Chapter 15
Effect of Migration Fear on Sectors: Case of Developed European Markets

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ABSTRACT
The principle aim of this chapter is to determine the different dimensions of the relationship between migration fear index and stock market sectors indices of basic materials, financials, healthcare, industrials, and technology for Germany, France, and the UK. Towards this aim the relationship between the aforementioned indices are tested using traditional methods in addition to Bayer and Hanck combined cointegration test and Yılancı and Bozoklu time-varying asymmetric causality test. Analysis revealed that Germany financials, France technology, and the UK healthcare sector indices have long-term relationships with migration fear indices. Another important finding is that each country's basic materials sector index is not cointegrated with fear indices. Findings also indicate that each country's sector indices are asymmetrically affected by political developments like immigration legislation and regional events like the Arab Spring and the European refugee crisis.

INTRODUCTION
The sectors involved in financial markets are structures in which many units interact with each other and, which are highly complex systems. Even if the external factors that determine these interactions vary from country to country, some variables such as market indices and transaction volume exhibit universal behavior. Investors analyze these interactions in the decision-making process and use the information they obtained from the analysis in future investment decisions.

The basic expectation of a rational investor is to get maximum return depending on the risk perception. However, social and financial shocks experienced in global and regional levels have an impact on investor decisions. For example; the refugee crisis that millions of people have been forced to refuge from their homes since 2000 has affected many countries in different ways. Especially at the end of
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the Arab Spring, refugee waves from the Middle East and North Africa are causing major problems in European countries. Fears of terror and crime arising as a result of such large flows of migration have significant impacts on the entire financial system, depending on the property market, social services, government expenditures, different sectors (Beerli & Peri 2015; Boeri, Philippis, Patacchini, & Pellizzari, 2015). This affects the financial markets in Europe and therefore the decisions of investors who invests in these markets.

Investors can make asset allocation decisions based on the sectors in the stock market in order to benefit from diversification at the highest level while creating their portfolio. However, as a result of different types of crises such as the refugee crisis, opportunities for investors to obtain high returns at low risk by diversifying their portfolios are reduced and therefore, it turns out that the analysis needs to be done in a more comprehensive way. While economic crises could have negative effects on certain sectors in the long-term, social events could have positive effects on some sectors in the short term. For this reason, investors need to be identified with different aspects of events that affect asset allocation decisions in order to determine the right portfolio management policies.

As the behavioral finance discipline stated, the fear is an important factor that affect the decisions of the investors. Although there are many studies in the literature that examine the effects of the migration/immigration problem on the economy through macroeconomic variables, there are only few studies on the impacts of migration on the stock markets. Furthermore there is no detailed study analyzing the effects of migration fear on sectors, since migration fear is very difficult to digitize. But Baker, Bloom, & Davis (2015) created migration fear indices for countries such as Germany, France and UK by scanning newspaper articles from the term sets “migration” and “fear”. The term set of migration contains the words: border control, Schengen, open borders, migrant, migration, asylum, refugee, immigrant, immigration, assimilation, human trafficking, and the term set of fear contains the words: anxiety, panic, bomb, fear, crime, terror, worry, concern, violent. They count the number of newspaper articles with at least one term from each of the migration and fear term sets, and then divide by the total count of newspaper articles (in the same calendar quarter and country). From this point of view, the effect of migration fear on sectoral stock indices can be investigated by help of aforementioned indices. In this context, under the assumption that migration fear has an effect on investment behavior, the principal aim of this study is to determine the various dimensions of the relationship between the migration fear index and sector indices for Germany, France, and the UK. Hence, the principal hypothesis of the study can be expressed as:

$H_0$: There is no relationship between sector indices of Germany, France, and the UK and migration fear index.

$H_1$: There are relationships in different dimensions between sector indices of Germany, France, and the UK and migration fear index.

Testing this hypothesis is also expected to answer the following questions:

- Which sector indices are cointegrated with the migration fear indices?
- Which sector indices have long-term relationships with all migration fear indices taken into consideration?
- Which sector indices are not affected by all the migration fear indices taken into consideration?
- Which sector indices are related to migration fear indices of other than its own country?
- Which events have effects on the time-varying asymmetric relationships between sector and migration fear indices?