1(2)} * 100 \quad (2)$$

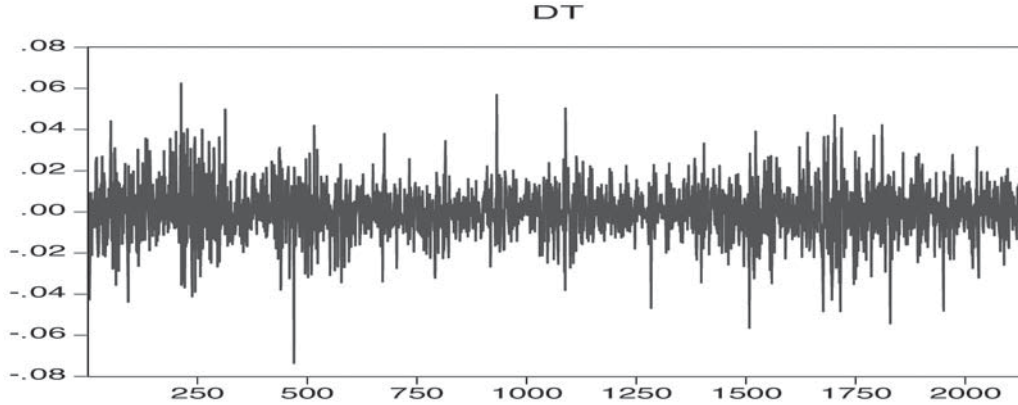
Graph 2
DR Differential



Finally, we look at the effect of the news on the percentage change of the difference between the first and the second session of the day after the news occurs. Here, we think that the consequence of the news may not appear on the day that the news occurs, but rather it may have an effect on the ISE returns of the following day. The series are defined as:

$$\Delta T_t = (T_{t(2)} - T_{t-1(1)}) / T_{t-1(1)} * 100 \quad (3)$$

Graph 3
DT Differential



In order to see the effects of the news for each series, we first run the autoregressive conditional heteroscedasticity (ARCH) model. This is because, as the figures show, there are obvious fluctuations in the series, implying that the changes in these series vary over time. In other words, the series is highly volatile. Hence, we suspect that one of the reasons that drives the volatility is the effect of the news. Later, as the heteroscedasticity occurs in the variance of the error terms of the series, we forecast the heteroscedasticity-consistent estimates from the OLS regression to see whether the volatility of the series appears because of the news coming from the US. The regression process can be defined as follows:

$$\Delta(\text{Series Name})_t = \alpha + \sum \beta_i x_{it} + \theta \text{news} + \varepsilon_t \quad (4)$$

Here news is a dummy variable: it is equal to 1 if the news occurs during the period that is considered and it is equal to 0 otherwise. X_{it} refers to other explanatory variables. These explanatory variables are the lagged value of the dependent series or error term depending on whether the series is the autoregressive process (AR) or the moving average process (MA).

To be able to find whether the ARCH effect exists or not, we first run the regression of the form below:

$$\Delta P_t = \alpha + u_t \quad (5)$$

After obtaining the residuals from the proceeding regression we estimate the ARCH model. We estimate several ARCH models whereas only the ARCH(1) model is found to be statistically significant. However, a generalized conditional heteroscedasticity (GARCH) model is found to be significant as well. Thus, we conclude that the conditional variance of u at time t depends not only on the squared error term in the previous time period but also on its conditional variance in the previous time period. Thus we can formulate our GARCH(1,1) model as follows:

$$\sigma_t^2 = \alpha_0 + \alpha_1 u_{(t-1)}^2 + \alpha_2 \sigma_{t-1}^2 \quad (6)$$

and the result is:

Equation	$\sigma_t^2 = 0.00001 + 0.11u_{(t-1)}^2 + 0.85\sigma_{t-1}^2$
<i>t</i> -statistic	(11.865) (67.722)
Prob.	(0.0000) (0.0000)

After determining the ARCH and GARCH processes, we consider whether the volatility is seen because of the news by running a simple OLS regression. However, since the series follow the GARCH(1,1) process we have to estimate heteroscedasticity consistent estimators in the following regression:

$$\Delta P_t = \alpha_0 + \alpha_1 \Delta P_{t-1} + \alpha_2 \text{news}_t + \varepsilon_t \quad (7)$$

We use ΔP_{t-1} as the independent variable because the series ΔP_t follows an AR(1) process, found by following the Box-Jenkins methodology. The result is:

Equation	$\Delta P_t = 0.0007 + 0.0452\Delta P_{t-1} - 0.0007\text{news}_t + \varepsilon_t$
<i>t</i> -statistic	(1.293) (-0.709)
Prob.	(0.195) (0.478)

The results indicate that the impact of the US news has a statistically insignificant effect on the volatility of the ISE-100 Index if the DP differential is chosen as a research window. In other words, the impact of the news is not significant within the period of two sessions in which the news is released.

For the series R_t we apply the same methodology. Firstly, we run the following regression:

$$\Delta R_t = \alpha + u_t \quad (8)$$

After obtaining the residuals from the proceeding regression we estimate an ARCH model. The lagged squared disturbance term is statistically significant, meaning that there is an ARCH effect. Again, for the series R_t , we then tried the higher-order ARCH models as well as the GARCH models, and we also found that the GARCH(1,1) model is significant. The formulation of our GARCH(1,1) model is:

$$\sigma_t^2 = \alpha_0 + \alpha_1 u_{(t-1)}^2 + \alpha_2 \sigma_{t-1}^2 \quad (9)$$

and the result is:

Equation	$\sigma_t^2 = 0.000001 + 0.10u_{(t-1)}^2 + 0.869\sigma_{t-1}^2$
<i>z</i> -statistic	(10.864) (78.606)
Prob.	(0.0000) (0.0000)

After determining the ARCH and GARCH process, we test the effect of the news by running a simple OLS regression. However, since there is volatility, we have to estimate heteroscedasticity consistent estimators in the following regression:

$$\Delta R_t = \alpha_0 + \alpha_1 \text{news}_t + \varepsilon_t \quad (10)$$

Since the series follows neither an AR nor a MA process, here the series are regressed only on the dummy variable. The error term refers to other shocks that are not explained by the model. The result is:

Equation	$\Delta R_t = 0.0010 - 0.0006 \text{news}_t + \varepsilon_t$
<i>t</i> -statistic	(-0.0006)
Prob.	(0.6171)

The results indicate that the US news does not have a statistically significant effect on the volatility of the ISE-100 Index when the paper employs the DR differential as a research window. In other words, the impact of the news is not significant within the period of the day in which the news is released.

Lastly, we have found that the series T_t follows both an autoregressive process of an order 1 (AR(1)) and a moving average process of an order 1 (MA(1)). We again run the following regression of the form:

$$\Delta T_t = \alpha + u_t \quad (11)$$

After obtaining the residuals from the preceding regression we estimate the ARCH model. Since the lagged squared disturbance term is statistically significant, there is an ARCH effect. The result shows that the series follows the GARCH(1,1) model:

$$\sigma_t^2 = \alpha_0 + \alpha_1 u_{(t-1)}^2 + \alpha_2 \sigma_{t-1}^2 \quad (12)$$

the result is:

Equation	$\sigma_t^2 = 0.0000004 + 0.05 u_{(t-1)}^2 + 0.91 \sigma_{t-1}^2$
<i>z</i> -statistic	(7.242) (96.283)
Prob.	(0.0000) (0.0000)

After determining the ARCH and GARCH processes, we test the effect of the news by running a simple OLS regression. We derive the heteroscedasticity consistent estimates from the regression below:

$$\Delta T_t = \alpha_0 + \alpha_1 \Delta T_{t-1} + \alpha_2 \text{news}_t + \alpha_3 u_{t-1} + \varepsilon_t \quad (13)$$

Here, the variable u_{t-1} , the lagged value of the error term from the regression, is added as an explanatory variable since the series follows the ARMA (1,1) process.

The result is:

Equation	$\Delta T_t = 0.0003 - 0.7777 \text{AR}(1) + 0.7207 \text{MA}(1) + 0.00006 \text{news}_t + \varepsilon_t$
<i>t</i> -statistic	(-7.4532) (6.2634) (-0.0907)
Prob.	(0.0000) (0.0000) (0.9277)

The results indicate that the impact of the US news has a statistically insignificant effect on the volatility of the ISE-100 Index when the DT differential is chosen as a research window. In other words, the impact of the news is not significant within the period of two consecutive sessions after the news is released.

The Effect of Turkish Macroeconomic News on ISE

In the previous section we showed that there is no significant effect of the US macroeconomic news on the ISE-100 Index. In this section, we follow the same methodology to investigate the impact of the Turkish news. Since we have already characterized the volatility pattern of the series, we give only the regression results with the dummy variables of the Turkish news for three series:

DP Differential result is:

Equation	$\Delta P_t = 0.0007 + 0.04616\Delta P_{t-1} - 0.0012\text{news}_t + \varepsilon_t$	
<i>t</i> -statistic	(1.326)	(-0.877)
Prob.	(0.184)	(0.380)

DR Differential result is:

Equation	$\Delta R_t = 0.0008 + 0.0006\text{news}_t + \varepsilon_t$
<i>t</i> -statistic	(1.788)
Prob.	(0.7229)

DT Differential result is:

Equation	$\Delta T_t = 0.0001 - 0.7791\text{AR}(1) + 0.7215\text{MA}(1) + 0.0018\text{news}_t + \varepsilon_t$		
<i>t</i> -statistic	(-6.4863)	(5.5036)	(1.8672)
Prob.	(0.0000)	(0.0000)	(0.0620)

The results indicate that the impact of the Turkish news has a statistically insignificant effect on the volatility of the ISE-100 Index if DP and DR differentials are chosen as a research window. In other words, the impact of the news is not significant within the period of two sessions in which the news is released and the day in which the news is released. However, the results for the DT differential show that the impact of the news about expectations on macroeconomic indicators is significant at a 10% level. In other words, within two consecutive sessions after the news is released, the market shows a considerable reaction to the news.

The Effect of the US and Turkish Macroeconomic News on the ISE

The last part of the analysis combines the US and Turkish news and investigates them together. We reported only the significant results for sake of simplicity. The result is the same for the DT differential and the news as they both produce a significant impact on the ISE-100 Index. In a formal framework:

DT Differential result is:

Equation	$\Delta T_t = 0.0002 - 0.777\text{AR}(1) + 0.719\text{MA}(1) + 0.0019\text{TRnews}_t - 0.0003\text{USnews}_t + \varepsilon_t$			
<i>t</i> -statistic	(-6.4863)	(5.5036)	(1.9150)	(-0.4609)
Prob.	(0.0000)	(0.0000)	(0.0556)	(0.6449)

The results show that when the impact of all the news is examined, only the Turkish macroeconomic news has a significant effect within two consecutive sessions after the news is released.

Discussion

A number of important conclusions can be drawn from the results summarized in Table 3. First, the Turkish stock market does not respond to the release of any scheduled U.S. macroeconomic news. Second, the Turkish macroeconomic news does show an impact on the stock market's volatility. The market reacts to the news within two consecutive sessions after the news is released.

Table 3
Summary of the Volatility Impact of US and Turkish News on ISE

	US news impact			Turkish news impact			Turkish and US news impact
	<i>DP Differential</i>	<i>DR Differential</i>	<i>DT Differential</i>	<i>DP Differential</i>	<i>DR Differential</i>	<i>DT Differential</i>	<i>DT Differential</i>
<i>Constant</i>	0.0007	0.0010	0.0003	0.0007	0.0008	0.0001	0.0002
ΔP_{t-1}	0.0452			0.0462			
<i>AR(1)</i>			-0.7777*			-0.7791*	0.777*
<i>MA(1)</i>			0.7207*			0.7215*	0.719*
<i>TRnews</i>				-0.0012	0.0006	0.0018	0.0019***
<i>USnews</i>	-0.0007	-0.0006	0.00006				-0.0003

Note: *, **, *** denote 1%, 5% and 10% significance respectively.

Lastly, the finding that macroeconomic news announcements have an impact on the stock market is consistent with the finance models that argue that the release of public information induces volatility (Bomfim, 2003; Foster and Viswanathan, 1993).

CONCLUDING REMARKS

The main goal of this paper is to deepen our understanding of the impact of macroeconomic information releases on the stock market. To that end, the paper theoretically identifies and empirically documents the domestic and foreign news effects on the Turkish stock market volatility. In addition, the expectations on fundamentals are incorporated into the analysis. Volatility models are developed and then the effect of the foreign and domestic news on the stock market volatility is tested.

The results indicate that foreign announcements do not have a significant effect, whereas domestic announcements are responsible for observed volatility in the market. In other words, within two consecutive sessions after the news is released, the market reacts considerably to the news.

The findings of the present study raise other fundamental points that are not addressed here. First, why is there no response by the stock market to the U.S. news? A study of business conditions in the economy might help to address that question. Second, does the frequency of data have any impact on results? The best results can be achieved when high frequency data are studied. The findings that the paper reports also have interesting implications that need to be further investigated to find which factor is the most influential. However, we are still far from concluding how foreign and domestic

news affect the long term economic perspective in Turkey. This question requires a longer term data set which we strongly recommend for further research.

NOTE

The subscript t indicates the series at time t , and $t-1$ indicates the series at time $t-1$. The subscripts in the paranthesis indicate the session. For instance $P_{t(1)}$ refers to the session 1 of the series P at time t . The other series are defined accordingly.

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