# Determinants of price to earnings ratio: Evidence from Turkish tourism companies

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**Abstract**

*This study tried to determine firm-specific variables that affect the price-to-earnings ratios of the listed tourism companies at Borsa Istanbul in Turkey over the period 2012q3 - 2020q3. For this purpose, the quarterly financial data of tourism companies were analyzed by using the Generalized Moments Method (GMM). As a result of the analysis, it was determined that a positive relationship existed between Tobin's Q ratio and price-to-earnings ratio, whereas a negative relationship existed between leverage ratio as well as stock price volatility and price-to-earnings ratio. It was determined that no statistically significant relationship existed between sales size and price-to-earnings ratio.*

**Keywords:** *Price to earnings ratio, Tobin's Q, Leverage, Stock price volatility, Tourism*

## 1. Introduction

In today's capital markets, it is possible to fund the real investments made by companies on a long-term basis at affordable costs and terms. Economic units with surplus funds in these markets (households, companies, government and foreigners) can reliably transfer their funds to economic units with fund deficit (especially companies) can be transferred. Companies provide the financing resources they need by issuing a wide variety of financial instruments such as stocks, bonds and bills in capital markets. Stocks offer their holders the opportunity to get a share of the profits of the company and to earn capital gains in case the value of the stock increases. While individual and institutional investors venture into stocks; they perform basic, technical, sectoral and corporate analyses.

The purpose of these analyses is to obtain the most appropriate return according to the risk undertaken. In investment analysis, primarily financial ratios calculated on financial statements are evaluated. In addition to these ratios, market multipliers (stock market performance ratios) are also used. The price-to-earnings ratio is one of the most used market multipliers in stock trading decisions and it indicates to what extent investors have to pay for the stock in return for the profit per share earned by a company. Shareholders wish to determine the extent to which they make profit in return

for the money they would invest in the stocks they buy or consider buying from the securities exchange markets. It is desirable that the price-to-earnings ratio be high for existing shareholders and low for potential investors. Based on the trust of potential investors in the company, the price of the stock may increase (Asiri and Hameed, 2014; Liem and Basana, 2012).

In this context, company managers should closely monitor the value of stocks in the securities markets, the prices that investors are willing to pay, and the effects of macroeconomic variables and the financial performance of the company in the formation of these prices. The tourism sector is a sector with high demand elasticity and risk and uncertainty. In addition, long-term funding requirements of companies in the tourism sector are also very high, as capital-intensive investments reach large amounts. For this reason, it is of great importance that both investors who are considering investing effectively in the stocks of tourism companies and managers of tourism companies closely monitor the financial performance factors that affect the pricing level of their stocks in the market.

In this research, firm-specific variables that affect the price-to-earnings ratios of listed tourism companies in Borsa Istanbul are examined. Borsa Istanbul (BIST) was established in Turkey in 1985 under the name of Istanbul Stock

Exchange. Its name was changed to "Borsa Istanbul" on April 5, 2013. The main purpose and field of activity of Borsa İstanbul are; Within the framework of the provisions of the law and the relevant legislation, the capital market instruments, foreign exchange and precious metals and precious stones, and other contracts, documents and assets deemed appropriate by the Capital Markets Board, can be easily and safely, transparently, effectively, competitively, honest and stable under the conditions of free competition. To create, establish and develop markets, markets, platforms and systems and other organized market places in order to enable them to be bought and sold in the environment, to bring together them in a way to finalize the purchase and sale orders, or to facilitate the collection of these orders, and to determine and announce the prices formed. to manage and/or operate other exchanges or the markets of exchanges and other works written in the articles of association. BIST, as a professional organization, has members consisting of investment and development banks, commercial banks and intermediary institutions, and there are four permanent markets in the Stock Market. These; national market, second national market, new economy market and custody market. In the BIST bond and bills market, there are outright purchases and sales markets, repo-reverse repo market and real estate certificates market. Capital market instruments such as stocks, government bonds and treasury bills, which provide partnership rights or credit rights and are accepted as securities by the Capital Markets Board, can be traded on Borsa Istanbul (https://borsaistanbul.com/tr/sayfa/471/borsa-istanbul).

It is noteworthy that there are studies examining the significance of price-to-earnings ratios in the tourism sector, fluctuation and the differences between the financial performance of tourism companies with low and high price-to-earnings ratios as well as the use of social media (Akmese et al., 2016; Bhamornsathit and Katawandee, 2016; Karadeniz and Koşan, 2021; Kim and Ayoun, 2005; Singh and Schmidgall, 2002). However, the studies examining the firm-specific variables affecting the price-to-earnings ratios of tourism companies are quite limited (Barrows and Naka, 1994; Chen, 2007; Chen et al., 2012; Chiu, 2020; Demir and Ersan, 2018; Hadi et al., 2020). The study consists of four sections. Section 2 describes the data and analysis method. Section 3 presents and discusses the findings. In the final section concludes the paper.

## 2. Data and method

In line with the aim of this study, the impacts of Tobin Q ratio, leverage ratio, firm size and stock price volatility on the price-earnings ratios of companies are analyzed by considering the variables used in previously conducted studies in the literature. The quarterly financial data obtained from nine listed tourism companies in Borsa Istanbul over the period 2012Q3 – 2020Q3 are available at the website of the Public Disclosure Platform. The model established in the analysis and the variables included in the model are described as follow:

$$PE_{i,t} = a_i + \beta_1 PE_{i,t-1} + \beta_2 TQ_{i,t} + \beta_3 LEV_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 VOL_{i,t} + \varepsilon_{i,t}$$

Where,

$PE_{i,t}$ = Price to earnings ratio, calculated by the ratio of share price to earnings per share, of the $i_{th}$ firm for time t.

$PE_{i,t-1}$ = The one-period lagged value of the price to earnings ratio, as a dependent variable, which is included in the model as required by the GMM method.

$TQ_{i,t}$ = Tobin's Q, measured as (Total Assets + Equity Market Value – Equity Book Value) / Total Assets of the $i_{th}$ firm for time t.

$LEV_{i,t}$ = Leverage, calculated by the ratio of total debt to total assets of the $i_{th}$ firm for time t.

$SIZE_{i,t}$ = Firm size, calculated as the natural log of sales, of the $i_{th}$ firm for time t.

$VOL_{i,t}$ = Volatility in shares' market price, calculated as the standard deviation of the market price of the $i_{th}$ firm for time t,

$\beta$ = Estimation coefficients,

$\varepsilon_{i,t}$ = The error term.

The analysis is conducted using the Generalized Moments Method (GMM). Firstly, the first difference model is transformed using the instrumental variable matrix. Following the transformation, the model is estimated using the generalized least squares (GLS) method (Yerdelen Tatoğlu, 2018). The validity of the prediction results obtained from the GMM method can be analyzed with different post-prediction tests such as the Sargan and autocorrelation tests. With the Sargan test, it is tested whether the instrumental variables used in the models are valid and it is determined whether the main variables are fully reflected (Gujarati, 2004). Second order autocorrelation test (AR2) is performed to determine whether an autocorrelation exists in the results of the dynamic panel data prediction model. It is expected to be statistically insignificant in AR2 test result (Arellano and Bond, 1991). In the GMM studies, the Wald test is performed to determine whether the model estimation is proper (Roodman, 2009).

## 3. Findings

Table 1 reports the descriptive statistics on the variables. The standard deviation value of the PE ratio is considerably higher than its mean value. In this context, it is possible to state that the market pricing of the stocks of tourism companies follows a fluctuating course. TQ, LEV, SIZE values are lower than the mean values of the standard deviation. The volatility in the market prices of the stocks of tourism companies is quite high. As shown in Table 2, a moderate level of correlation coefficient is found between LEV and TQ, and a low level of correlation exists among other independent variables. The estimation results of the performed GMM analysis are presented in Table 3.

Table 1. Descriptive statistics

| Variables | Mean | Minimum | Maximum | Std. Dev. | Observation |
|---|---|---|---|---|---|
| PE | 0.771 | -13.443 | 166.750 | 11.375 | |
| TQ | 0.655 | 0.119 | 2.189 | 0.325 | |
| LEV | 0.454 | 0.021 | 1.290 | 0.298 | 297 |
| SIZE | 6.231 | 0.000 | 8.181 | 2.063 | |
| VOL | 2.124 | 0.008 | 296.409 | 17.507 | |

Table 2. Correlation coefficients

| Variables | TQ | LEV | SIZE |
|---|---|---|---|
| LEV | 0.616 | 1 | |
| SIZE | -0.128 | 0.031 | 1 |
| VOL | 0.157 | 0.034 | 0.049 |

Table 3. GMM estimations

| Variables | Diff GMM |
|---|---|
| c | -1.069** |
| | (0.011) |
| $PE_{(t-1)}$ | -0.080 |
| | (0.173) |
| TQ | 2.448* |
| | (0.000) |
| LEV | -1.880* |
| | (0.002) |
| SIZE | 0.672 |
| | (0.187) |
| VOL | -0.068*** |
| | (0.089) |
| Wald | 23.50* |
| (prob) | (0.000) |
| Sargan F | 27.264 |
| (prob) | (0.108) |
| AR2 | 0.128 |
| (prob) | (0.897) |

(*) and (**) represent significance at 1%, 5%, and %10 levels, respectively.

It is determined that the price-to-earnings ratios of the tourism companies are affected by TQ, LEV and VOL. A positive relationship exists between TQ and PE ratio, whereas a negative relationship exists between LEV, as well as VOL, and PE ratio. No statistically significant relationship exists between SIZE and the PE ratio.

## 4. Conclusion and discussion

Tourism is a sector with high demand elasticity and risk and uncertainty. In addition, since the fixed capital investments in the sector reach large amounts and the long-term funding requirements of companies are also very high. In this context, both tourism investors who want to invest effectively in the stocks of their companies, as well as tourism financial instruments that affect the market pricing level of company managers' stocks. It is of great importance that they closely monitor performance factors. Capital markets are very important in terms of financing for tourism companies' long-term real investments. As in other companies, while investing in the shares of tourism companies traded in the capital markets, providing partnership rights, profit share return or benefiting from rights such as earning capital gains and participation in management is intended. In the process

of investing in stocks, it is tried to determine the company's future earning power, the stock return and the potential to provide capital gains.

The price-to-earnings ratio, as one of the market performance ratios, is frequently employed in stock trading decisions for both securities analysts and institutional as well as individual investors. The price-to-earnings ratio shows how much the market investors are willing to pay for the earnings per share offered by the companies traded in the market. In this context, the price/earnings ratio clearly indicates whether the stocks of tourism companies are expensive or cheap. It is desirable that the price-to-earnings ratio be high for existing shareholders and low for potential investors. Some studies examine the variables affecting the price-to-earnings ratios for different sectors, whereas there are limited studies that examine the variables affecting the price-to-earnings ratios of tourism companies. Besides, with the authors best knowledge there has been no research study conducted on tourism companies that traded at Borsa Istanbul. In this respect, the research is important in terms of contributing to tourism and finance theory and literature.

The GMM analysis results of nine listed tourism companies in Borsa Istanbul over the period 2012Q3 – 2020Q3 reveals a positive relationship between the price-to-earnings ratios of tourism companies and Tobin's Q ratio. In finance theory, it is accepted that the increase in Tobin's Q performance would allow investors to pay a higher price for stocks with the expectation that the company would achieve growth and gain a competitive advantage in the coming years. As a result of the study, it is found that a negative relationship exists between the price-to-earnings ratio and the leverage ratio. It is possible to claim that tourism companies, which include more debt in their financial structure, are priced lower by investors in the market since they incur higher financial risks. The increase in financial risk for companies leads investors to pay lower prices for companies' stocks. In the study, a negative relationship is revealed between the level of stock price volatility and the price-to-earnings ratio. In this context, it can be asserted that investors are pricing their stocks lower since tourism companies whose prices highly fluctuate are prone to market risk.

The price that potential investors will pay for the stock may rise based on the confidence they have in the company. In this context, if investors expect a high profitability and firm value from the company and they think that the company is low financial and market risk, they can pay high prices for the stocks of the company. These obtained results

comply with the findings of Asiri and Hameed (2014), Liem and Basana (2012), and Karadeniz and Koşan (2021). In the study, no statistically significant relationship is found between the natural logarithm of sales, which is included in the analysis as a size criterion and the price-to-earnings ratio. In this context, it is extremely important for managers in tourism companies to use foreign resources in accordance with their asset structure, investment size and cash flow targets. In addition, it is necessary for a more effective and balanced financial performance for managers to take investment and financing decisions in line with sustainable profitability and firm value maximization. Therefore, making managerial decisions that will give the investors both operational and financial confidence in the market positively affects the stock performance of the companies.

The results obtained from the study would be beneficial in terms of contributing to company executives, partners as well as corporate and individual investors operating in the tourism sector. It should be considered that the scope of the analysis is limited to the data of the tourism companies whose stock shares are traded at Borsa Istanbul over the period 2012Q3 – 2020Q3. In future studies, the short and long-term analyses of macroeconomic variables affecting the price-to-earnings ratios or the relationship between price-to-earnings ratio and stock returns in tourism sector companies would contribute to the literature.

### Author contribution statements

Authors contributed equally to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript.

### Disclosure statement

No potential competing interest was reported by the authors.

### Ethics committee approval

All responsibility belongs to the researchers. All parties were involved in the research of their own free will.

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