

Banking Sector Stock Price Synchronicity and Relationships between Returns of Stock Market Index in Turkey: Borsa Istanbul Evidence

Dr. Alp POLAT

Assistant Professor, Bilecik Seyh Edebali University, Turkey

Abstract

The aim of the study is to determine stock price synchronicity in Turkish banking sector and explain relationships between the synchronicity and stock market returns. It is expected that stock market synchronicity has an effect upon to stock market returns. Financials index and general market index of Turkey is examined with banking sector synchronicity due to the fact that banks have prominent role in these indexes. Banking sector synchronicity has 0.78 average value in the research period. This indicates highly synchronous stock prices in banking sector of Turkey. However, synchronicity is highly volatile and changes during research period. The findings of the study show that banking sector synchronicity affect financial index and general market index returns. Stock market returns can be predicted by banking sector synchronicity.

Keywords - Stock prices synchronicity, Borsa Istanbul, stock market returns, R square, firm specific variations

I. INTRODUCTION

Morck et al. (2000) in their seminal research, provide the evidence of stock price synchronicity by comparing different countries. It is suggested that stock prices are synchronous in emerging markets than developed economies. If the respect for private property is low by government, stock price tend to co-move and be synchronous. However, in developed economies governments maintain strong legal protection against corporate insiders and protect public property rights which generate lower price synchronicity. In stock markets, assets can be synchronized with each other. This concept, which can be expressed as the stock market synchronicity, explains the movement of different assets in the same direction in the same market. It is suggested that economies with high national income have fewer market synchronization characteristics than countries with low national income. Market synchronicity may be greater in developing countries (Khandaker and Heaney, 2008).

Stock market price synchronicity can explain return behaviors and lead the market returns. Since, high price synchronicity indicates better information

environment associated with the firms. Price synchronicity result in efficient stock prices and incorporation of timely information by stocks (Farooq and Hamouda, 2016). In developing stock markets, investors prefer to trade on market wide information owing to the fact that firm specific information is hard to obtain. Thus, stock price synchronicity is common and firm specific information is low in developing economies (Chen et al., 2018). Factor of firm specific information which can be defined by R square has started to be investigated with many financial concepts. Investments, debt usage, cost of capital and firm value and target capital structure adjustment speed are examples of the financial concepts. Impact of firm specific information is important for decision makers who prefer to know course of their financial positions (Polat et al., 2014).

R square value of asset pricing regressions show price synchronicity (Skaife et al., 2006). R square indicates returns of stocks which can be explained by systematic economic influences, returns on other stocks in the same sector and firm-specific news events (Roll, 1988). Stock price synchronicity is a measure of information amount reflected in stock prices. Gassen et al., (2017) highlight the fact that R square values indicates weaker information environments. Stock price synchronicity is widely used as an inverse measure for stock price in formativeness.

Understanding stock price synchronicity is crucial. It interests regulators managers and investors due to the fact that synchronicity affects corporate governance and efficiency of capital allocations. It also impact stability of the capital market (Pan and Zhu, 2014). Separation of ownership rights and control in the firms can result in conflict between shareholders and minority investors. Stock price synchronicity arises from holding firm-specific information to open public (Feng et al. 2016). High price synchronicity in stock market can provide negative outcomes. It lead to outcomes that difference between companies and effectiveness of price signals in investment decisions diminish. Investors face hardships to evaluate stock prices of companies (Gao

et al., 2018). Investment decisions based on tradeoff between risk and return (Jha, 2018).

An effect from stock market synchronicity to stock market returns can be expected. This study aims to determine stock price synchronicity in Turkish banking sector and provide relationships between the synchronicity and stock market returns. Financials index and general market index is analyzed with banking sector synchronicity owing to the fact that banks has major role in these indexes.

II. LITERATURE REVIEW

Morck et al. (2000) Chan and Hameed (2006) investigate analyst activity and stock return synchronicity in emerging markets. R square of market model is used as a measure of price synchronicity. The findings demonstrate that more coverage from analysts increase synchronicity which is contrary the fact that stock analysts specialize in generating firm-specific information.

Chung (2007) studies systematic risk of closed and country funds and stock price synchronicity. It is indicated that better investor protection in the countries result in lower stock price synchronicity and systematic risk.

Francis et al. (2012) reveal determinants of stock price synchronicity in banking sector. It is concluded that banks are started to show whole market co-movement in financial crisis periods. High credit capacity countries also have more price synchronicity. Market co-movements become high when deposit insurance are not explicitly available. Market synchronicity increase with low level bank disclosure.

Bozos et. al., (2013) research banks' merger announcements in order to detect risk structure of after the merger. Merging banks increase their size and become too big to fail. However, the analysis results demonstrates that market sensitivity and stock price synchronicity are higher after merging announcements. Highly concentrated and newly formed banks show market co-movements and open to risk which affect aggregate economy.

Chan et al. (2013) suggest that stock price synchronicity has an effect on stock liquidity. In the study, there are two hypothesis regarding stock price synchronicity which relative and absolute synchronicity. Relative synchronicity describe the situation which systematic volatility has higher ratio in total volatility. Absolute synchronicity hypothesis describes that stocks with high beta coefficient or systematic volatility have more liquidity. Their finding find evidence and proof these two hypothesis which explains liquidity increase are related to return co-movements.

Gul et al., (2010) highlight that stock price synchronicity is in relation with large stock ownership. The synchronicity increases when ownership of the largest shareholder is high. If the largest shareholder is government, synchronicity become higher. It is also stated that high synchronicity firms reflect low amount of earning information.

Chung et al. (2011) study stock price synchronicity on real estate investment trusts (REITs). It is expected that REITs are not correlated with market. REIT returns should be different and independent from market changes. However their findings cannot prove expected relationships. REITs have high stock synchronicity in their market. It is also noted that hedge fund ownership by REITs negatively affect price synchronicity. Pension fund and insurance company ownership of REITs are positively related with stock price synchronicity.

Eun et al. (2012) investigate relationship between culture and stock price synchronicity. People are tend to behave similar in tight and collectivistic cultures. This fact explain that investors which behave similarly in stock trading generate stock price synchronicity in the country. Findings of the study prove that stock price synchronicity and co-movements are high in tight and collectivistic countries.

Boubaker et al. (2014) document the Impact of controlling shareholder on stock price synchronicity. It is stated that firm-specific information flows to market can be restricted by control-ownership. The ownership can hide information from public. Thus, concentrated ownership increase stock price synchronicity.

Hasan et al., (2014) state that political and legal institutions development make sufficient firm specific information available. If stock prices reflect sufficient firm specific information, there will be low price synchronicity. Pluralistic regimes decrease opaqueness and uncertainty. Therefore, the value of firm specific information become important.

Polat et al., (2014) analyze the relationship between firm specific information and return on assets (ROA) of companies in Turkey. An analysis regarding companies of BIST 30 index in Borsa Istanbul is applied. R square value of the companies is employed as measure of firm specific information. The results show that R square values significantly and negatively affect ROA of companies. A high R square value indicate small firm specific information. The negative relationship provide that the firms which have firm specific return variations are profitable.

Douch et al. (2015) uses stock price synchronicity in order to explain return asymmetries. Positive tail in return distributions are exist when stock price synchronicity is high. Firms which have high stock price synchronicity react less severely to negative news and result in positive tails. This effect can be the reason of information environment associate with firms.

Farooq and Hamouda (2016) compare high price synchronicity stocks and low price synchronicity stocks using lead-lag relationships in India. It is stated that the stocks with high price synchronicity leads to the stocks with low price synchronicity in terms of returns.

Tas and Tan (2016) argue that R square values in stock market of Turkey is low which shows that firm specific information contents are low in Turkish market comparing to developed markets. They research effect of firm foreign ownership ratio on market synchronicity in Borsa Istanbul 100 index and evidence negative relationship. It is also noted that market/book ratio is negatively related to price synchronicity which explains grow potential of the firms decrease synchronicity. Number of year passed after initial public offering, leverage and volume factors are positively correlated with price synchronicity.

Jin et al. (2016) examine mediating effect of herding behavior and stock price synchronicity. It is suggested that stock price synchronicity with herding behavior may increase stock price crash risk.

Kan and Gong (2017) implement an application related to relationship between stock price informativeness and stock price synchronicity. Stock price informativeness is accepted as inverse of stock price synchronicity. However, their analysis provide positive effect evidence and an alternative view regarding price synchronicity relationship on stock price informativeness.

III. ANALYSIS

The period of the study is between 2010 and 2017. Data based on weekly stock market returns of Turkey’s general market index (BIST 30), Financials index and the returns of banking sector firms. Stock market returns obtained from Datastream. Following Morck et al. (2000), Khandaker and Heaney (2008) analysis of the study based on classical measure of stock price synchronicity:

$$f_t = \frac{MAX[n_t^{up}, n_t^{down}]}{n_t^{up} + n_t^{down}}$$

In the equation: f_t is the net price change in week t, n_t^{up} is the stocks whose price rise in week t, n_t^{down} is the stocks whose price fall in week t. This measure at maximum 1 which show perfect synchronicity and at 0.5 at minimum which not synchronous market.

The aim of the study is explore banking synchronicity in Turkish banking sector and calculate effects on stock market returns of Financials index and Market Index. VAR framework and Granger Causality Tests are used in order to detect relationship between stock price synchronicity and market indexes.

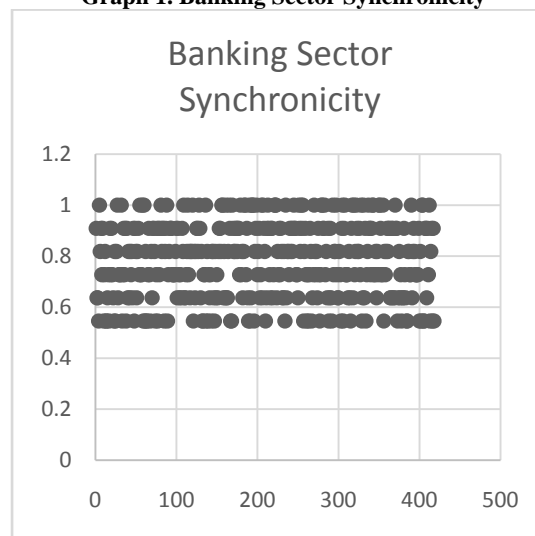
Descriptive statistics is demonstrated on Table 1. Banking Sector Synchronicity reached at maximum with 1 value in research period. However, with 0.54 synchronicity did not fall its theoretical minimum value which is 0.5. The mean of Banking Sector Synchronicity is 0.78 which explain that Turkish banks are highly synchronous.

Table 1. Descriptive Statistics

Descriptive Statistics	Financials Index	Market Index	Banking Sector Synchronicity
Mean	0.002326	0.002843	0.782079
Median	0.004012	0.004277	0.818182
Maximum	0.109449	0.086939	1
Minimum	-0.1576	-0.13386	0.545455
Std. Dev.	0.036311	0.031146	0.148058
Observations	418	418	418

Graph 1. shows banking sector synchronicity in different weeks of research period. Banking sector synchronicity reach at perfect synchronicity many times. However, changes in synchronicity is highly volatile overtime.

Graph 1. Banking Sector Synchronicity



In table 2, the results of Augmented Dickey-Fuller test is provided. The results show that Null Hypothesis which define that the variable has a unit root is rejected. Thus, all variables are stationary and consistent for VAR framework.

Table 2. Augmented Dickey-Fuller test

Augmented Dickey-Fuller test	t-Statistic	Prob.*	Null Hypothesis: The variable has a unit root
Financials index	-21.94120	0.0000	Rejected
Market Index	-21.89820	0.0000	Rejected
Banking Sector Synchronicity	-21.49327	0.0000	Rejected

Table 3 shows results of VAR Granger Causality Tests. Results show that the financial index returns can be forecasted by banking sector synchronicity while market index returns do not have significant impact on financial index. The market index is also predictable by banking sector synchronicity while the financial sector index returns fail to predict market index. Banking sector synchronicity is not affected by financial index and market index.

Table 3. VAR Granger Causality/Block Exogeneity Wald Tests

Dependent Variable: Financials Index:			
Excluded Variables	Chi-sq	df	Prob.
Market Index	2.868733	15	0.9997
Banking Sector Synchronicity	35.57092	15	0.0020
Dependent Variable: Market Index:			
Excluded Variables	Chi-sq	df	Prob.
Financials index	3.244773	15	0.9993

Banking Sector Synchronicity	34.73469	15	0.0027
Dependent Variable: Banking Sector Synchronicity:			
Excluded Variables	Chi-sq	df	Prob.
Financials index	7.655364	15	0.9369
Market Index	8.674621	15	0.8939

The findings provide that there is one way significant relationship from banking sector synchronicity to both market index and financial index of Turkey. Future return changes can be forecasted using the synchronicity. However, financials index and market index do not cause banking sector synchronicity. The synchronicity cannot be forecasted by stock market returns.

IV. CONCLUSIONS

The aim of the study is to determine stock price synchronicity in Turkish banking sector and provide relationships between the synchronicity and stock market returns. General market index and financials index of Turkey is analyzed with banking sector synchronicity. In the research period banking sector synchronicity has 0.78 average value which indicate highly synchronous stock prices. Behavior of synchronicity is highly volatile and changes during research period.

Polat et al. (2014) examine BIST30 index firms in Turkey and provide evidence regarding significant impact of firm specific information on companies' return on equities. Firm specific variations define the inverse of stock price synchronicity. Gao et al., (2018) provide negative outcomes of stock price synchronicity which are decreasing difference between companies and effectiveness of price signals and hardening investor stock price evaluation. According to the literature, It can be expected that stock price synchronicity can impact on stock market returns.

The findings of the study suggest that synchronicity changes can help to predict analyzed stock market returns in Turkey which are financials index and general market index. There is significant

granger causality from Turkish banking sector synchronicity to analyzed stock market returns indexes. The findings are important owing to the fact that there is limited literature in Turkey about stock price synchronicity which can be crucial phenomenon for financial concepts.

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