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The Effect of Dividend Yield on Stock Prices: The BRICS-T Case

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ABSTRACT

Purpose – This study aims to investigate the empirical relationship between dividend yield and annual stock price changes (ΔSP) by examining core financial statement data of enterprises domiciled in BRICS economies and Turkey.

Design/methodology/approach – To address this objective, a balanced panel dataset comprising annual financial disclosures from 90 prominent firms spanning the 2015–2025 period was constructed. Accounting for cross-sectional dependence among panel units, second-generation panel unit root procedures were implemented. The baseline estimations were conducted utilizing Panel-Corrected Standard Errors (PCSE) regression to effectively rectify group-wise heteroskedasticity and contemporaneous correlation across panels. Furthermore, the validity and robustness of the empirical outcomes were corroborated through winsorization protocols, alternative fixed-effects specifications, Driscoll-Kraay standard errors, and Dumitrescu-Hurlin panel Granger causality evaluations.

Findings – The PCSE regression estimations indicate that the price-to-earnings ratio (PE), earnings per share (EPS), revenue growth (RG), and asset size (AS) exert statistically significant and positive impacts on annual stock price fluctuations (ΔSP). Conversely, dividend yield (DY) and return on equity (ROE) remain statistically insignificant within the baseline framework. The Dumitrescu-Hurlin causality checks identify unidirectional predictive flows running from PE, RG, ROA, and AS toward ΔSP, alongside a bidirectional causal feedback loop between EPS, ROE, and ΔSP. Moreover, interactive modeling confirms that the marginal effects of these financial indicators diverge significantly for Turkish corporations relative to their international counterparts.

Discussion – The empirical evidence strongly aligns with the Dividend Irrelevance Theory posited by Modigliani and Miller, demonstrating that capital markets prioritize fundamental growth and profitability metrics over cash dividend distributions. While the statistical significance of valuation and performance multiples—such as PE, EPS, and RG—lends robust support to Signaling Theory, the positive contribution of asset size (AS) is rationalized through the lens of Agency Cost Theory. Consequently, market participants and portfolio strategists are advised to prioritize operational earnings and growth signals over dividend yields when forecasting asset price trajectories.

1. Introduction

A fundamental decision-making pillar within the corporate finance literature involves establishing an optimal equilibrium between allocating a fiscal period’s net earnings to shareholders as dividends versus retaining earnings internally to fund prospective investment opportunities. When opting for profit distribution, corporate executives must judiciously determine the precise proportion of funds designated for cash disbursements versus equity retention—a critical choice that profoundly dictates the firm's long-term financial architecture. Consequently, when formulating these strategic policies, management is required to rigorously account for how variations in dividend payouts influence equity market valuations (Hashemijoo et al., 2012).

Enhancements in corporate dividend payouts are typically construed by market agents and investors as auspicious indicators of prospective earnings capacity, subsequently sparking an upward trajectory in stock valuations. In contrast, dividend retrenchments are treated as detrimental signals, precipitating downward pressures on equity prices (Vijayakumar, 2010; Sattar et al., 2017). The market pricing mechanism of declared dividends is conventionally examined through a dual-faceted lens: first, equities experience positive price acceleration when announced payouts align with investor expectations; second, distributions failing to meet these expectations elicit adverse market responses (Douglas & Frank, 2013). Hence, market demand for shares

ETHICAL APPROVAL: This study uses secondary financial statement data and does not require ethical committee approval.

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demonstrates a profound causal dependency on the dividend frameworks instituted by firms (Al Masum, 2014).

Dividend policy constitutes a fundamental financing decision that entails the structured distribution of investment returns to shareholders, exerting a decisive influence over the firm's financial architecture. Depending on sectoral dynamics, individual enterprises adopt tailored dividend allocation mechanisms, which simultaneously serve as proxies for overarching financial performance and market credibility. Investors perceive dividends not merely as cash flows or income sources, but also as vital analytical tools for assessing corporate financial health and managerial efficacy. Firms offering dividend yields below industry averages are generally interpreted by the market through two distinct perspectives: either their share prices are excessively elevated, indicating that the market is pricing in aggressive growth expectations, or a perception arises that the firm is encountering financial distress and failing to honor its commitments. Conversely, the possibility that enterprises executing high dividend payouts alongside low market valuations may possess fragile financial structures is also factored into investor evaluations (Hashemijoo et al., 2012; Al Masum, 2014).

The primary objective of this research is to empirically investigate the impact of dividend yield on stock prices. In alignment with this purpose, the relationship between dividend yield and stock market prices has been analyzed utilizing financial statement data from enterprises operating in the BRICS nations (Brazil, Russia, India, China, and South Africa) and Turkey. Within the scope of the study, data covering the 2015–2025 period for the top 15 enterprises with the highest market capitalization, listed on the stock exchanges of the respective countries and possessing complete financial records, were evaluated. The acquired data were analyzed using a panel veri regresyon modeli (panel data regression model), and a comparative evaluation was conducted between the BRICS countries and the Turkish sample. Ultimately, the empirical findings are interpreted through the analytical frameworks of the Dividend Irrelevance Theory posited by Modigliani and Miller (1961), the Bird-in-the-Hand Theory developed by Lintner (1962) and Gordon (1963), alongside signaling and agency cost theories.

2. Theoretical Framework

The theoretical foundation governing corporate dividend distribution decisions within the finance literature was initially established by the Dividend Irrelevance Theory posited by Modigliani and Miller (1961). Broadly speaking, this paradigm contends that the dividends distributed by enterprises exert no determinative influence over corporate market capitalization. Conversely, the Bird-in-the-Hand Theory, advanced by Lintner (1962) and Gordon (1963), challenged this irrelevance hypothesis by asserting that dividend payouts provide a more secure and definitive return relative to prospective capital gains. Following these seminal contributions, subsequent modern paradigms—such as the Signaling Theory and the Agency Cost Theory—were integrated into the scholarly corpus (Salkımcı et al., 2020). In alignment with this trajectory, the primary theoretical frameworks elucidating dividend policies are systematically addressed below:

2.1. Dividend Irrelevance Theory

Originally formulated by Modigliani and Miller (1961), this theoretical framework postulates that under conditions of perfect and efficient capital markets, corporate dividend policies do not influence the prevailing market valuation of equity or the aggregate returns realized by shareholders. Stated differently, operating under assumptions of rational investor conduct and absolute certainty regarding future corporate profitability, alternative dividend payout regimes yield identical contributions to shareholder wealth. The fundamental premise underpinning this model relies on the assumption that firms distribute their earnings in full every period (Miller and Modigliani, 1961; Hussainey et al., 2011).

2.2. Bird in the Hand Theory

In his seminal publication, Gordon (1963) contested the core assertions of Modigliani and Miller, arguing instead that corporate dividend policies exert a direct and significant impact on firm value and equity prices. The foundational critique levied by this theory targets the assumption of absolute foresight regarding the future. According to Gordon, the economic outlook is inherently fraught with uncertainty; consequently, investors naturally favor immediate and certain dividend payouts ("the bird in the hand") over prospective, stochastic capital gains anticipated in future periods. This behavioral preference ultimately reduces the cost of capital for firms maintaining high dividend payout ratios, thereby enhancing overall corporate valuation (Gordon, 1963; Deniz, 2019; Hussainey et al., 2011).

2.3. Signaling Theory

Introduced to the scholarly literature by Bhattacharya (1979), John and Williams (1985), and Miller and Rock (1985) building upon the earlier foundational contributions of Lintner (1956) and Modigliani and Miller (1961) this paradigm posits that corporate dividend distributions carry informational content. According to signaling theory, adjustments made to dividend payouts transmit critical market signals regarding an enterprise's prospective earnings capacity and future cash flow streams (Kılıç et al., 2016).

2.4. Agency Cost Theory

Originally formulated by Jensen and Meckling (1976) and subsequently advanced by Rozeff (1982) and Easterbrook (1984), this paradigm centers on the costs generated by potential conflicts of interest between corporate management and equity holders. The foundational assumption of the agency cost theory contends that dividend disbursements mitigate agency frictions while simultaneously reinforcing market monitoring by increasing the firm's reliance on external financing channels (Manos, 2002; Ross et al., 2008; Hussainey et al., 2011).

3. Literature Review

Albayrak and Pekkaya (2008) conducted a study exploring the impact of dividend policies on stock prices within the industrial and service sectors listed on Borsa Istanbul (BIST). Utilizing regression analysis, the research revealed that both cash dividends and internal financing levels significantly affect stock prices.

Joshi (2012) examined the connection between stock prices and dividend payments in Nepali financial and non-financial firms. The study utilized multivariate linear regression to examine how dividend payments impact stock prices, focusing on the current market price as the dependent variable. Four explanatory variables were included in the analysis: stock price, market price per share, EPS, and dividend per share. The results indicated that dividend payments exert a positive and statistically significant effect on stock prices across both banking and non-banking sectors.

Kar et al. (2012) investigated the relationship between dividend distributions and stock valuations, focusing on companies in the sports services sector. They determined that a significant relationship exists between dividend payments and stock valuations.

Khan's (2011) analysis offered valuable insights into how corporate dividend announcements influence stock prices in Pakistan's chemical and pharmaceutical industries. The research revealed robust positive relationships among stock market prices, earnings per share, dividend payouts, and post-tax profits. It also validated the statistical relevance of variations in industry-specific stock prices.

In their 2015 study, Islam and Hossain carried out an empirical analysis focusing on manufacturing firms to assess the link between dividend payouts and stock valuations. The researchers discovered a positive and statistically significant relationship, indicating that dividend payments are instrumental in driving stock price fluctuations.

Sharif et al. (2015) investigated the effect of dividend policies on stock prices by applying panel data regression to financial data from 45 enterprises listed on the KSE-100 index. Research indicates a robust, statistically significant, positive correlation between dividend policies and stock prices.

Zor and Küçük (2019) investigated how dividend announcements impact stock market prices using an event study approach. Their findings showed that withholding dividends results in an abnormally negative return on stock prices, particularly when sufficient distributable earnings exist.

Sörensen and Deboi (2020) explored the relationship between dividend yield and stock price volatility for companies listed on the Swedish Stock Exchange. The study revealed an inverse relationship between stock price volatility and dividend yield, whereas earnings volatility exhibited a robust positive correlation with stock price volatility. Similarly, Lotto (2021) examined this topic and concluded that higher payout ratios and dividend yields help stabilize stock prices and reduce volatility.

Bachmeier and Sinha (2023) analyzed how dividend policies influence stock price volatility within the S&P 100 index. The study revealed a significant positive relationship between dividend yield and stock price volatility, while the payout ratio exhibited no discernible effect on stock price fluctuations.

In a related study, Budhathoki & Khadka (2024) examined the relationships among stock prices, dividend yield, payout ratio, and retention rate. The findings revealed a positive correlation between dividend yield and retention rate, along with a statistically significant inverse relationship between dividend yield and stock prices.

Kahraman and Mirgen (2025) assessed the effect of dividend payments on the stock prices of 20 companies listed on the BIST. The financial performance of a company plays a pivotal role in influencing stock prices, highlighting how investors are acutely responsive to decisions related to dividend policies.

4. Methodology

This research utilized panel data regression analysis to examine the relationship between dividend yields and stock prices among the 20 largest companies by market capitalization within the BRICS-T countries.

4.1. Data Set

This study focuses on an in depth examination of the financial statement data of the top 15 financial and non-financial companies characterized by regular dividend payments and the largest asset sizes operating within the BRICS-T economies. The selection criteria for these enterprises are grounded in substantial market capitalization and the accessibility of comprehensive financial disclosures, thereby establishing a robust foundation for the empirical analysis. To construct the research dataset, financial and market information spanning the 2015–2025 period was retrieved from the official databases of Stock Analysis (https://stockanalysis.com/list/exchanges/) and İş Yatırım (https://www.isyatirim.com.tr/tr-tr/analiz/hisse/Sayfalar/sirket-karti.aspx?hisse/). All financial statement figures corresponding to the countries and respective firms investigated herein were converted into U.S. Dollars (USD) to ensure cross-country comparability and data consistency. Table 1 outlines the variables incorporated into the estimation process, adopting a balanced panel data framework consistent with prevailing metrics in the relevant literature.

Table 1. Variables Used in the Study

In the Study Variables Used	Short Name of Variables	Explanations on Variables
Dependent Variable		
Stock Price	SP	Last Close Price
Independent Variables		
Return on Assets	ROA	Net Income/Total Assets
Return on Equity	ROE	Net Income / Total Equity
Price-to-Earnings (P/E Ratio)	PE	Stock Price / Earnings Per Share
Asset Size	AS	Natural Log of Total Assets
Revenue Growth	RG	Revenue Growth = ((Current Revenue / Previous Revenue)- 1) * 100%
Dividend Yield	DY	Dividend Yield = (Annual Dividends Per Share / Stock Price) * 100%
Earnings Per Share	EPS	It is the net profit earned by an enterprise during a specific period divided by the total number of shares outstanding in the market.

Table 1 presents a detailed summary of the key variables included in this study, along with their respective definitions and computational methodologies. The research focuses on evaluating the impact of dividend yield on stock prices within the selected sample of firms, wherein the stock price is specified as the dependent variable. To facilitate this analysis, a series of independent variables has been incorporated into the model. These variables comprise dividend yield, return on assets (ROA), return on equity (ROE), the price-to-earnings

(P/E) ratio, annual revenue growth (RG), the natural logarithm of total assets (AS) and earnings per share (EPS).

4.2. Research Model

The proposed research framework is designed to assess the influence of dividend yield on stock price fluctuations. Within this framework, dividend yield is established as the central explanatory variable, as detailed in Equation (1). Through this formulation, a regression model was developed, which is comprehensively specified in Equation (1).

$$SP_{i,t} = a + \beta_1 ROA_{i,t} + \beta_2 ROE_{i,t} + \beta_3 PE_{i,t} + \beta_4 AS_{i,t} + \beta_5 RG_{i,t} + \beta_6 DY_{i,t} + \beta_7 EPS_{i,t} + \varepsilon_{I,t} \quad (1)$$

The panel data regression model is established by formulating it as per Equation (1).

4.3. Empirical Methodology and Econometric Framework

This study utilizes a balanced panel dataset comprising 90 firms over the 2015–2025 period. Prior to formal estimation, the distributional properties of the variables were examined using descriptive statistics, including means, standard deviations, medians, minimum-maximum ranges, skewness, and kurtosis coefficients. To mitigate the potential distortionary impact of outliers—inherent to financial variables—a winsorization procedure was implemented. The winsorized variables served as the core inputs for the primary econometric models, whereas non-winsorized raw series were employed in parallel robustness checks to ensure that the findings were not artifacts of this data-cleaning technique. Financial indicators were integrated into the analysis based on their original reporting formats. Variables originally expressed in logarithmic form were retained accordingly, avoiding any generic post-transformation. Specifically, financial ratios containing zero or negative values were exempt from subsequent logarithmic transformations, ensuring that no observations were dropped due to data transformation constraints, thereby safeguarding the integrity of the balanced panel structure.

The econometric specification commenced with an evaluation of cross-sectional dependence. Given the likelihood that firms share common macroeconomic and financial shocks across periods, cross-sectional dependence tests were first conducted, which justified the adoption of a second-generation panel unit root framework that accommodates cross-unit interdependencies. Stationarity properties were thus investigated using the Pesaran CADF/CIPS approach under a constant-only specification, with the lag length set to zero in accordance with the short time dimension of the panel. Variables were initially tested in levels, and first differences were examined for non-stationary series. Test evaluations relied jointly on software-reported t-bar statistics, critical values, and corresponding p-values.

Unit root diagnostics revealed that the dependent variable, stock price, was non-stationary in levels but stationary in its first difference. Consequently, the dependent variable was specified in first-difference form (ΔSP) to capture period-to-period changes. Conversely, explanatory indicators found to be stationary in levels were incorporated into the model in their level forms. This strategy permitted the estimation of short-term relationships across variables integrated of different orders while maintaining a stationary dependent variable.

To ascertain the appropriate structure for the panel regression, pooled OLS, fixed effects, and random effects alternatives were evaluated. Hausman-type comparisons were supplemented by the Mundlak correlated random effects approach to address potential correlations between unobserved firm-level heterogeneity and the regressors, alongside testing the joint significance of firm fixed effects. The error term properties of the final specification were further scrutinized for heteroskedasticity, serial correlation, and cross-sectional dependence. Group-wise heteroskedasticity was detected via the Modified Wald test. To test for first-order autocorrelation within the panel structure, the Wooldridge autocorrelation test was preferred over the traditional Durbin-Watson statistic; the null hypothesis of no first-order autocorrelation could not be rejected. Residual cross-sectional dependence tests confirmed that inter-unit correlations could not be entirely dismissed. Consequently, robust estimation techniques tailored to panel error structures were adopted for inference.

Baseline estimations were performed utilizing the panel-corrected standard errors (PCSE) approach, which accounts for both contemporaneous cross-sectional correlation and heteroskedasticity. Because the Wooldridge test indicated no significant first-order serial correlation, an AR(1) correction was omitted from the final PCSE specification. Year dummy variables were incorporated to control for aggregate macroeconomic and financial shocks over time, allowing the marginal effects of the explanatory variables on ΔSP to be evaluated net of common temporal shocks. Interpretation of coefficients considered their direction, magnitude, standard errors, and statistical significance collectively.

To assess the sensitivity of the main findings to alternative estimation procedures, extensive robustness checks were executed. First, a two-way fixed effects model controlling simultaneously for firm and year fixed effects was estimated, with standard errors clustered at both dimensions. However, due to the limited time dimension (only 10 clusters) and associated matrix-rank warnings, this specification was reserved strictly for robustness comparison rather than baseline inference. Second, an alternative fixed effects model utilizing the Driscoll-Kraay robust standard errors was estimated to guard against heteroskedasticity, serial correlation, and cross-sectional dependence. These alternative estimates were benchmarked against the baseline PCSE results to confirm robustness across different variance-covariance structures.

Because firms maintain constant country affiliation throughout the sample period, country fixed effects exhibit perfect collinearity with firm fixed effects and cannot be included simultaneously. While unobserved time-invariant country heterogeneity is absorbed by firm fixed effects, an interaction model was specifically designed to test whether Turkish firms respond differentially to the explanatory variables compared to foreign peers. In this model, interaction terms between a Turkey dummy and the regressors were estimated via PCSE, and total marginal effects for Turkish firms were computed through linear combinations of baseline and interaction coefficients. This approach moves beyond a mere level-shift interpretation, capturing structural variations in slope relationships.

To verify that winsorization did not mechanically drive the empirical results, robustness regressions were re-estimated using raw, non-winsorized series (with first-differenced raw stock prices). The sign and significance patterns derived from the raw data model were contrasted with the baseline winsorized specification as an additional validity check.

Temporal predictive dynamics were investigated using the Dumitrescu-Hurlin heterogeneous panel Granger causality test. Accounting for the loss of the initial observation due to first differencing, causality checks were implemented on a balanced sub-panel spanning 2016–2025. Given the short time horizon, the lag order was restricted to one, and bidirectional relationships between each regressor and ΔSP were tested. Because the Dumitrescu-Hurlin methodology accommodates cross-sectional slope heterogeneity, causality was not constrained to be uniform across all panel units. Hypothesis testing relied on the small-sample adjusted Z-bar tilde statistic. The resulting causality inferences are interpreted strictly as predictive Granger causality—reflecting informational content regarding future values rather than structural or economic causation.

The threshold for statistical significance was established at the 5% level ($p < 0.05$) across all primary analyses. Interpretations avoided mechanical reliance on p-values alone, integrating coefficient signs, magnitudes, and 95% confidence intervals. Findings failing the 5% threshold but falling below $p < 0.10$ were not deemed statistically significant and were addressed only where informative as borderline results. To guard against false positives arising from multiple model comparisons, the consistency of estimates across the baseline PCSE, alternative fixed effects, Driscoll-Kraay, multi-way clustered, and raw-data robustness models was jointly evaluated. All econometric computations were performed using Stata software.

4.3.1. Cross-Section Dependence Test

In the context of panel data analysis, verifying the stationarity of the dataset is a critical prerequisite to mitigate the risk of generating inaccurate or unreliable regression outcomes. Before determining the most suitable stationarity test to employ, it is crucial to first evaluate the homogeneity of the series and identify any potential dependencies among the cross-sectional units within the dataset. The aim of the cross-section dependence test is to test whether a change in one country affects other countries to the same extent, and it is also expected that the coefficients for countries with similar economic conditions will be homogeneous, while the coefficients for countries with different economic conditions will be heterogeneous (Baltagi, 2008).

4.3.2. PCSE Panel Regression Model

Panel-corrected standard errors (PCSE), originally introduced by Beck and Katz (1995), propose an estimator that pools information across panels to estimate error variances. The Beck and Katz panel-corrected standard error involves structuring the residuals obtained from the appropriate model according to the panels. After eliminating any serial correlation structure, cross-sectional dependence and heteroskedasticity in the errors are corrected. The correction formula for the sample variability of OLS estimates is given by the square roots of the diagonal elements.

$$Cov(\hat{\beta}) = (X'X)^{-1}\,\{X'\Omega X\}(X'X)^{-1} \quad 2$$

If the error terms do not exhibit cross-sectional dependence, the resulting standard errors will be equivalent to standard OLS standard errors. In this case, the OLS standard errors are the square roots of the diagonal terms of Ω. For a panel regression model with cross-sectional dependence and panel heteroskedasticity, Ω is an $NT \times NT$ block-diagonal matrix, where the diagonal blocks consist of an $N \times N$ cross-sectional covariance matrix Σ. To estimate Equation 2, an estimate of Σ is required. Σ can be estimated as follows(Nargelecekenler, 2011):

$$\hat{\Sigma}_{ij} = \frac{\sum_{t=1}^{T} e_{it}\ e_{jt}}{T} \quad 3$$

4.3.3. Variance and Autocorrelation Tests

The challenges of heteroscedasticity and autocorrelation represent significant issues commonly encountered in econometric research. Heteroscedasticity is a common occurrence in the analysis of panel data, manifesting within both cross-sectional and time-series frameworks. The assumption of constant variance relies on the premise that the error terms exhibit uniform variance both within and across observational units. However, this assumption is violated when variances differ, resulting in what is known as heteroscedasticity (Tatoğlu, 2013). To address this issue, the Modified Wald Test is employed to evaluate deviations in variance. This test formulates its central hypothesis and employs a Wald Test statistic to assess the presence of heteroscedasticity across observational units (Tatoğlu, 2021).

$$H_0 = \sigma_i^2 = \sigma^2 \quad (4)$$

According to Equation 3, variances are constant across units. The Wald test statistic is shown in Equation 4.

$$W = \sum_{i=1}^{N} \frac{(\sigma_i^2 = \sigma^2)^2}{V_i} \quad (5)$$

4.3.4. Driscoll and Kraay (1998) Method

The Driscoll and Kraay (1998) method is a covariance matrix estimation technique designed to address cross-sectional (spatial) dependence in panel data sets, which is particularly prominent in macroeconomics, international economics, and finance. When standard techniques fail to account for this dependence, inconsistent standard errors are produced. As the time dimension increases, this method generates standard error estimates that are robust to both spatial and temporal dependence. Among its fundamental features are that it functions as an extension of common nonparametric covariance matrix estimation techniques, provides consistent standard errors even when general cross-sectional dependence is ignored, and is supported by Monte Carlo simulations and empirical examples (Driscoll and Kraay, 1998).

5. Findings

This study utilizes annual data spanning the 2015–2025 period for 90 firms. With 11 annual observations per firm, the dataset constitutes a balanced panel data structure comprising a total of 990 observations. The empirical analysis incorporates the following variables: stock price (SP), dividend yield (DY), price-to-earnings ratio (PE), earnings per share (EPS), asset size (AS), return on assets (ROA), return on equity (ROE), and revenue growth (RG). To distinguish firms operating in Turkey from those in other countries, a dummy variable, TR_{dummy}, was constructed, taking a value of 1 for Turkish firms and 0 otherwise.

To determine the distributional properties of the variables, descriptive statistics including mean, median, standard deviation, minimum, maximum, skewness, and kurtosis values were calculated. Furthermore, departures from normality in the variable distributions were assessed using a joint normality test based on skewness and kurtosis. The resulting findings are presented in Table 2.

Table 2. Descriptive Statistics for the Research Variables

Variable	Mean	Median	Std. Dev.	Skewness	Kurtosis	p-value
SP	31.783	3.965	77.862	5.794	53.604	<0.001*
DY	0.046	0.026	0.055	2.075	8.865	<0.001*
ROA	0.072	0.052	0.097	4.374	34.432	<0.001*
ROE	0.223	0.140	1.023	-11.269	366.421	<0.001*
PE	22.831	11.930	42.718	6.965	72.112	<0.001*
RG	3.278	3.215	2.331	0.114	2.527	<0.001*
AS	0.164	0.077	0.438	6.349	56.157	<0.001*
EPS	1.391	0.270	3.090	2.990	23.603	<0.001*

*** p<0.01.**

An examination of Table 2 reveals that the mean, median, and standard deviation for SP are 31.783, 3.965, and 77.862, respectively. The skewness (5.794) and kurtosis (53.604) values of SP indicate a right-skewed distribution characterized by high kurtosis. For DY, the mean is 0.046, the median is 0.026, and the standard deviation is 0.055, with skewness and kurtosis values of 2.075 and 8.865, respectively. For ROA, the mean, median, and standard deviation are calculated as 0.072, 0.052, and 0.097, while the skewness and kurtosis values are determined to be 4.374 and 34.432, respectively. ROE exhibits a mean of 0.223, a median of 0.140, and a standard deviation of 1.023; its skewness coefficient of −11.269 points to a negatively skewed asymmetric distribution, whereas a kurtosis value of 366.421 indicates extreme kurtosis. For PE, the mean is 22.831, the median is 11.930, and the standard deviation is 42.718, with skewness and kurtosis figures of 6.965 and 72.112.RG reports a mean of 3.278, a median of 3.215, and a standard deviation of 2.331, where a skewness of 0.114 and a kurtosis of 2.527 point to a more symmetric distribution compared to the other variables. For AS, the mean, median, and standard deviation are 0.164, 0.077, and 0.438, respectively, with corresponding skewness and kurtosis values of 6.349 and 56.157. Finally, for EPS, the mean is 1.391, the median is 0.270, and the standard deviation is 3.090, with skewness and kurtosis values of 2.990 and 23.603, respectively. The joint normality test results lead to the rejection of the normal distribution assumption for all variables ($p < 0.01$).

5.1. Data Preparation and Winsorization

Following the calculation of descriptive statistics, a winsorization procedure was implemented to mitigate the influence of extreme values in the distributions of variables exhibiting high skewness and kurtosis on the empirical results. In this context, the SP, DY, ROA, ROE, PE, AS, and EPS variables were winsorized at the 1st and 99th percentiles. Due to its symmetric distribution characteristics (skewness of 0.114 and kurtosis of 2.527), the RG variable was exempt from winsorization. As a result of this procedure, no observations were dropped from the dataset, thereby preserving the balanced panel structure consisting of 990 observations. The number of observations affected by winsorization and the post-treatment distributional properties are presented in Table 3.

Table 3. Distributional Properties of Variables Post-Winsorization

Variable	Modified Observations	Mean	Std. Dev.	Skewness	Kurtosis
SP	9	29.788	62.492	3.334	15.332
DY	9	0.045	0.053	1.764	6.321
ROA	18	0.069	0.074	1.909	7.567
ROE	18	0.219	0.308	3.187	14.834
PE	9	21.821	33.656	4.175	24.484
RG	0	3.278	2.331	0.114	2.527
AS	18	0.153	0.340	4.175	26.612
EPS	18	1.382	2.616	2.763	11.095

Note: The variables SP, DY, ROA, ROE, PE, AS, and EPS have been Winsorized at the 1% and 99% levels. Winsorization was not applied to the RG variable. $N = 990$.

An examination of Table 3 reveals that the standard deviation, skewness, and kurtosis values of the variables decreased following the winsorization procedure. Specifically, for SP, skewness dropped from 5.794 to 3.334 and kurtosis declined from 53.604 to 15.332; for ROE, the absolute value of skewness decreased from 11.269 to 3.187, while kurtosis fell drastically from 366.421 to 14.834. Similarly, kurtosis declined from 72.112 to 24.484 for PE, from 56.157 to 26.612 for AS, and from 23.603 to 11.095 for EPS. Following winsorization, values were adjusted for 9 observations each in the SP, DY, and PE variables, and for 18 observations each in the ROA, ROE, AS, and EPS variables. Subsequent panel analyses were conducted using these winsorized variables.

5.2. Cross-Sectional Dependence

The presence of dependence among cross-sectional units in panel data analyses is crucial for determining the appropriate unit root and estimation techniques to be applied. Therefore, the cross-sectional dependence of the series was examined using the Pesaran CD test. The null hypothesis of the test posits weak cross-sectional dependence, whereas the alternative hypothesis indicates strong cross-sectional dependence. The obtained results are presented in Table 4.

Table 4. Pesaran CD Cross-Sectional Dependence Test Results for the Variables

Variable	CD Statistic	p-value	Decision
SP	116.82	<0.001*	H_0 reddedildi
DY	37.79	<0.001*	H_0 reddedildi
PE	35.44	<0.001*	H_0 reddedildi
EPS	85.17	<0.001*	H_0 reddedildi
RG	130.82	<0.001*	H_0 reddedildi
ROA	54.09	<0.001*	H_0 reddedildi
ROE	48.68	<0.001*	H_0 reddedildi
AS	34.94	<0.001*	H_0 reddedildi

*** p<0.01.**

Note: H_0: There is weak cross-sectional dependence. H_1: There is strong cross-sectional dependence. p< 0,01

An examination of Table 4 indicates that the Pesaran CD statistics are 116.82 for SP, 37.79 for DY, 35.44 for PE, 85.17 for EPS, 130.82 for RG, 54.09 for ROA, 48.68 for ROE, and 34.94 for AS. Since the p-values obtained for all variables are less than 0.01, the null hypothesis of weak cross-sectional dependence is rejected. Consequently, there is statistically significant strong cross-sectional dependence across all analyzed variables. In line with this finding, a second-generation panel unit root test that accounts for cross-sectional dependence was employed for the stationarity analyses.

5.3. Second-Generation Panel Unit Root Analysis

Following the determination of cross-sectional dependence among the variables, the stationarity properties of the series were examined using the cross-sectionally augmented panel unit root approach (CADF/CIPS) developed by Pesaran. The null hypothesis of the test states that the series contains a unit root, whereas the alternative hypothesis indicates that the series is stationary. Due to the limited time dimension of the study *(T=11)*, a lag-free [lags(0)] specification with a constant term was adopted for the baseline evaluation. The dependent variable SP, which was found to be non-stationary in levels, was further tested in its first difference. The results are presented in Table 5.

Table 5. Pesaran CADF/CIPS Second-Generation Panel Unit Root Test Results

Variable	Level t-bar	Level p	First Difference t-bar	First Difference p	Order of Integration
SP	-1.613	0.799	-2.506	<0.001	I(1)
DY	-2.346	<0.001	-3.334	<0.001	I(0)
PE	-2.374	<0.001	-3.284	<0.001	I(0)
EPS	-2.230	<0.001	-3.085	<0.001	I(0)
RG	-3.976	<0.001	-3.981	<0.001	I(0)

ROA	-2.389	<0.001	-3.545	<0.001	I(0)
ROE	-2.507	<0.001	-3.413	<0.001	I(0)
AS	-3.318	<0.001	-4.566	<0.001	I(0)

Note: H_0: The series contains a unit root. H_1: The series is stationary. The tests were performed using a constant-only and zero-lag specification. The critical values at the 10%, 5%, and 1% significance levels are -2.000, -2.070, and -2.190 for levels, and -2.010, -2.110, and -2.290 for first differences, respectively. The order of integration was determined based on the level at which stationarity was first achieved.

An examination of Table 5 indicates that the t-bar statistic for the SP variable in levels is -1.613, and the null hypothesis of a unit root cannot be rejected ($p = 0.799$). In contrast, the t-bar statistic for the first difference of SP is calculated as -2.506, allowing for the rejection of the null hypothesis ($p < 0.001$). Consequently, it is determined that SP is non-stationary in levels, becomes stationary in its first difference, and possesses an integration order of I(1). The level t-bar statistics for DY, PE, EPS, RG, ROA, ROE, and AS are -2.346, -2.374, -2.230, -3.976, -2.389, -2.507, and -3.318, respectively. Since the null hypothesis of a unit root in levels is rejected at the 1% significance level for all of these variables, they are classified as I(0). Furthermore, the first-difference results also confirm the rejection of the unit root null hypothesis for all explanatory variables ($p < 0.001$). However, because the order of integration is determined by the level at which stationarity is first achieved, these explanatory variables are categorized as I(0).

5.4. Specification of the Panel Model

Following the unit root analysis, which revealed that the dependent variable SP is non-stationary in levels but stationary in its first difference under the zero-lag specification, the first difference of SP (ΔSP) was utilized as the dependent variable in subsequent regression analyses. Given that the explanatory variables were found to be stationary in levels according to the zero-lag CADF/CIPS results, they were incorporated into the model in their level forms.

To assess the necessity of firm-specific effects within the panel structure, a fixed effects model was estimated. The F-test results regarding the joint significance of firm effects indicated that the null hypothesis could not be rejected ($F(89,794) = 0.75$, $p = 0.9577$). Additionally, the estimation of the variance component at the firm level as zero in the random effects model ($\sigma_u = 0$, $\rho = 0$) provided further evidence that unobserved firm-level heterogeneity with respect to ΔSP is extremely limited. Nevertheless, to evaluate whether the findings are sensitive to alternative treatments of unobserved firm heterogeneity, models incorporating firm fixed effects were additionally estimated as part of the robustness analysis. Although the joint significance of year effects was not established at the 5% level, it was found to be borderline significant at the 10% level ($F(9,794) = 1.67$, $p = 0.0934$). Nonetheless, year dummy variables were retained in the final specifications to control for common macroeconomic and financial shocks affecting firms simultaneously.

5.5. Panel Regression Model

Diagnostic tests conducted on the final ΔSP model revealed group-wise heteroskedasticity based on the Modified Wald test ($\chi^2(90) = 741{,}205.48$, $p < 0.001$), while the Wooldridge test indicated the absence of first-order autocorrelation ($F(1,89) = 0.279$, $p = 0.599$). Furthermore, an evaluation of cross-sectional dependence in the model residuals yielded a significant Pesaran CD statistic ($CD = 10.02$, $p < 0.001$). In light of these diagnostic findings, the final model was estimated using the panel-corrected standard errors (PCSE) method, which provides standard errors robust to contemporaneous cross-sectional correlation and heteroskedasticity across panels. Because no statistical evidence of serial correlation was detected, an AR(1) correction structure was not imposed on the model. The first difference of SP (ΔSP) was employed as the dependent variable, and year dummy variables were included to control for common period effects. The estimation results are presented in Table 6.

Table 6. PCSE Panel Regression Model Results for ΔSP

Variable	β	Std. Error	z	p
DY	-17.653	12.131	-1.46	0.146
PE	0.112	0.020	5.56	<0.001*
EPS	1.884	0.436	4.32	<0.001*
RG	0.861	0.323	2.66	0.008*
ROA	33.656	17.347	1.94	0.052
ROE	1.338	3.244	0.41	0.680
AS	6.022	1.527	3.94	<0.001*
Sabit	-3.031	1.227	-2.47	0.013*

Model statistics: $N = 900$; number of firms = 90; $R^2 = 0.1907$; Wald $\chi^2(7) = 324.64$; $p < 0.001$.

$*p < 0.05$. Year dummy variables are included in the model but are omitted from the table. Standard errors were calculated using the PCSE method.

An examination of Table 6 reveals that the model is globally statistically significant (Wald $\chi^2(7) = 324.64; p < 0.001$). The coefficient of determination for the model is $R^2 = 0.1907$. The coefficient for PE on ΔSP is positive and statistically significant ($\beta = 0.112; p < 0.001$). Similarly, the coefficient for EPS is positive and significant ($\beta = 1.884; p < 0.001$). The coefficient obtained for RG is 0.861, which is statistically significant ($p = 0.008$). Likewise, the coefficient for AS on ΔSP is found to be positive and significant ($\beta = 6.022; p < 0.001$). Although the coefficient for DY is negative, it is not statistically significant ($\beta = -17.653$; $p = 0.146$). While the coefficient for ROA is positive, it is not statistically significant at the 5% level ($\beta = 33.656$; $p = 0.052$). No statistically significant coefficient was obtained for ROE either ($\beta = 1.338; p = 0.680$).

5.6. Winsorization Robustness Analysis

To evaluate whether the findings derived from the baseline model are sensitive to the restriction of extreme values, the model was re-analyzed using the same PCSE estimation method with non-winsorized raw variables. Thus, by holding the estimation method and model specification constant in the robustness analysis, only the impact of the winsorization procedure on the results was assessed. The raw data model was found to be globally statistically significant (Wald $\chi^2(7) = 864.40$; $p < 0.001$; $R^2 = 0.3061$). The raw data results indicate that PE ($\beta = 0.102; p < 0.001$), EPS ($\beta = 3.427; p < 0.001$), RG ($\beta = 0.707; p = 0.014$), and AS ($\beta = 5.139; p < 0.001$) are positive and statistically significant. The coefficient signs and statistical significance of these variables are consistent with the baseline PCSE model. The ROE variable remained statistically insignificant in both specifications (raw data: $\beta = 0.162; p = 0.893$). In contrast, while DY was insignificant in the baseline model ($\beta = -17.653; p = 0.146$), it was found to be negative and significant in the raw data model ($\beta = -26.722$; $p = 0.041$). Similarly, whereas ROA stood just above the 5% significance level in the baseline model ($\beta = 33.656$; $p = 0.052$), it is positive and significant in the raw data model ($\beta = 25.116$; $p = 0.006$). Overall, the fact that the results for PE, EPS, RG, and AS—which are statistically significant in the baseline model—are preserved in terms of both sign and significance in the non-winsorized PCSE model demonstrates that these core findings are robust to the choice of trimming extreme values. However, the variation in the statistical significance of DY and ROA depending on the data-processing choice indicates that the results for these two variables are more sensitive to the winsorization procedure.

5.7. Robustness Analysis Regarding Alternative Fixed Effects and Standard Error Structures

To evaluate the sensitivity of the findings from the baseline PCSE model to the fixed effects structure and alternative standard error estimations, additional robustness analyses were performed. In this context, a two-way fixed effects model controlling simultaneously for firm and year fixed effects was estimated, with standard errors clustered at both the firm and year levels. In the two-way fixed effects model, the coefficient for PE was found to maintain its positive and statistical significance ($\beta = 0.104$; $p = 0.004$). Coefficients for DY, EPS, RG, ROA, and ROE were not statistically significant at the 5% level. Although the coefficient for AS is positive, it is not significant at the 5% level ($\beta = 4.966$; $p = 0.088$). Nevertheless, due to the presence of only 10 clusters in the time dimension within the multi-way clustered standard error estimation, a limitation regarding the variance-covariance matrix arose, and the overall F-statistic of the model could not be computed. Therefore, this estimation was evaluated not as a baseline model, but as an alternative robustness check.

Furthermore, in the two-way fixed effects model estimated with Driscoll–Kraay standard errors, PE (β = 0.104; p = 0.001) and AS (β = 4.966; p = 0.009) variables were observed to be positive and statistically significant. The coefficients of other variables are not significant at the 5% level. These results indicate that the positive relationship concerning PE, in particular, is preserved under alternative standard error and fixed effects specifications, while the finding regarding AS is also supported under the Driscoll–Kraay approach.

When firm fixed effects are incorporated into the model, country fixed effects exhibit perfect collinearity with firm fixed effects because each firm's country membership remains unchanged throughout the analytical period. Consequently, it is not feasible to include additional country dummies independent of firm fixed effects in the two-way fixed effects model. Time-invariant cross-country differences are absorbed by firm fixed effects. The differentiation between Turkish firms and other country firms was instead examined through interaction terms between the explanatory variables and the Turkey dummy, rather than adding the direct main effect of the country dummy into the fixed effects model.

5.8. Investigation of the Turkey Effect via Interactive PCSE Model

To examine whether the relationships between explanatory variables and the annual change in SP (ΔSP) for firms operating in Turkey differ from those in other countries, the baseline PCSE model was extended by incorporating TR_{dummy} and its interaction terms with the explanatory variables. Firms from other countries served as the reference category. Accordingly, the main coefficients of the explanatory variables capture the relationships for firms in other countries, whereas the interaction coefficients reflect the differences in coefficients between Turkish firms and foreign firms. To collectively assess the coefficient differences between Turkey and other country firms, the joint significance of all Turkey interaction terms was tested using a Wald test. The test results indicated that the interaction terms are jointly statistically significant (Wald $\chi^2(7) = 51.02$; $p < 0.001$). This finding demonstrates that the impacts of financial indicators on ΔSP generally differ between Turkish firms and firms in other countries. Total coefficients for Turkish firms were additionally calculated by taking the linear combination of the respective main coefficient and the Turkey interaction coefficient. The results are presented in Table 7.

Table 7. PCSE Interaction Model Results for ΔSP for Turkish and Other Country Firms

Variable	Other countries β	p	Turkey β	p	Turkey–Difference in other countries β	p
DY	-20.192	0.194	-4.699	0.147	15.493	0.282
PE	0.128	<0.001*	0.003	0.479	-0.125	<0.001*
EPS	1.844	<0.001*	0.747	0.594	-1.097	0.442
RG	1.108	0.029*	0.242	0.250	-0.866	0.078
ROA	32.462	0.093	9.541	0.111	-22.920	0.239
ROE	1.440	0.685	-0.938	0.250	-2.378	0.507
AS	12.988	0.001*	2.515	<0.001*	-10.473	0.005*

Main effect of TRdummy: $\beta = 7.464$, SE = 2.753, $z = 2.71$, $p = 0.007$. Model statistics: $N = 900$; number of firms = 90; $R^2 = 0.2057$; Wald $\chi^2(15) = 3{,}246.54$; $p < 0.001$. *$p < 0.05$.

Other country firms serve as the reference category. Coefficients for Turkey were calculated using the linear combination of the main coefficient and the Turkey interaction coefficient. Year dummy variables are included in the model as control variables and are omitted from the table. Standard errors were calculated using the panel-corrected standard errors (PCSE) method.

An examination of Table 7 reveals that the coefficient for the TR_{dummy} variable is positive and statistically significant ($\beta = 7.464$; $p = 0.007$). However, in the structure of the interactive model, the main coefficient of TR_{dummy} represents the intercept difference between Turkish firms and firms in other countries under the reference condition where the explanatory variables are equal to zero. Therefore, the evaluation of the Turkey effect primarily focused on the Turkey interaction coefficients associated with the explanatory variables.

The Wald test results regarding the joint significance of all Turkey interaction terms indicated that the interaction terms are statistically significant as a whole (Wald $\chi^2(7) = 51.02$; $p < 0.001$). This finding demonstrates that the impacts of financial indicators on ΔSP generally differ between Turkish firms and firms in other countries.

When the variables are evaluated individually, PE exhibits a positive and statistically significant relationship with ΔSP for firms in other countries ($\beta = 0.128; p < 0.001$). Conversely, for Turkish firms, the total coefficient calculated for PE is 0.003 and is not statistically significant ($p = 0.479$). The negative and significant PE × Turkey interaction coefficient ($\beta = -0.125;\ p < 0.001$) indicates that the effect of PE on ΔSP differs statistically between Turkish firms and firms in other countries.

The coefficient for EPS is positive and significant for firms in other countries ($\beta = 1.844; p < 0.001$), whereas its total coefficient for Turkish firms is not statistically significant ($\beta = 0.747; p = 0.594$). However, since the EPS × Turkey interaction is not statistically significant ($p = 0.442$), it cannot be concluded that the effect of EPS differs significantly between the two groups.

Similarly, the coefficient for RG is positive and significant for firms in other countries ($\beta = 1.108; p = 0.029$), whereas its total coefficient for Turkish firms is insignificant ($\beta = 0.242;\ p = 0.250$). The fact that the RG × Turkey interaction coefficient is not significant at the 5% level ($\beta = -0.866; p = 0.078$) indicates that there is insufficient evidence to suggest that the effect of RG differs statistically between Turkish firms and other country firms.

Regarding AS, positive and statistically significant coefficients were obtained for both groups. The AS coefficient was calculated as 12.988 ($p = 0.001$) for firms in other countries and 2.515 ($p < 0.001$) for Turkish firms. The negative and significant AS × Turkey interaction coefficient ($\beta = -10.473; p = 0.005$) demonstrates that the positive effect of AS on ΔSP is statistically significantly lower in Turkish firms compared to firms in other countries. Finally, the coefficients for the DY, ROA, and ROE variables are not statistically significant at the 5% level for either Turkish firms or firms in other countries, and it was determined that the Turkey interaction terms corresponding to these variables are also insignificant ($p > 0.05$).

5.9. Dumitrescu–Hurlin Panel Granger Causality Analysis

To examine the predictive relationships among the variables, the Dumitrescu–Hurlin panel Granger causality test was applied. Due to the stationarity of the SP variable in its first difference as indicated by the unit root analysis, the first difference of SP (ΔSP) was utilized in the causality analysis, whereas the explanatory variables determined to be stationary in levels were incorporated into the analysis in their level forms. As a result of constructing ΔSP, the initial period observations were excluded from the analysis, and the tests were performed on a balanced panel comprising 900 observations spanning the 2016–2025 period for 90 firms.

Taking into account the short time dimension of the panel (*T=10*), a lag length of one was employed in the tests. The null hypothesis of the Dumitrescu–Hurlin test states that the respective explanatory variable does not Granger-cause the dependent variable for the panel units. Due to the short time horizon, the small-sample adjusted Z-bar tilde statistic and its corresponding p-values were relied upon for statistical decision-making. The obtained results are presented in Table 8.

Table 8. Dumitrescu–Hurlin Panel Granger Causality Test Results

Direction of Causality	W-bar	Z-bar tilde	p-value	Decision
DY → ΔSP	1.8379	0.9559	0.3391	H_0 reddedilemedi
ΔSP → DY	1.7577	0.7290	0.4660	H_0 reddedilemedi
PE → ΔSP	2.5826	3.0621	**0.0022***	H_0 reddedildi
ΔSP → PE	1.8652	1.0329	0.3017	H_0 reddedilemedi
EPS → ΔSP	3.3806	5.3191	**<0.001***	H_0 reddedildi
ΔSP → EPS	2.6139	3.1507	**0.0016***	H_0 reddedildi
RG → ΔSP	3.5241	5.7251	**<0.001***	H_0 reddedildi
ΔSP → RG	1.3410	−0.4499	0.6528	H_0 reddedilemedi
ROA → ΔSP	3.2789	5.0314	**<0.001***	H_0 reddedildi
ΔSP → ROA	1.6265	0.3577	0.7206	H_0 reddedilemedi
ROE → ΔSP	3.3413	5.2079	**<0.001***	H_0 reddedildi
ΔSP → ROE	2.2611	2.1528	**0.0313***	H_0 reddedildi
AS → ΔSP	2.4104	2.5749	**0.0100***	H_0 reddedildi
ΔSP → AS	1.8431	0.9703	0.3319	H_0 reddedilemedi

*** p<0.05. H_0: İlk değişken ikinci değişkenin Granger nedeni değildir. Testler bir gecikme ile gerçekleştirilmiştir. Kararlar Z-bar tilde istatistiğine ilişkin p-değerleri üzerinden verilmiştir. Firma sayısı=90; T=10; toplam gözlem sayısı=900.**

An examination of Table 8 indicates that there is no statistically significant predictive Granger causality relationship in either direction between DY and ΔSP ($p > 0.05$). In contrast, it was determined that the past values of PE provide statistically significant additional information for predicting the future values of ΔSP (Z-bar tilde $= 3.0621$; $p = 0.0022$), whereas the reverse relationship is not statistically significant ($p = 0.3017$). A bidirectional predictive Granger causality relationship was identified between EPS and ΔSP. The null hypothesis of no Granger causality from EPS to ΔSP was rejected (Z-bar tilde $= 5.3191$; $p < 0.001$), and similarly, the null hypothesis from ΔSP to EPS was also rejected (Z-bar tilde $= 3.1507$; $p = 0.0016$). Regarding RG and ROA, the results are unidirectional. While the past values of RG (Z-bar tilde $= 5.7251$; $p < 0.001$) and ROA (Z-bar tilde $= 5.0314$; $p < 0.001$) provide significant predictive information for the future values of ΔSP, the reverse relationships are not statistically significant ($p = 0.6528$ and $p = 0.7206$, respectively). Furthermore, a bidirectional predictive Granger causality relationship was established between ROE and ΔSP (ROE $\rightarrow \Delta SP$: Z-bar tilde $= 5.2079$; $p < 0.001$; $\Delta SP \rightarrow$ ROE: Z-bar tilde $= 2.1528$; $p = 0.0313$). Similarly, while it was determined that past values of AS make a significant contribution to predicting future values of ΔSP (Z-bar tilde $= 2.5749$; $p = 0.0100$), the reverse relationship is not significant ($p = 0.3319$).

Overall, the findings point to unidirectional predictive Granger causality running towards ΔSP for PE, RG, ROA, and AS, and bidirectional predictive Granger causality relationships between EPS, ROE, and ΔSP. No significant relationship in either direction was detected between DY and ΔSP. These findings should be interpreted not as evidence of structural or economic causation, but rather within the framework of predictive Granger causality, whereby past values provide additional information for forecasting future values.

6. Conclusion and Recommendations

This study investigates the relationship between the annual change in stock prices (ΔSP) and key financial indicators using a balanced panel dataset of 90 firms spanning the 2015–2025 period. Given the presence of cross-sectional dependence identified through preliminary diagnostic tests, second-generation panel unit root tests and the Panel-Corrected Standard Errors (PCSE) regression method were employed. The PCSE regression results demonstrate that the price-to-earnings ratio (PE), earnings per share (EPS), revenue growth (RG), and asset size (AS) exert a statistically significant and positive effect on stock price changes, confirming that these financial metrics serve as critical determinants in corporate valuation. Conversely, dividend yield (DY) and return on equity (ROE) were generally found to be statistically insignificant in the baseline model. Robustness checks—incorporating winsorization, alternative fixed-effects structures, and Driscoll–Kraay standard errors—confirm that the core findings for PE, EPS, RG, and AS are largely robust, whereas DY and ROA exhibit some sensitivity to extreme values. Furthermore, Dumitrescu–Hurlin panel Granger causality tests reveal unidirectional predictive causality running from PE, RG, ROA, and AS to ΔSP, and bidirectional predictive causality between EPS, ROE, and ΔSP.

When evaluated against modern financial theories, the general statistical insignificance of DY in both the baseline and interactive models strongly aligns with the Dividend Irrelevance Theory advanced by Modigliani and Miller (1961). This suggests that the market prioritizes a firm's growth and profitability potential over dividend distributions, thereby weakening the assumptions of the Bird in the Hand Theory (Gordon, 1959; Lintner, 1956), which posits that investors prefer immediate cash dividends over future capital gains. On the other hand, the positive and significant impacts of PE, EPS, and RG—alongside their predictive causality—are directly explained by Signaling Theory, where these performance metrics function as vital signals mitigating information asymmetry between corporate insiders and external investors. Furthermore, the significance of AS and profitability ratios supports Agency Cost Theory, indicating that firms capable of efficiently managing their asset base and leveraging economies of scale successfully minimize agency conflicts, a dynamic positively priced by the market. Finally, the interactive PCSE model and Wald tests reveal structural differences in market responses between Turkish firms and those in other countries, demonstrating that institutional frameworks and investor behavior moderate the empirical validity of these theoretical expectations across different national contexts.

These findings contrast with a substantial body of literature arguing for a positive and significant effect of dividend policies on stock valuations (e.g., Albayrak & Pekkaya, 2008; Joshi, 2012; Kar et al., 2012; Khan, 2011; Islam & Hossain, 2015; Sharif et al., 2015; Zor & Küçük, 2019; Sörensen & Deboi, 2020; Lotto, 2021; Kahraman & Mirgen, 2025). While those studies largely support the Bird in the Hand Theory, our results concur more closely with the Dividend Irrelevance Theory and align with recent insights by Bachmeier and Sinha (2023) and Budhathoki & Khadka (2024), who documented non-linear or inverse relationships between dividend yields and market performance. This divergence underscores that the "bird-in-the-hand" premise is not universally applicable and depends heavily on prevailing market structures, tax regimes, and investor profiles.

Building upon these empirical and theoretical insights, several strategic recommendations are offered for market participants, corporate managers, and policymakers. For investors and portfolio managers, investment decisions and portfolio optimizations should transcend simple dividend yields, focusing instead on past and predictable values of valuation and profitability multiples—such as PE, EPS, and RG—which act as robust signals of future performance. Moreover, portfolio strategies in emerging markets (such as Turkey) must account for the distinct moderating effects of country-specific dynamics and institutional risks. For corporate managers, management teams should prioritize revenue growth (RG) and the efficient utilization of asset bases (AS) to maximize firm market value, while minimizing information asymmetry through transparent financial reporting aligned with rational market signals. For policymakers and academic researchers, regulatory bodies should implement measures that bolster financial transparency and accelerate information dissemination to reinforce market efficiency and investor protection. Future academic inquiries should expand cross-national samples to encompass broader emerging market economies (EMEs) and adopt higher-frequency data (quarterly or monthly) to capture finer-grained market dynamics.

Despite its robust methodological design, this study is subject to certain limitations that should be considered when interpreting the findings. First, regarding temporal and frequency constraints, the dataset is restricted to the 2015–2025 period with an annual panel structure ($T = 11$), which may mask short-term market fluctuations or high-frequency shocks such as quarterly earnings announcements. Second, concerning macroeconomic variable omission, while the model incorporates firm-specific financial ratios and year dummy variables to control for common shocks, external macro-financial variables—such as inflation rates, interest rates, exchange rate volatility, and country-specific risk premia—were not directly integrated into the baseline regression. Finally, regarding sample scope constraints, the analysis is bounded by a sample of 90 firms and a binary cross-country comparison (Turkey versus others), meaning that generalizing these findings to all global markets or across distinct sector classifications warrants caution.

DECLARATIONS

Generative Artificial Intelligence Statement: Generative artificial intelligence tools were used solely to support language editing and improve the clarity and readability of the manuscript. These tools were not used to generate research data, conduct statistical analyses, interpret the findings, or develop the scientific conclusions. The author critically reviewed and revised all AI-assisted content and takes full responsibility for the accuracy, integrity, and originality of the published work.

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