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Research Article

Investigating the Effect of Banks' Price/Earnings Ratio and Market Value/Book Value Ratio on Stock Prices: Panel Data Analysis in Türkiye[1]

Bankaların Fiyat/Kazanç Oranı ve Piyasa Değeri/Defter Değeri Oranının Hisse Senedi Fiyatları Üzerindeki Etkisinin İncelenmesi: Türkiye'de Panel Veri Analizi

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Abstract

The study aims to determine the effects of market multipliers, namely price/earnings ratio and market value/book value ratio, on the stock prices of banks. The study is based on quarterly bank data. The research period covers the years 2011-2024. During this period, panel data of 6 major commercial banks continuously traded on Borsa Istanbul in Türkiye were analyzed. In the study, FMOLS and DOLS estimation methods were used and finally the estimates were tested with the Robust least squares model. The same statistically significant findings were obtained in all estimation methods. Banks' stock prices were accepted as dependent variable. Price/earnings ratio and market value/book value ratio were found to be independent variables that significantly affect the stock price. While the direction of the relationship was negative for the market value/book value ratio, a positive effect was observed for the price/earnings ratio. Market participants may have different interpretations of how multipliers will affect stock prices. According to the findings of the research, the negative effect of the price/earnings ratio indicates that this multiplier indicates undervaluation or overvaluation. In the case of undervaluation, when the multiplier is low, the price should increase to compensate for the undervaluation, or in the case of overvaluation, if the multiplier is high, the price should decrease to compensate. The positive effect of market value/book value indicates that this multiplier fully reflects expectations regarding the current situation of the company.

Keywords: *Banking, Banking Sector Stock Prices, Market Value/Book Value Ratio of Banks, Price/Earnings Ratio of Banks, Borsa İstanbul.*

Öz

Çalışmanın amacı, piyasa çarpanları olan fiyat/kazanç oranı ve piyasa değeri/defter değeri oranının bankaların hisse senedi fiyatları üzerindeki etkilerini belirlemektir. Çalışma, üç aylık banka verileri kullanılarak gerçekleştirilmiştir. Araştırma dönemi 2011-2024 yıllarını kapsamaktadır. Bu dönemde Türkiye'de Borsa İstanbul'da sürekli işlem gören 6 büyük ticari bankanın panel verileri analiz edilmiştir. Çalışmada, FMOLS ve DOLS tahmin yöntemleri kullanılmış ve son olarak tahminler Robust en küçük kareler modeli ile test edilmiştir.

[1] This is the expanded and revised version of the abstract paper titled "Investigating the Effect of Banks' Price/Earnings and Market Value/Book Value Multipliers on Stock Prices: Panel Data Analysis in Turkey Between 2011-2024" presented at the 5th International Banking Congress.

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Tüm tahmin yöntemlerinde aynı istatistiksel olarak anlamlı bulgular elde edilmiştir. Bankaların hisse senedi fiyatları bağımlı değişken olarak kabul edilmiştir. Fiyat/kazanç oranı ve piyasa değeri/defter değeri oranının hisse senedi fiyatını anlamlı şekilde etkileyen bağımsız değişkenler olduğu bulunmuştur. Piyasa değeri/defter değeri oranı için ilişkinin yönü negatif iken, fiyat/kazanç oranı için pozitif bir etki gözlenmiştir. Piyasa katılımcıları, çarpanların hisse senedi fiyatlarını nasıl etkileyeceği konusunda farklı yorumlara sahip olabilirler. Araştırmanın bulgularına göre, fiyat/kazanç oranının negatif etkisi, bu çarpanın şirketin düşük veya yüksek değerlemesini gösterdiğini ortaya koymaktadır. Düşük değerleme durumunda, çarpan düşük olduğunda, düşük değerlemeyi telafi etmek için fiyat artmalı, yüksek değerleme durumunda ise, çarpan yüksek olduğunda, telafi etmek için fiyat düşmelidir. Piyasa değeri/defter değerinin pozitif etkisi ise, bu çarpanın şirketin mevcut durumuna ilişkin beklentileri tam olarak yansıttığını göstermektedir.

Anahtar Kelimeler: *Bankacılık, Bankacılık Sektörü Pay Senedi Fiyatları, Bankaların Piyasa Değeri/Defter Değeri Oranı, Bankaların Fiyat/Kazanç Oranı, Borsa İstanbul.*

1. Introduction

Studies on the determinants of stock prices in financial markets are particularly important for understanding investor behavior, firm valuation, and market efficiency (Ruhani et al., 2028; Ho, & Iyke, 2017; Bond et al., 2012). Therefore, financial ratios, frequently used in the determination and valuation of company stock prices, stand out as key indicators in guiding investment decisions. The price/earnings ratio and the market value/book value ratio are defined as "market multiples" in the literature and provide critical information about a company's profitability and how its assets are valued by the market (Ruhani et al., 2018). These multiples shape investors' future expectations and are also used as indicators of potential differences between a company's intrinsic value and its market value. Determining market multiples separately for each sector and interpreting them on a sector-specific basis allows for more accurate use of these multiples.

Therefore, this study focuses on commercial banks operating on Borsa Istanbul, or rather, the banking sector. Furthermore, the banking sector in Türkiye holds special importance both as a driving force of economic growth and as a significant player in the capital markets. Therefore, the question of which market multipliers influence the pricing of commercial banks listed on the Borsa Istanbul and with high market shares, and the answers sought to this question, are crucial for investors, analysts, and policymakers.

Studies on this topic have been conducted in the literature for various sectors in different countries (Shubita, 2023; Rahmawati, & Hadian, 2022; Safitri et al., 2020; Dilmaç & Korkmaz, 2018; Kumar, 2017). However, most studies on this topic are based on short-term or limited data sets, and comprehensive analyses focusing on a specific sector, particularly those using long-term panel data, are limited. Therefore, this study analyzes the effects of the price/earnings ratio and the market value/book value ratio on stock prices using quarterly data from six major commercial banks continuously traded on Borsa Istanbul between 2011 and 2024.

The research aims to reveal the extent to which these two important market multiples are decisive in the pricing of bank stocks. For this purpose, long-term relationships were examined using Fully Modified Ordinary Least Squares (FMOLS), Dynamic Ordinary Least Squares (DOLS), and Robust Least Squares estimation methods, and the consistency of the findings obtained with different methods was tested.

In this context, while theoretically contributing to the literature on the impact of market multiples on pricing, the study also provides original practical outcomes for individual and institutional investors and researchers investing in the Turkish capital markets, particularly those following the banking sector. Therefore, this study makes a novel and substantial contribution to the literature by examining a longer time period, comparing its findings with those of previous studies conducted in different countries, providing sectoral insights based on multiple banks, and focusing on banks that have been continuously traded on Borsa Istanbul.

In addition,the interpretation of market multiples and the results obtained can offer important insights into financial decision-making processes, particularly in a sector like the banking sector, which is highly regulated and has systemic importance for national economies. Therefore, the results of this research offer important implications not only for academic but also at the practical level for employees and corporate managers in financial analysis, portfolio management and valuation strategies.

2. Literature Review

The price/earnings ratio and the market value/book value ratio, also known as market multiples, are frequently used by financial researchers and analysts, both historically and today. Numerous studies were conducted in the 1960s to explain the relationship between company stock prices and the price/earnings ratio, market value/book value ratio, and other market multiples (Williams, 1966; Breen and Savage, 1968; Basu, 1977). On the other hand, recent studies (Maria et al., 2025; Martínez et al., 2024; Tekin, 2021) predominantly focus on examining the potential effects of price multiples on stock prices, returns, price movements, and investor behavior across various countries and sectors.

Bakan (2025), examined the impact of dividend policies on the financial performance and bankruptcy risk of companies listed in the Borsa Istanbul BIST Participation 50 Index. The dependent variables of the study were market value/book value as a proxy for financial performance and the Altman Z Score as a proxy for bankruptcy risk, while the independent variables were net dividend per share, earnings per share, and the dividend payout ratio. The study concluded that the dividend payout ratio has an inverse effect on market value/book value, while the earnings per share ratio has a concurrent effect on market value/book value.

Dede and Çamlı (2024), aimed to determine the effects of bank size on the financial performance of companies listed on the Borsa Istanbul Sustainability 25 Index. The study used two dependent variables, market value/book value and price/earnings ratio, to measure firms' stock market performance, and four independent variables, cash turnover ratio, current ratio, leverage ratio, and asset size, that influence these performances. The study's findings indicate that there is a positive relationship between the market value of companies and their current ratio and size, and that the price-earnings ratio is statistically significantly affected by the current ratio and leverage ratio.

Shubita (2023) examined the relationship between profitability and the market value of banks listed on the Amman Stock Exchange, using bank size—measured by total assets—as a control variable. The study found that high-profit banks have higher market values than low-profit banks, and that there is a significant relationship between high and low levels of return on equity and market value. In addition, the results indicate a positive association between earnings and market value, and that bank size influences the strength of the relationship between return on equity and market value.

Karadeniz and Koşan (2021), analyzed the financial performance differences between tourism companies listed on the Borsa Istanbul with high and low price/earnings ratios. Statistically significant differences were found between tourism companies with high and low price/earnings ratios in terms of inventory turnover, return on assets, return on equity, net profit margin, profit growth rate, and stock returns. Işıldak (2019), used panel data analysis to examine the effects of 10 financial ratios, selected as independent variables, on the dependent variable, market value/book value ratio, for 20 companies operating on the Borsa Istanbul. The analysis concluded that the market value/book value ratio and the determined financial ratios were significantly correlated at the 1%, 5%, and 10% levels.

Dilmaç and Korkmaz (2018), conducted a panel regression analysis using quarterly data from 12 banks and 5 insurance companies listed on the Borsa Istanbul to determine whether there is a relationship between the stock market value of banks and insurance companies and their profitability, capital structure, and growth rates. According to the analysis results, they found that for insurance companies, the leverage ratio positively affects the market value/book value ratio and negatively affects the return on equity ratio.

Öztürk (2017), examined the relationship between Borsa Istanbul BIST100 index stock returns, the price/earnings ratio, and the firm value/EBITDA (earnings before interest and taxes) ratio between 2005 and 2016 using a random effects model in panel data analysis. The results indicate that while the price/earnings ratio and stock returns are not statistically significantly related, there is a significant relationship between the firm value/EBITDA multiplier and stock returns. For banks, leverage and size variables negatively affect the market value/book value ratio and positively affect return on equity.

Horasan (2009), examined the impact of the price/earnings ratio on the closing stock price and stock returns in the following period for companies traded on the Borsa Istanbul. The study found that the

price/earnings ratio had a positive and significant effect on the closing stock price in the following period. According to Oh, Kim, and Kim (2006), there exists a cointegration relationship between stock prices and earnings per share, whereas tests conducted on individual stock prices did not reveal such cointegration. Furthermore, the authors emphasized that their findings provided some evidence in support of weak mean reversion in the price/earnings ratio.

Ahmed (2003), examined the relationship between the price/earnings ratio and annual stock returns for companies in the S&P 500 index and found no statistically significant relationship between the price/earnings ratio and annual stock returns. Ramcharran (2002), examined the impact of economic growth and credit risk on the price/earnings ratios of stocks in developing countries and found that economic growth and credit risk levels affect the price/earnings ratio.

Dechow, Hutton, and Sloan (1999), investigates the extent to which alternative earnings persistence models account for stock prices. The authors demonstrate that stock prices can be expressed as weighted averages of capitalized current earnings and past-period summary measures such as book value, market value, and capitalized earnings. Their results indicate a consistent association between the earnings model that best characterizes a firm's earnings process and the corresponding behavior of its stock price. Basu (1977) investigated the relationship between market multiples and stock prices in his study and emphasized that when a low price/earnings ratio is less than the average price/earnings ratio, the stock's price increases.

3. Data and Methods

The purpose of this study is to determine the effects of market multiples, such as the price/earnings ratio and market value/book value ratio, on the stock prices of commercial banks in Türkiye. The study examined companies operating in the banking sector on Borsa Istanbul. Data on the banks' price/earnings and market value/book value ratios were obtained from the Borsa Istanbul Historical and Reference Data Platform. Bank stock price data was obtained from investing.com.

The research period covers the years 2011 to 2024. Quarterly data was used in the study. The sample included large-scale commercial banks that were continuously traded on the Borsa Istanbul banking index throughout the research period. To meet this requirement, six banks within the Borsa Istanbul banking index were selected: Akbank, Halkbank, Garanti Bankası, İş Bankası, Vakıfbank, and Yapı Kredi. The data comprises a total of 336 panel data observations, comprising 56 periods and six cross-sections.

Panel data estimation methods were used in the model analysis. When testing statistical significance in this study, a moderate significance level (**) of 0.05, a high significance level (***) of 0.01, and a low significance level (*) of 0.1 were accepted.

Descriptive statistics summarize variables with using all of the research data. Variables include the data of stock prices, price/earnings ratio and market value/book value ratio of selected banks. Mean, Median, Maximum, Minimum, and Standard Deviation values are obtained from pooled series of variables which comprise both time and cross section observations. The statistics for each variables are based on pooled data series of the selected 6 banks in the research period of 2011 to 2024.

Table 1. Descriptive Statistics

Descriptive Statistics	Stock Prices	Price/Earnings Ratio	Market Value/Book Value Ratio
Mean	8.915265	6.362240	0.909553
Median	5.275000	5.969694	0.833631
Maximum	123.8000	15.58897	2.140365
Minimum	0.465000	1.467544	0.194895
Standard Deviation	14.44677	2.806976	0.431883

Table 1 contains descriptive statistics for the analysis variables. According to the table, the bank's average quarterly price was 8.91, the price/earnings ratio was 6.36, and the market value/book value was 0.90.

During the analysis phase, stationarity and cross-sectional dependence will be investigated. Unit root tests will be applied for stationarity testing. If cross-sectional dependence exists in the series, second generation unit root tests will be used for stationarity testing. In this context, the CIPS test will be used as the second-generation unit root test. If the series become stationary after differencing, the existence of a cointegration relationship will be investigated. If a cointegration relationship exists, the cointegrated regression methods FMOLS and DOLS will be used to estimate the panel data model. Finally, a re-estimation will be performed using the Robust Least Squares model to test the obtained findings. As explained in Rani and Zaman (2020), the Robust Least Squares method eliminates the spurious regression problems that arise when the assumptions in the classical least squares method are violated by the impact of outliers. According to Perovic (2001), Robust methods suggest that the results will be valid even when the normal distribution assumptions in econometric analyses are not met.

The FMOLS (Fully Modified Ordinary Least Squares) method was developed by Philips and Hansen (1990) as an alternative to the classical error correction model applied when cointegration is present and allows for more successful inferences. Pedroni (1996) developed the FMOLS method based on it. Pedroni (2021) introduced the DOLS (Dynamic Ordinary Least Square) method, a new dynamic estimation method that provides consistent results for cross-sectional variation in panel analyses. Chowdhury et al. (2024) state that the FMOLS and DOLS methods are applicable to variables with different levels of stationarity.

Shaari et al. (2024) emphasized that applying traditional least squares methods to variables that are not stationary at the level can lead to autocorrelation, heteroscedasticity, and endogeneity problems, while FMOLS and DOLS methods can be used to address these issues and provide consistent and effective estimates. As stated in Akgüneş (2021), if there is a long-term relationship between variables, the series is assumed to have reached long-term equilibrium and the use of FMOLS and DOLS estimators is now possible. According to Tazegül et al. (2025), in order to use FMOLS and DOLS models, the existence of a long-term relationship between the series must be accepted. According to the view expressed in the study of Pattak et al. (2023), the DOLS model provides reliable and statistically significant results by considering the lead and lag relationships under the cointegration situation by reducing the effects of unit root, autocorrelation and endogeneity problems under different degrees of stationarity problems, as in the FMOLS model.

The mathematical function (1) and simplified econometric equation (2) of the research model to be used in FMOLS, DOLS and Robust Panel Regression analysis are shown below:

$$Stock\ Prices = f\left(\frac{Price}{Earnings}, \frac{Market\ Value}{Book\ Value}\right) \quad (1)$$

$$Stock\ Prices_{i,t} = \pi_0 + \pi_1 \frac{Price}{Earnings}_{i,t} + \pi_2 \frac{Market\ Value}{Book\ Value}_{i,t} + \varepsilon_{i,t} \quad (2)$$

Within the scope of the analysis, no transformation method such as logarithmic transformation was applied and the variables were analyzed with their own level values. The instrumental variable approach was not used in the study.

4. Analysis and Results

The charts present the course of the analysis variables across the years for the banks covered in the study. Chart 1 demonstrates stacked cross sections graph. Chart 2 shows combined cross sections graph. This includes data on the banks' stock prices, price/earnings ratio, and market value/book value ratio. An examination of the charts reveals that the price/earnings and market value/book value ratios follow a more volatile course than the stock prices, consistently experiencing significant increases and decreases over time.

Chart 1. Stacked Cross Sections Graph of Stock Prices, Price/Earnings and Market Value/Book Value Ratios

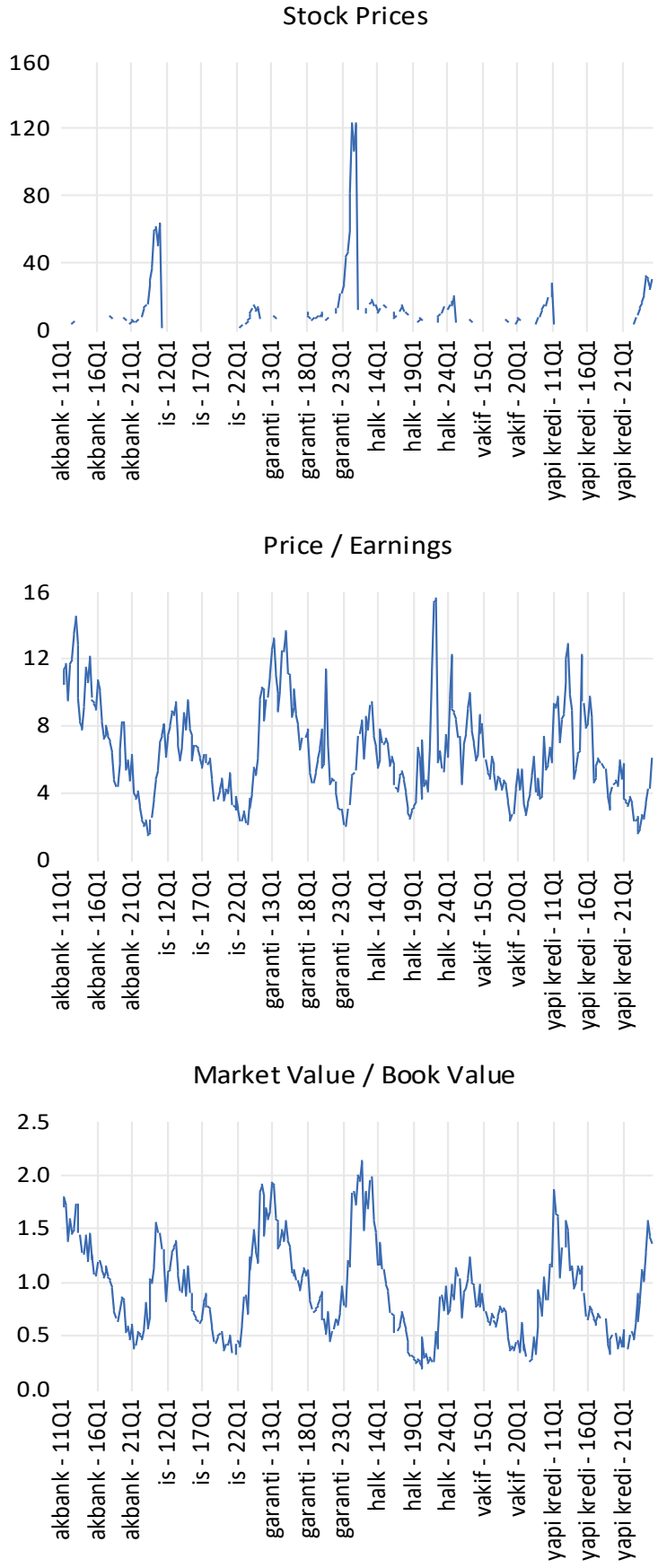

Chart 2. Combined Cross Sections Graph of Stock Prices, Price/Earnings and Market Value/Book Value Ratios

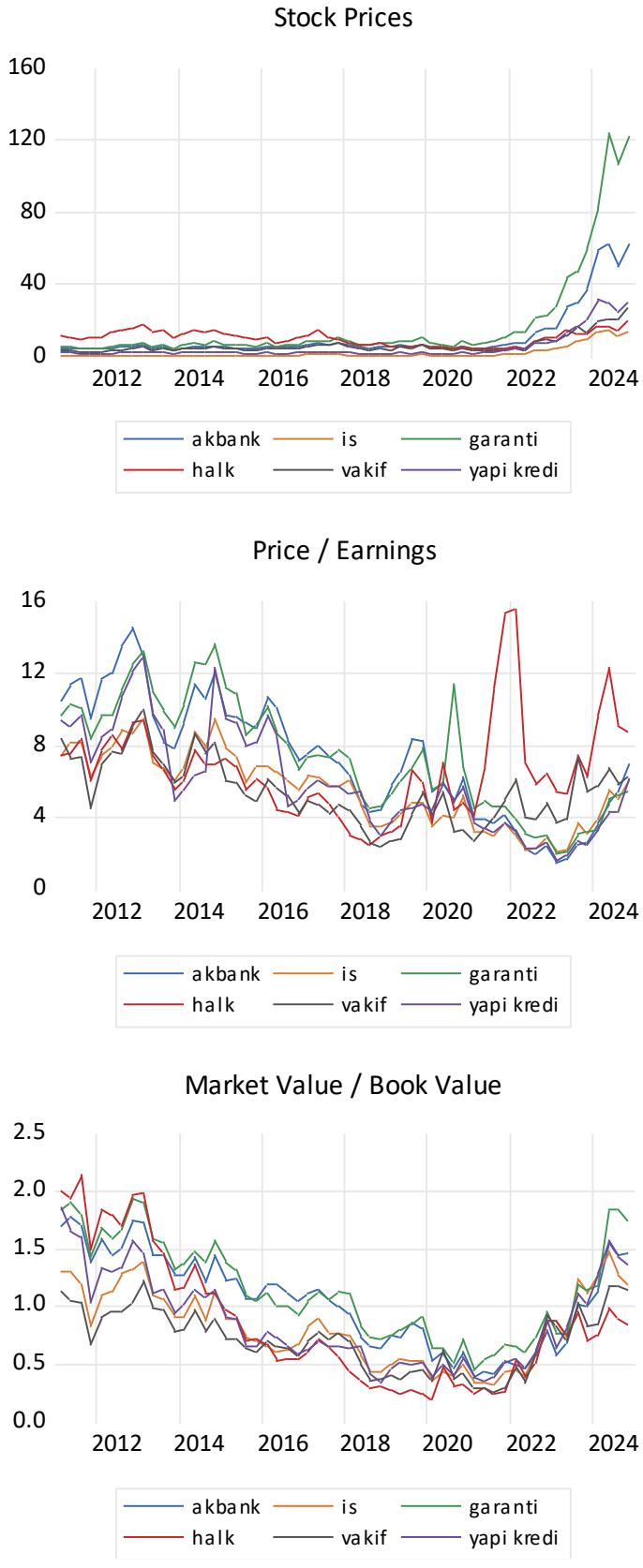

Table 2. shows the results of cross-sectional dependence tests conducted for the variables. The Breusch-Pagan LM Test was used for this purpose. H 0 explains the null hypothesis of implemented tests in the study. The H 0 hypothesis of the Breusch-Pagan LM Test predicts the absence of cross-sectional dependence. As a result of the applied tests, the H 0 hypotheses were rejected. Significant cross-sectional dependence was found for all variables to be analyzed in panel data.

In the case of cross-sectional dependence, it is expected that the use of first-generation unit root tests is inappropriate; the application of second-generation unit root tests would be more appropriate. Therefore, the stationarity test in this study will be conducted using the CIPS test, a second-generation unit root test. The first generation panel unit root tests are based on the cross-sectional independency hypothesis. This hypothesis can be restrictive in the majority of macro-economic applications of unit root tests. First generation of panel unit root tests can lead to size distortions and low power for the series which show cross-sectional dependency characteristics. Second generation tests are proposed in order to implement panel unit root tests allowing for cross-sectional correlations (Hurlin and Mignon, 2007).

Table 2. Cross-Sectional Dependence Tests

Tests for Cross-Sectional Dependence in Series	**Breusch-Pagan LM Test**	**Pesaran Scaled LM Test**
	p-value	**p-value**
Stock Prices	0.0000***	0.0000***
Price/Earnings Ratio	0.0000***	0.0000***
Market Value/Book Value Ratio	0.0000***	0.0000***
Null Hypothesis (H 0): No Cross- Section Dependence (Correlation) Moderate significance level (**): >=0.01, <0.05 High significance level (***): <0.01 Low significance level (*): >=0.05, < 0.1		

Table 3. presents the results of unit root tests performed to test the stationarity of the analysis variables. The CIPS test was applied in this context. The tests were conducted using models estimated with only the constant term, both the constant term and trend, and without the constant term and trend. The null hypothesis (H 0) of the CIPS test accepts the presence of a unit root. Thus, the H 0 hypothesis of the CIPS test predicts unit root which leads to non-stationary process. If the H 0 hypothesis is rejected, it will be assumed that there is no unit root in the series and the series are stationary. The CIPS test was applied to the analysis variables both (without taking differences at the level (I=0)) and (with their first differences taken (I=1). When bank stock prices are examined at the level, a unit root is present, but when taking differences, there is no unit root, and the series becomes stationary. For the price/earnings ratio, stationarity is assumed at the level and after taking differences. Similar findings were obtained for the market value/book ratio, excluding the constant and trend tests.

Tablo 3. CIPS Test

CIPS Unit Root Test	**Stock Prices**	**Price/Earnings Ratio**	**Market Value/Book Value Ratio**
I=0			
With Constant	>=0.10	<0.01	<0.10
With Constant and Trend	>=0.10	<0.01	>=0.10
Without Constant and Trend	>=0.10	<0.01	<0.01
I=1			
With Constant	<0.01	<0.01	<0.01
With Constant and Trend	<0.01	<0.01	<0.01
Without Constant and Trend	<0.01	<0.01	<0.01
Null Hypothesis (H 0): Unit Root Moderate significance level: >=0.01, <0.05 High significance level: <0.01 Low significance level: >=0.05, < 0.1			

Stationarity tests revealed that the dependent variable, stock prices, became stationary after difference was taken. It was understood that the independent variables could also be considered stationary at level. In this case, panel cointegrated regression methods were determined to be appropriate for analyzing the research data.

A cointegration test was also conducted before estimating the panel cointegrated regression methods, namely FMOLS and DOLS. Table 4 presents the test results for the cointegration relationship between the variables. The Kao Panel Cointegration test was used. The null hypothesis (H 0) predicts that there is no cointegration relationship. According to the findings, the H 0 hypothesis was rejected and it was determined that there was a significant cointegration relationship between the variables.

Table 4. Panel Cointegration Test

Kao Panel Cointegration Test	**t-statistic**	**p-value**
	2.564512	0.0052***
Null Hypothesis (H 0): No Cointegration Moderate significance level (**): >=0.01, <0.05 High significance level (***): <0.01 Low significance level (*): >=0.05, < 0.1		

Table 5. shows the key findings obtained by applying FMOLS, DOLS, and Robust regression methods, which are suitable for analyzing research data. Bank stock prices were considered as the dependent variable. Within the scope of the study, the coefficient values of the dependent variables on the independent variable will be interpreted in terms of positive or negative findings and by considering the significance of these coefficients.

Table 5. Baseline Results of FMOLS, DOLS and Robust Regression

Dependent Variable = Stock Prices				
Independent Variables	**Coefficient**	**Standard Error**	**Statistical Value**	**p-value**
FMOLS				
Price/Earnings Ratio	-3.351284	0.450792	-7.434721	0.0000***
Market Value/Book Value Ratio	20.31248	3.071353	6.613527	0.0000***
DOLS				
Price/Earnings Ratio	-2.449930	0.431384	-5.679238	0.0000***
Market Value/Book Value Ratio	17.13310	2.545739	6.73011	0.0000***
Robust Least Squares				
Price/Earnings Ratio	-0.599188	0.100962	-5.934764	0.0000***
Market Value/Book Value Ratio	4.973037	0.656194	7.578606	0.0000***
Moderate Significance Level (**): >=0.01, <0.05 High Significance Level (***): <0.01 Low Significance Level (*): >=0.05, < 0.1				

The analysis results show that the estimated coefficients of the independent variables are highly significant. The findings indicate that the price/earnings ratios of the banks in the study are negatively correlated with their stock prices, depending on the direction of the coefficient. The market value/book value ratio, on the other hand, has a positive impact on stock prices. According to the findings of the study, all estimated models achieved the same statistical significance levels.

The applied FMOLS and DOLS methods provide reliable results under variance variability, autocorrelation, stationarity at different levels, unit root problems, and endogeneity issues, as reported in the literature. Finally, the applied robust least squares method provides consistent results under outliers and normal distribution problems. Thus, the findings can be considered reliable and consistent.

The negative impact of the price/earnings ratio and the positive impact of the market value/book value ratio found in the research can be explained by investor behaviors. When evaluating stock prices, investors consider the stock price relative to its earnings and the stock price relative to its book value. The price/earnings ratio and the market value/book value ratios reflect investors' current assessment of the stock price. The market price is then predicted based on the assumption that this current valuation is either undervalued or overvalued. The research findings indicate that investors maintain the current valuations of banks in Türkiye based on book value. However, investors considers undervalue or overvalue the stock's regarding earnings potential. Thus, investors take actions in order to fix this imbalance and reflect the intrinsic value of earnings to the stock price.

5. Conclusion

The study examined stock prices and market multipliers using panel data analysis conducted by researching banks in Türkiye and made scientific contributions to the relevant financial literature. The findings of the study indicate that market multipliers have a significant impact on bank stock prices in Türkiye. The price/earnings ratio and market value/book value ratios exhibited highly significant effects. The price/earnings ratio was found to have a negative impact on stock prices, while the market value/book value ratio was found to have a positive impact.

The price/earnings ratio and market value/book value are variables that can be used in a company's valuation and therefore play a significant role in its stock price. The positive impact of the market value/book value ratio on bank prices has been identified, indicating that, in line with current potential, prices are higher than book value, leading to price increases. The negative relationship between the price/earnings ratio and the price suggests that high stock prices can occur when banks' market values remain low relative to the net profit they currently generate.

Aga and Kocaman (2006) examined the companies traded on the Turkish stock exchange and found that the price-earnings ratio for each stock was a significant explanatory variable for stock returns, but neither the Industrial Price Index nor the Consumer Price Index were significant. While this study conducted in Türkiye reveals the limited or no impact of macroeconomic variables on market volatility, our study demonstrates that market factors considered at the micro level significantly affect stock prices. This also suggests that price movements on the Turkish stock exchange may be more sensitive to firm fundamentals (e.g., profitability and book value) than to macro indicators. Similarly, Ramij and Das (2021), investigated insurance companies listed on the Dhaka Stock Exchange and reported that firm-level financial indicators, including return on assets, book value per share, earnings per share and price/earnings ratio, exert significant influence on market stock prices. These findings indicate that share prices in both the insurance sector of Bangladesh and the banking sector of Türkiye are more responsive to firm-specific financial multipliers.

In contrast to the findings of this study, Ahmed (2003) examined the relationship between the price/earnings (P/E) ratio and annual stock returns for companies listed on the S&P 500 index and found no statistically significant relationship between these variables. This divergence may stem from differences in market structure and investor behavior between developed and emerging economies. In relatively developed and efficient markets such as the United States, information is rapidly reflected in stock prices, reducing the explanatory power of traditional valuation ratios like the P/E ratio. Conversely, in emerging markets such as Türkiye, where market efficiency is relatively lower and firm-specific information asymmetry is more pronounced, valuation multipliers (e.g., P/E and market-to-book ratios) tend to have stronger effects on stock price movements. Therefore, the significant impact of firm-level indicators observed in this study may reflect the higher sensitivity of investors in emerging markets to fundamental financial ratios when forming their expectations.

The findings of the study suggest that the impact of market multiples on stock prices may be due to the Turkish banking sector's evolving market structure and the significant role of informed assessments of firm-level financial performance among investors in their investment decisions, making stock prices

more sensitive to market multiples. Market multiples, particularly price/earnings and market value/book value ratios, are direct indicators of banks' profitability, capital structure, and valuations, suggesting that investors can consider them reliable tools for short- and medium-term price forecasting and that they can be used by both investors and finance professionals. Consequently, the sensitivity of stock prices to market multiples in Türkiye can be explained by multidimensional factors such as market structure, investor behavior, and the regulatory conditions of the sector.

On the other hand, in financial markets, market multipliers are important indicators considered in investment decisions. Companies with high market multipliers reflect growth expectations, and this expectation can lead to higher multipliers and continued stock prices. Low market multipliers also reveal that the potential is not reflected in prices relative to the true value, and that high returns can be achieved with the necessary price increases. Therefore, identifying the direction and significance of the impact of market multipliers can provide valuable insights for investors in the formulation of investment strategies. Furthermore, these multipliers can serve as key indicators for investors in formulating and monitoring their investment strategies.

When the findings of the study are considered from the perspective of regulators and policymakers, they indicate that market multiples can serve as important indicators for understanding pricing behavior in the banking sector. In other words, these ratios can be used as valuable early-warning signals for financial stability, as they reflect how rapidly markets price the risks and performance expectations of banks. In this context, sharp declines in the market value/book value ratio may point to potential risks such as the erosion of equity, deterioration in asset quality, and weakening firm performance, whereas a significant and persistent decrease in the price/earnings may indicate that profitability expectations in the market have deteriorated or are expected to deteriorate, and that the bank may face operational or balance-sheet-related problems. Therefore, in Türkiye, regulatory authorities, policymakers, and banking sector executives can enhance the sensitivity of early-warning systems and conduct more effective risk monitoring by integrating these ratios with other key indicators such as credit growth, non-performing loan ratios, capital adequacy, and liquidity measures. In this regard, beyond its theoretical contribution to existing literature, this study also offers practical implications for market participants, investors, and finance professionals. Furthermore, future research that analyzes firms from various sectors listed on the same stock exchange, as well as comparative studies involving similar or diverse firms across different countries, will facilitate cross-market evaluations and further enrich the literature on this subject.

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Araştırma Makalesi

Investigating the Effect of Banks' Price/Earnings Ratio and Market Value/Book Value Ratio on Stock Prices: Panel Data Analysis in Türkiye

Bankaların Fiyat/Kazanç Oranı ve Piyasa Değeri/Defter Değeri Oranının Hisse Senedi Fiyatları Üzerindeki Etkisinin İncelenmesi: Türkiye'de Panel Veri Analizi

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Genişletilmiş Özet

Finansal piyasalarda hisse senedi fiyatlarının belirleyicileri üzerine yapılan çalışmalar, özellikle yatırımcı davranışlarını, firma değerlemesini ve piyasa etkinliğini anlamak açısından önemli bir yere sahiptir(Ruhani vd. 2028; Ho, & Iyke, 2017; Bond Vd. 2012). Bu nedenle yapılan çalışmalarda, şirketlerin hisse senedi fiyatlarının belirlenmesinde ve değerlemelerinde sıklıkla başvurulan finansal oranlar, yatırım kararlarının yönlendirilmesinde temel göstergelerden biri olarak öne çıkmaktadır. Fiyat/kazanç oranı ile piyasa değeri/defter değeri oranı, literatürde "piyasa çarpanları" olarak tanımlanmakta olup, şirketin kârlılığı ve varlıklarının piyasa tarafından nasıl değerlendiği hakkında kritik bilgiler sunmaktadır(Ruhani, 2018). Bu çarpanlar, yatırımcıların gelecekteki beklentilerini şekillendirirken, aynı zamanda şirketin içsel değeri ile piyasa değeri arasındaki olası farklılıkların da birer göstergesi olarak kullanılmaktadır. Piyasa çarpanlarının her sektör için ayrı ayrı belirlenmesi ve sektör özelinde yorumlanması ise çarpanların daha doğru kullanılmasını sağlamaktadır.

Yapılan bu çalışmada Borsa İstanbul'da faaliyet gösteren ticari bankalar diğer bir ifade ile bankacılık sektörü ele alınmıştır. Türkiye'de bankacılık sektörü, hem ekonomik büyümenin itici güçlerinden biri olması hem de sermaye piyasalarındaki ağırlığı açısından özel bir öneme sahiptir. Bu sebeple Borsa İstanbul'da işlem gören ve pazar payı yüksek olan ticari bankaların fiyatlamasında hangi piyasa çarpanlarının ne ölçüde etkili olduğu sorusu ve bu soruya aranan cevaplar yatırımcılar, analistler ve politika yapıcılar açısından oldukça önemlidir.

Literatürde bu konu hakkında farklı ülkelerde yer alan farklı sektörler için yapılan çalışmalar bulunmaktadır (Shubita, 2023; Rahmawati, & Hadian, 2022; Safitri vd., 2020; Dilmaç ve Korkmaz, 2018; Kumar, 2017). Ancak bu konuda yapılan çalışmaların büyük bir kısmı kısa dönemli veya sınırlı veri setlerine dayalı olup, özellikle uzun dönemli panel verilerin kullanıldığı kapsamlı ve belirli bir sektörü işaret eden analizler sınırlı sayıdadır.

Bu nedenle yapılan bu çalışmada, 2011–2024 döneminde Borsa İstanbul'da sürekli işlem gören altı büyük ticari bankanın çeyreklik verileri kullanılarak, fiyat/kazanç oranı ile piyasa değeri/defter değeri oranının pay senedi fiyatları üzerindeki etkileri analiz edilmiştir. Araştırma, bu iki önemli piyasa çarpanının banka pay senetlerinin fiyatlamasında ne ölçüde belirleyici olduğunu ortaya koymayı amaçlamaktadır. Bu amaç doğrultusunda Fully Modified Ordinary Least Squares (FMOLS), Dynamic Ordinary Least Squares (DOLS) ve Robust En Küçük Kareler tahmin yöntemleri kullanılarak, uzun dönemli ilişkiler incelenmiş ve farklı yöntemlerle elde edilen bulguların tutarlılığı test edilmiştir.

Bu bağlamda çalışma, teorik düzeyde piyasa çarpanlarının fiyatlamaya etkisi üzerine literatüre katkı sağlamayı hedeflerken, uygulamalı olarak da Türkiye sermaye piyasalarında yatırım yapan ve özelde bankacılık sektörünü takip eden bireysel ve kurumsal yatırımcılar ile araştırmacılar için özgün çıktılar ortaya koymaktadır. Özellikle bankacılık sektörü gibi yüksek regülasyona tabi ve ülke ekonomileri için sistematik önemi olan bir sektörde piyasa çarpanlarının yorumlanış biçimi ve elde edilen sonuçlar finansal karar alma süreçlerinde önemli çıktılar sunabilmektedir. Bu nedenle bu araştırmanın sonuçları, yalnızca akademik değil, aynı zamanda pratik düzeyde de finansal analiz, portföy yönetimi ve değerleme stratejileri çalışanlar ve kurumsal yöneticiler açısından önemli çıkarımlar sunmaktadır.

Çalışma kapsamında Borsa İstanbul'da bankacılık sektöründe yer alan firmalar incelenmiştir. Bankaların Fiyat/kazanç ve piyasa değeri/defter değeri oranlarına ait veriler Borsa İstanbul Tarihsel ve Referans Veri Platformu üzerinden temin edilmiştir. Bankaların pay senedi fiyatları ise investing.com üzerinden sağlanmış olup 2011 ve 2024 yılları arasındaki çeyreklik veriler kullanılmıştır. Örnekleme, araştırma dönemi boyunca Borsa İstanbul'da bankacılık endeksinde yer alan sürekli işlem gören büyük ölçekteki ticari bankalar dâhil edilmiştir. Bu koşulu sağlamak üzere Borsa İstanbul bankacılık endeksinin içerisinde bulunan Akbank, Halkbank, Garanti Bankası, İş Bankası, Vakıfbank ve Yapı Kredi olarak 6 adet banka seçilmiştir. Veriler 56 adet dönem ve 6 adet çapraz kesitten oluşmak üzere toplam 336 adet panel veri gözlemini kapsamaktadır. Çalışmada modelin analiz edilmesinde panel veri tahmin yöntemleri kullanılmıştır.

Çalışmada elde edilen bulgular Türkiye'de bankaların pay senedi fiyatları üzerinde piyasa çarpanlarının anlamlı etkilerde bulunduğunu göstermektedir. Fiyat/kazanç oranı ve piyasa değer/defter değeri oranları yüksek derecede anlamlı etkiler ortaya çıkarmıştır. Fiyat/kazanç oranının pay senedi fiyatları üzerinde negatif etkiye sahip olduğu görülürken piyasa değeri/defter değeri oranının pozitif yönde etkide bulunduğu saptanmış ve pay senedi fiyatlarının piyasa çarpanlarıyla ilişkisi ortaya konulmuştur.

Fiyat/kazanç oranı ve piyasa değeri/defter değeri bir şirketin değerlemesinde kullanılabilecek dolayısıyla pay senedi fiyatı üzerinde önemli roller oynayabilecek değişkenlerdir. Bankalar için piyasa değeri/defter değeri oranının fiyatlarda pozitif etkiye sahip olması mevcuttaki potansiyeli doğrultusunda defter değerine göre daha yüksek fiyatlamalar yaşandığı ve fiyatların da arttığı belirlenmiştir. Fiyat/kazanç oranındaki negatif ilişki ise bankaların mevcutta yarattıkları net kara görece piyasa değerleri düşük kaldığı durumlarda yüksek pay senedi fiyatları oluşabileceğini göstermektedir.

Finansal piyasalarda piyasa çarpanları yatırım kararlarında dikkate alınan önemli göstergelerdendir. Piyasa çarpanları yüksek olan şirketlerde önemli bir beklenti bulunmakta ve bu beklenti doğrultusunda çarpanlar artmaya ve pay senedi fiyatları da artmaya devam edebilmektedir. Piyasa çarpanlarının düşük olması ayrıca gerçek değere göre potansiyelin fiyatlara yansımadığı ve bunun yansıması için gerekli fiyat artışlarıyla yüksek getiriler elde edilebileceğini ortaya çıkarmaktadır. Buna göre çarpanların etkisinin yön ve anlamlılık olarak ortaya konulması yatırım kararlarında politika yapıcılar için fayda sağlayabilecektir. Dolayısıyla, Türkiye'de politika yapıcılar ve bankacılık sektörü yöneticileri, bu oranları kredi büyümesi, sorunlu kredi oranları, sermaye yeterliliği ve likidite ölçütleri gibi diğer temel göstergelerle entegre ederek erken uyarı sistemlerinin duyarlılığını artırabilir ve daha etkili risk takibi de yapılabilir. Bu bağlamda, bu çalışma mevcut literatüre teorik katkısının ötesinde, piyasa katılımcıları, yatırımcılar ve finans profesyonelleri için pratik çıkarımlar da sunmaktadır. Ayrıca, aynı borsada işlem gören farklı sektörlerden firmaları analiz eden gelecekteki araştırmalar ve farklı ülkelerdeki benzer veya farklı firmaları içeren karşılaştırmalı çalışmalar, piyasalar arası değerlendirmeleri kolaylaştıracak ve bu konudaki literatürü daha da zenginleştirecektir.