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Article

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THE ANALYSIS OF RELATIONSHIP BETWEEN PARTICIPATION-30 INDEX IN TURKEY AND COMMODITY MARKETS, NATIONAL AND INTERNATIONAL INDEXES¹

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Abstract

The aim of this study is to demonstrate the relationship between Participation-30 index in Turkey and commodity markets, national, international indexes. Islamic finance is increasingly being the research subject of finance literature. Islamic finance shaped by religious principles and prohibits investing areas that the religion doesn't consider appropriate. In 2011, the Participation-30 index consisting of stocks in accordance with the participation banking principles was created in Turkey. The participation index is a stock exchange index in which stock selections are made based on index rules. Then, in 2014, the Participation-50 index and Model Portfolio index were created, and three participation indexes were started to be calculated. Islamic finance mainly operates on the basis of profit and loss sharing and supports the real sector. In this context the activity fields of the companies which are operating in participation indexes are based on production of goods and services so that the indexes have a special importance for commodity markets and commodity indexes. As the results of our research, one-way causality between Participation-30 index and Dow Jones Islamic Market was determined. However, we determined bi-directional causality between Participation-30 index and BIST 100 index.

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JEL Classification: G10, G15,

1. Introduction

Recent economic and financial crises around the world have led investors to seek for alternative investment instruments and new financial products that new financial products and financial services have been started to include in their investment portfolios. The global crises occurred in 2008-2009 period and the public debt crises across the countries in 2010 highlighted the importance of systematic risks once again and accelerated the diversification of national and international portfolio investors in their portfolios.

The developments have increased the interest in Islamic finance and the products suggested by Islamic finance. Islamic finance is shaped according to religious principles and prohibits investing in areas that Islam does not consider appropriate. In this context, Islamic finance provides a model that supports real sector financing directly, doesn't involve any earnings based on interest and put forth a structure operating profit/loss sharing basis. This puts Islamic finance the shares of the companies operating within the framework of Islamic finance in close relationship with macroeconomic variables as well as the commodity prices. The fact that commodity markets are negatively correlated with bond and stock prices and positively with inflation appears to be an advantage in commodity markets attracting investors (Doyle et al., 2007). Many types of commodities are subject to purchase and sale in the commodity markets. However, because of their high volatility and impact power, crude oil and gold are more prominent in research (Hussein et al., 2013; Khan and Masih, 2014; Abdullah et al., 2016; Arshad, 2017; Mishra et al., 2019).

Stock investments were not seen as religiously legitimate investment areas until the last periods of the 20th century, but in the following periods, it was put forward that it is possible to invest in stocks of Islamic eligible companies. In this context, the DMI 150 (Dar al Mal al-Islami) index was first launched in April 1998, in which the performances of the largest 150 companies operating according to Islamic procedures and principles were monitored. After that in the same year SAMI (Socially Aware Muslim Index) which monitors the performances of 500 companies, was established (El Khamlichi et al.,

2014: 2). In 1999, Dow Jones Islamic Market Index has taken its place in the market and this index includes companies that are in compliance with Islam and interest-based debt/capital ratio not exceeding 33%. Today there are many Islamic indexes such as MSCI, S&P and FTSE.

The indexes which are defined Islamic indexes in the world, called participation indexes in Turkey. The first participation index in Turkey is Participation-30 index that starts to operate in 2011 in Turkey. After Participation-30 index, Participation-50 index and Modern Portfolio index were established. Thus, three participation indexes have emerged that operating in Borsa Istanbul (BIST) in Turkey.

The participation-30 index which is the subject of our research is a stock exchange index that consist of stocks in accordance with the principles of Islamic banking. The index includes companies that comply with the principles of Islamic banking. According to this:

- Interest-based financing, trade, services, and intermediation,
- Alcoholic beverages, gambling, and games of chance,
- Pork and similar food,
- Tourism, entertainment, press, publication, and advertisement,
- Tobacco products and weapons,
- Futures gold, silver, and currency trade,
- the index covers companies of which field of activity does not involve. In addition, companies to be included in the index must meet certain financial rates. According to this:
 - The rate of total interest loans of companies to market value should be lower than 30%,
 - The rate of interest-bearing cash and securities to market value should be lower than 30%,
 - The rate of income obtained from the mentioned activities to total income should be lower than 5% (http://www.katilimendeksi.org/content/userfiles/files/ke30_sunum.pdf, Accessed; 13 October 2019).

In this study causality between Participation-30 index listed in Borsa Istanbul in Turkey and commodity markets (Gold ounce and crude oil) and Dow Jones Islamic Market World index were investigated. Participation-30 index has the largest time series among the participation indexes in Turkey and daily data of Participation-30 index were used between 07.01.2011 and 01.08.2019. In the study also CIPS unit root test was executed. In terms of the methodology, the study is the first one which investigated the relationship between

participation indexes and commodity markets and international indexes by using the causality test developed by Dumitrescu and Hurlin in 2012.

Our study consists of six chapters. The first chapter is the introduction and following second chapter is literature review. In the third chapter we emphasize the purpose of the research, methodology has taken its place in the fourth chapter. Our fifth chapter is discussion and finally conclusion is the sixth chapter of our research.

2. Literature review

Islamic banking, Islamic finance and Islamic finance products have emerged as an alternative model to the products of conventional financial system after the global financial crises in the world especially after the 2008 crisis. Participation banks and participation index companies which are operating in accordance with Islamic procedures and principles have taken their place in the economy as an option for investors who want to protect their investments from fragilities and financial crises.

In this context Islamic finance literature has made a significant improvement in the last ten years. Islamic indexes are called participation indexes in Turkey. Commodity markets and participation indexes are directly related to each other so the relationship between commodity markets and participation indexes have become more important because of the activity fields of the companies which operate in participation indexes. Besides, the relationship between participation indexes and the international indexes is also important in terms of portfolio management and risk management.

The first studies between Islamic indexes and commodity markets belong to Hussin et al. (2012). Dow Jones Islamic Market World, Dow Jones Industrial Average, FTSE Bursa Malaysia Emas Shariah Index and Borsa Istanbul National 100 indexes are the subjects of the studies in terms of national and international researches (Hussin et al., 2013; Khan and Masih, 2014; Hammoudeh et al., 2014; Yıldız, 2015; Seçme et al., 2016; İbrahim et al., 2018). Hussin et. al (2012), investigated the effects of oil price shocks and macroeconomic variables on Malaysian Islamic Stock Market. Vector Auto Regression (VAR) method, Johansen-Jeselius cointegration test and VECM Granger causality test were applied as methods. The data of during the 2007-2011 period were analysed. The results obtained from the research shows that, cointegration between Islamic Stock prices, oil

prices and macroeconomic variables was determined. According to the Granger causality test no relationship was fixed between Islamic stock prices and crude oil prices.

Hommoudeh (2015) investigated the relationship between Dow Jones Islamic Market Index and three major global equity indexes (Asia, Europe, and United States) and the global factors (oil prices, stock market volatility, U.S.-10 year bonds, 10 year European bonds). The daily data for the period 04 January 1999 to 22 July 2013 were analysed. According to the results, Islamic markets are not enough restrictive to make the global Islamic equity market index very different from the conventional indexes.

Khan and Masih (2014) investigated the relationship between Islamic stock markets and commodity markets in research. In their research Dow Jones Islamic Market as Islamic stock market and energy, precious metal sector, agricultural products, non-ferrous metals and soft products as commodity markets were analysed. MGARCH-DCC model was used as the method and daily data between 03 January 2001-28 March 2013 were analysed. According to the results, they show that the correlations between commodity and Islamic stock markets evolve through time and are highly volatile, particularly since 2007-2008 financial crises. Also, at the idiosyncratic level, a speculation phenomenon is highlighted for energy sector (oil) while the safe-haven role of precious metal sector (gold) is evidenced.

Ülev and Özdemir (2015), analysed the relationship between Participation-30 index, BIST-100 index and market interest rate covering the 2011-2014 period. Zivot-Andrews unit root test and Toda-Yamamoto causality test were applied as methods. According to the results of the research, no causality was determined between Participation-30 index and BIST 100 index.

Yıldız (2015) examined the risk and the return characteristics of Participation-30 index and BIST 100 index. As method paired t test was used and during the period of 06 January 2011 to 31 October 2014 daily data were analysed. According to the results, there is no significant difference between the returns of indices. Participation-30 index overperformance to the counterpart on the entire and in most of all sub periods. Islamic filtering doesn't have an adverse effect on the Participation-30 index performance.

Altın and Caba (2016) identified the performances of participation indexes and evaluated BIST 100 index (defined as market index including all sector related indexes traded in Borsa Istanbul) in

terms of abnormal returns in their study. During the time period of 01 January 2015 to 31 December 2015 daily data were analysed and examine the statistical significance. According to the results, participation indexes generate returns above the average stock market. Besides, 25 of 33 indexes yielded returns above average and supported the findings that are in spite of efficient market hypothesis.

Seçme et al. (2016) examined the return performance and volatility behaviour of Borsa Istanbul 100 Index and Participation-30 Index. GARCH and EGARCH methods were used in the study. Secondly, the relationship between both indexes is analysed. Thirdly, the return performance of Participation-30 index and Borsa Istanbul 100 index are compared. Lastly in their study they examined the relationship between Participation-30 Index, Dow Jones Industrial Average Index and Dow Jones Islamic Market World. According to the results, it was determined that the volatility of the Borsa Istanbul 100 Index is higher than Participation-30 Index. Both indexes give more reaction to the negative shocks than positive shocks. A strong relationship was detected between Borsa Istanbul 100 Index and Participation-30 Index. According to the results, beta is less than one but close to one therefore Participation-30 Index can be included the investors' portfolios for minimizing the risk. When the index performances are compared Participation Index has better performance. There is a poor relationship between Participation-30 Index and Dow Jones Islamic Market World and beta is less than one.

Sakarya et al. (2018) investigated the cointegration and causality between Participation-30 Index and commodity markets (Gold ounce and Brent Oil). According to the obtained results, there was no cointegration relationship between the Participation-30 Index and commodity markets. This shows that if an investor who invests in gold or oil besides the Participation-30 will have portfolio diversification and minimize the portfolio risk. In the study they couldn't find any relationship between variables according to the results of causality and Participation 30 Index has an independent structure from commodity markets.

Ibrahim et al. (2018) investigated if Islamic stock and commodity market could be a hedging tool against inflation. Thus, several methods such as unit root test, Johansen's cointegration test, LRSM (long-run structural modelling), VECM (vector-error correction modelling), VDC's (variance decomposition), IRFs (impulse response functions), PP (persistence profile) were applied as methods. The

results show that the performance of the Kijang Gold is dependent on FTSE Bursa Malaysia Emas Sharia's Index, strategic commodities and macroeconomic variables. It was suggested to investors and investment portfolio managers to include Islamic shariah equities, crude palm oil and crude oil commodities as part of their investment portfolios to diversify and also to hedge the investments.

Trabelsi (2019) aimed to investigate the connectedness of Islamic Stock Markets in the United States, the United Kingdom, Europe, Gulf Cooperation Council, Asia-Pacific and across different asset classes (bond, gold and crude oil). Dynamic variance decomposition and was used as method in the research. During the period of 07 November 2005 to 31 March 2015 daily data were analysed. According to the results of the research, the United Kingdom and European markets are better to manage the high volatility. Gulf Cooperation countries are the smallest regions where high volatility is least observed and reflects to other markets. In addition, the volatility change of Islamic commodity markets is higher than that of conventional commodity markets. In the research it is specified that Islamic financial markets can provide different investment opportunities and develop financial stability.

Mishra et al. (2019) investigated the relationship between global crude oil prices and Dow Jones Islamic Stock Index. Quantile regression model was used as method in the research and during the period of 01 January to 13 April 2018 daily data were analysed. According to the results of the research, crude oil prices affect the Islamic stock indexes. The positive effect of oil prices continues throughout the original time series. However, when the time series are divided, the positive effect of oil on Islamic markets decreases and the negative effect strengthens.

3. Research method

Participation index was used to present the participation indexes in the research. The reason to prefer the Participation-30 index that it has the largest time series among the participation indexes. While the starting date of Participation-30 index is 07 January 2011, Participation-50 index and Modern Portfolio index has started to operate in 09 July 2014. Augmented Mean Group-AMG (Bond and Eberhardt, 2009) and Common Correlated Effects Mean Group-

CCEMG (Eberhardt and Teal, 2010) were used as estimators in the research. CIPS unit root test was also exerted in the research.

In our research we also used the causality test which has been developed by Dumitrescu and Hurlin (2012). We analysed the daily data during the period of 07 January 2011 to 01 August 2019. In the literature review we determined that the observation frequency is almost daily (Altın and Caba, 2016; Seçme et al., 2016; Sakarya et al., 2018).

4. Analysis

In the study causality between Participation-30 index and both commodity markets (gold and oil) and Dow Jones Islamic Market World were investigated. In terms of method, we investigated the causality between Participation-30 index and both commodity markets and international index by using the causality test which was developed by Dumitrescu and Hurlin (2012). Therefore, it is the originality of our research. We also exerted CIPS unit root test in our research. The method which was developed by Dumitrescu and Hurlin (2012) considers both horizontal section dependence and heterogeneity between the indexes and commodities which create the panel. The method can be used when the time dimension is greater than the horizontal cross-sectional dimension and it can produce effective results in unbalanced panel data sets. Besides, the method can be used to analyse both the presence and absence of a cointegrated relationship.

Table 1

Test Statistics

| Null Hypothesis | Wald Statistics | Z-Bar Statistics | Possibility |
|-------------------------|-----------------|------------------|-------------|
| P-30 → Gold | 2.093 | 0.564 | 0.572 |
| Gold → P-30 | 1.654 | .454 | 0.671 |
| P-30 → Petroleum | 2.122 | .687 | 0.386 |
| Petroleum → P-30 | 2.130 | .501 | 0.413 |
| P-30 → Dow | 1.486 | .412 | 0.675 |
| Dow → P-30 | 4.646** | 2.275 | 0.025 |
| BIST 100 → P-30 | 6.534*** | 4.311 | 0.000 |
| P-30 → BIST100 | 3.912*** | 2.102 | 0.036 |

Source: Created by authors.

In the analysis, we determine a statistically significant relationship between Dow Jones Islamic Market World and Participation-30 index and Participation-30 index is affected by Dow Jones Islamic Market World. We could not find a significant relationship between commodity markets (gold and oil) and Participation-30 index. On the other hand, we determine bi-directional and statistically significant relationship between BIST 100 index and Participation-30 index.

5. Discussion

In this study we investigated causality between Participation-30 index and commodity markets also Dow Jones Islamic Market World and BIST-100 index. We used the causality test which has been developed by Dumitrescu and Hurlin (2012) and applied CIPS unit root test.

As can be seen from the empirical results we determine a statistically significant relationship between Dow Jones Islamic Market World and Participation-30 index. However, Seçme et al., (2016) determined a poor relationship between Participation-30 index and Dow Jones Islamic Market World and the beta sensitivity of Participation-30 index with respect to Dow Jones Islamic Market World was also less than one. In addition, the this, Ülev and Özdemir (2015) could not find a statistically significant causality between Participation-30 index and BIST-100 index. These findings show that the relationship between Participation-30 index and BIST-100 index are mixed. In our research we could not find a significant relationship between commodity markets (gold and oil) and Participation-30 index. Whereas it is expected that a statistically significant relationship between commodity markets and Participation-30 index can be determined because of the support of the Participation-30 index to the real sector. Sakarya et al. (2018) have found no relationship between Participation-30 index and commodity markets so Participation-30 index has an independent structure from commodity markets.

6. Conclusion

Islamic finance mainly operates on the basis of profit and loss sharing and supports the real sector. In this context the activity fields of the companies which are operating in participation indexes are

based on production of goods and services so that the indexes have a special importance for commodity markets and commodity indexes.

The relationship of participation indexes with commodity markets and other national and international indexes is very important for investors and fund managers. Especially after the 2008 financial crisis, investors increased their interests in participation indexes in order to diversify their fund portfolios and wanted to reduce their risks through investments in alternative investment areas. This case has aroused the interest of the researchers and the interest in participation indexes has increased all over the world.

Participation indexes operate according to Islamic procedures and principles, i.e. they operate on the principles of profit and loss sharing models therefore these indexes are in close relationship with commodity markets. Commodity markets are non-financial markets, developments in commodity markets affect stocks therefore the relationship between both national and international indexes and participation indexes becomes one of the issues to be examine.

In this study we examined the relationship between Participation-30 index and commodity markets (gold and oil) and also we exerted the causality test which was developed by Dumitrescu and Hurlin (2012) to examine the relationship between Participation-30 index and Dow Jones Islamic Market World.

According to the results of our research, we determined one-way causality between Participation-30 index and Dow Jones Islamic Market World and Participation-30 index is affected by Dow Jones Islamic Market World. We couldn't find any causality between Participation-30 and commodity markets (goals and oil). In this context, for the diversification of investment portfolios, Participation-30 index investors will evaluate commodity markets as investment areas so both Participation-30 index and commodity markets will be evaluated together as investment areas. In the other hand, we determined statistically significant and bi-directional causality between Participation-30 index and BIST 100 Index. Besides, since there is a relationship between developments in the Dow Jones Islami Market World index and Participation-30 index.

In the following studies, Participation 50 index and Modern Portfolio index can be included to analyse. In addition, relations with other commodities with high transaction volume in international markets can be analysed. This may have an impact on the preferences of portfolio investors and can guide portfolio managers.

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