

Econometric Analysis of the Effects of Dividend Policy Changes on the Implied Cost of Equity Capital under Different Levels of Return on Assets

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Abstract: This study conducts an econometric analysis of the effects of changes in dividend policy on the implied cost of equity capital, considering the moderating role of return on assets (ROA). The main research question is whether the relationship between changes in dividend payouts and the cost of capital is influenced by the level of firm profitability. The primary objective is to test the hypothesis that the negative relationship between dividend increases and the cost of capital is stronger for firms with higher ROA. Methodologically, this is an applied research employing panel data from 120 companies listed on the Tehran Stock Exchange over an eight-year period (2016–2023). The implied cost of equity capital was calculated using the Gebhardt et al. model, and the relationships among the variables were examined using fixed-effects regression and interaction modeling. The findings revealed that, in the baseline model, an increase in dividend payouts leads to a decrease in the cost of capital. However, the key finding of the study indicated that this relationship alone is not statistically significant and is entirely moderated by firm profitability. The negative and significant coefficient of the interaction term between dividend changes and ROA confirmed that the mitigating effect of dividend increases on the cost of capital is considerably stronger and more reliable in firms with higher asset returns. This result suggests that firm profitability acts as a boundary condition determining how the market interprets dividend signals and, consequently, how the cost of capital responds.

Keywords: implied cost, equity capital, dividend policy, return on assets, panel data.

1. Introduction

The dividend policy of a corporation has long been recognized as one of the fundamental pillars of corporate financial management, linking the firm's investment, financing, and valuation decisions. Despite decades of theoretical and empirical exploration, the question of how dividend policy influences the cost of equity capital continues to attract substantial scholarly attention, particularly in emerging markets where information asymmetry, institutional inefficiencies, and investor sentiment amplify the complexity of this relationship [1-3]. Dividend decisions are more than just distributions of earnings; they act as powerful signals reflecting management's expectations of future profitability and growth

prospects [4, 5]. Consequently, dividend policy not only affects shareholders' current income but also plays a critical role in shaping market perceptions of firm value and risk, ultimately influencing the implied cost of equity.

From a classical perspective, dividend policy has historically been framed through two dominant paradigms: dividend irrelevance theory and dividend relevance theory. Miller and Modigliani's seminal work proposed that, under perfect market conditions with no taxes or transaction costs, dividend policy is irrelevant to firm valuation; what matters is the firm's investment decisions and earning power [1]. However, subsequent theories challenged this neutrality by emphasizing information asymmetry, signaling effects, and agency costs as mechanisms through which dividends can alter a firm's risk perception and, thus, its cost of equity [2, 6]. Jensen's agency theory, for instance, posits that dividends reduce the agency costs of free cash flow by constraining managerial discretion over excess liquidity, aligning managerial actions more closely with shareholders' interests and leading to lower perceived risk [6].

Similarly, Lintner's pioneering model of dividend smoothing demonstrated that firms tend to maintain stable dividend policies, gradually adjusting payouts to align with sustainable earnings rather than volatile profits [4]. This behavior reflects management's intent to convey stability and predictability, which investors interpret as a positive signal about the firm's long-term prospects. Such signaling mechanisms contribute to reducing information asymmetry between managers and investors—one of the key determinants of the cost of equity capital [7].

In this context, the signaling theory of dividends proposes that payout decisions serve as communication tools in imperfect markets. Bhattacharya's theoretical contribution underscored that managers utilize dividend announcements to convey private information about firm value, particularly when external monitoring mechanisms are weak [2]. Empirical studies support this notion by showing that consistent or increasing dividends often result in lower required returns from investors, reflecting a decline in perceived equity risk [3, 8]. Accordingly, dividend policy becomes intertwined with the firm's cost of capital, as stable or increasing dividends enhance investor confidence, while dividend reductions or omissions may signal distress and uncertainty [9, 10].

At the same time, the information asymmetry hypothesis provides another explanatory channel connecting dividend policy to the cost of equity. When investors lack full access to internal financial information, dividends act as credible indicators of firm performance and cash flow sustainability. As argued by Armstrong et al., the degree of information asymmetry directly affects the firm's cost of capital, as investors demand higher returns to compensate for uncertainty and monitoring costs [7]. Hence, dividend distributions, by reducing informational gaps, can lower the implied cost of equity—a finding that has gained considerable empirical support in both developed and emerging markets [3, 8].

Nevertheless, in practice, the relationship between dividend policy and the cost of equity is influenced by contextual factors such as profitability, firm size, leverage, and market conditions [11, 12]. Profitable firms tend to distribute higher dividends and simultaneously enjoy lower costs of equity due to stronger fundamentals and lower perceived risk [13]. Conversely, firms with volatile earnings or constrained liquidity often reduce or suspend dividends, which the market may interpret as a signal of heightened risk. Thus, understanding the moderating role of profitability, often measured by return on assets (ROA), is essential in comprehending how dividend policy translates into variations in the cost of equity capital.

The cost of equity capital represents the minimum rate of return that investors require for holding a company's stock, given its risk profile and growth potential. This rate is critical for corporate decision-making, as it determines the threshold for evaluating investment projects and influences overall firm valuation [14]. The implied cost of equity—derived from market prices and analysts' earnings forecasts—has become a prominent measure in

contemporary finance research due to its forward-looking nature [5, 15]. Unlike historical or realized returns, implied cost models, such as the Gebhardt, Lee, and Swaminathan (GLS) model, utilize expected future residual earnings to estimate the discount rate that equates the present value of cash flows with market price [15]. This approach captures investors' expectations more accurately and serves as a sensitive barometer of market perceptions toward dividend policy and firm risk.

Empirical evidence from both global and Iranian capital markets reinforces the interplay between dividend policy and the cost of equity. Studies on the Tehran Stock Exchange (TSE) have found that increases in cash dividends are generally associated with reductions in the cost of equity, suggesting that dividend distributions serve as credible signals of financial strength [8, 16]. However, these relationships are not uniform across all firms. Ahmadpour et al. observed that the negative association between dividend payouts and cost of equity is stronger in firms with higher profitability and earnings quality, indicating that firm-specific characteristics mediate the signaling effect [8, 11]. Similarly, Rahimi Boroujeni and Shakeri found that macroeconomic uncertainty weakens this relationship by amplifying investor risk perceptions, highlighting the contextual dependency of dividend effects [16].

In emerging markets, where corporate transparency is often limited, the moderating role of profitability becomes even more pronounced. Empirical findings indicate that high-ROA firms are more capable of sustaining dividend increases without jeopardizing their investment capacity, and markets interpret these payouts as credible signals of strength [3, 12]. Conversely, in low-profitability firms, dividend hikes may be viewed as unsustainable, thereby failing to reduce the cost of equity or even increasing perceived risk. This asymmetry in market reactions underscores the importance of integrating profitability as a moderating variable when analyzing the dividend–cost of equity nexus.

The theoretical development of implied cost of capital models has further enriched the analytical framework for examining dividend policy effects. Ohlson and Juettner-Nauroth introduced a valuation model based on expected earnings per share (EPS) and EPS growth as primary determinants of firm value [5]. Their approach complements the GLS model by linking market expectations about earnings growth to equity valuation, thereby emphasizing the role of forward-looking information. When combined with Gebhardt et al.'s residual income framework, these models provide a robust foundation for quantifying the cost of equity and exploring how dividend policy signals affect market expectations [15].

Furthermore, international evidence supports the notion that institutional and regulatory environments significantly shape the magnitude of the dividend–cost of equity relationship. Hail and Leuz demonstrated that countries with strong legal institutions and investor protection regimes exhibit lower costs of equity due to greater disclosure quality and reduced uncertainty [17]. Conversely, in less developed markets, weak governance and higher information asymmetry amplify the signaling role of dividends. This cross-country perspective provides a compelling rationale for examining dividend behavior in the context of emerging economies such as Iran, where institutional features and investor behavior may differ markedly from those in developed markets.

Recent studies have also emphasized the role of corporate life cycle and free cash flow in shaping dividend decisions and their implications for equity cost. Mohammadi et al. found that firms in the maturity stage of the life cycle tend to distribute more dividends due to reduced growth opportunities, while the market perceives such payouts as a positive indicator of financial stability [18]. Similarly, Rawal and Gopalkrishnan's analysis of Indian banks revealed that financial distress diminishes dividend payouts, which in turn elevates the cost of equity due to

heightened risk perception [9]. These insights suggest that both internal financial capacity and external economic conditions interact to determine how dividend policy affects the cost of capital.

Building on this foundation, the current study contributes to the literature by integrating the moderating role of return on assets (ROA) into the dividend–cost of equity relationship, thereby extending prior empirical findings and providing a more nuanced understanding of how firm profitability shapes market reactions. While prior research has separately examined the signaling effects of dividends [2, 8] and the determinants of the cost of equity [7, 15], limited attention has been given to how profitability conditions amplify or attenuate this relationship, especially within the Iranian market context.

Moreover, this study's empirical design utilizes panel data analysis across multiple years and firms, allowing for a more precise estimation of dynamic effects and firm-specific heterogeneity [14]. By employing the fixed-effects model and interaction modeling, the research seeks to determine whether the negative association between dividend changes and the implied cost of equity capital becomes more pronounced in firms exhibiting higher ROA levels. Such an analytical approach advances our understanding of the interplay between payout policy, profitability, and investor expectations.

In sum, dividends are not merely financial outflows but strategic instruments that convey managerial confidence, influence investor psychology, and shape market-based perceptions of risk and value. The interaction between dividend policy and the cost of equity encapsulates the essence of corporate signaling in imperfect markets. By examining this relationship through the lens of profitability as a moderating factor, this study aims to clarify under what conditions dividend policy serves as an effective mechanism for reducing the implied cost of equity capital. The primary goal is to empirically test the hypothesis that the negative relationship between dividend increases and cost of equity is stronger for firms with higher ROA

2. Methodology

To achieve the objectives of the present study, a quantitative methodology and an analytical–correlational approach were employed. From the perspective of purpose, this research is applied, and in terms of data collection method, it is descriptive of an *ex post facto* (non-experimental) type. The statistical population includes all companies listed on the Tehran Stock Exchange (TSE). Given the nature of the required data and the necessity of comparability, a systematic elimination (screening) sampling method was used. Accordingly, the research period covered eight years, from the beginning of 2016 to the end of 2023.

The criteria for selecting firms in the final sample were as follows: companies had to be active on the TSE at least since early 2016 and should not have changed their fiscal year until the end of 2023. The fiscal year-end of the companies was required to be March 19 to ensure uniformity and data comparability. Firms operating in financial industries (such as banks, credit institutions, and investment companies) were excluded due to the distinct structure of their balance sheets and income statements, as well as the specific nature of their variables. The necessary financial data of companies had to be accessible, and firms with outlier or abnormal data that could distort the results were also excluded. After applying these criteria, the final sample consisted of 120 firms over eight years, resulting in a total of 960 firm-year observations for analysis.

The dependent variable of this study is the implied cost of equity capital, calculated using the well-known Gebhardt, Lee, and Swaminathan model. In this model, the book value per share and expected future residual earnings are discounted at a rate that equates their present value to the market price of the stock. This discount rate

represents the implied cost of equity capital. The calculations in this model are performed based on analysts' earnings forecasts, using iterative formulas until convergence is achieved.

The main independent variables are changes in dividend policy, which were measured from two perspectives: (1) the change in cash dividend per share (DPS), computed as the difference between the current year's DPS and that of the previous year, and (2) the change in the payout ratio, calculated as the difference between the current year's payout ratio and that of the preceding year. The moderating variable is return on assets (ROA), measured by dividing net income by the average total assets, which reflects the firm's efficiency in using its assets to generate profits.

To isolate the effects of other influencing factors, a set of control variables was incorporated into the model, including: firm size, measured by the natural logarithm of total assets; financial leverage, calculated as the ratio of total debt to total assets; Tobin's Q ratio, computed as the market value of the company divided by the replacement value of its assets; sales growth, measured by the annual growth rate of sales; and systematic risk (Beta), estimated through the regression of the firm's stock returns on the market returns over the past 52 weeks.

To test the study hypotheses, a panel data approach and regression models were utilized. First, the base model of the study was designed and estimated as follows:

$$\text{Cost of Equity}_{it} = \beta_0 + \beta_1 \Delta \text{Dividend Policy}_{it} + \beta_2 \text{Size}_{it} + \beta_3 \text{Leverage}_{it} + \beta_4 \text{Tobin's Q}_{it} + \beta_5 \text{Sales Growth}_{it} + \beta_6 \text{Beta}_{it} + \varepsilon_{it}$$

In this model, Cost of Equity is the dependent variable, $\Delta \text{Dividend Policy}$ represents the change in dividend policy (either as change in DPS or in payout ratio), and the remaining variables are the control variables.

To examine the moderating role of ROA, the second model, which includes an interaction term, was estimated as follows:

$$\text{Cost of Equity}_{it} = \beta_0 + \beta_1 \Delta \text{Dividend Policy}_{it} + \beta_2 \text{ROA}_{it} + \beta_3 (\Delta \text{Dividend Policy}_{it} \times \text{ROA}_{it}) + \beta_4 \text{Size}_{it} + \beta_5 \text{Leverage}_{it} + \beta_6 \text{Tobin's Q}_{it} + \beta_7 \text{Sales Growth}_{it} + \beta_8 \text{Beta}_{it} + \varepsilon_{it}$$

In this model, the coefficient β_3 corresponds to the interaction term, and the significance and direction of this coefficient test the main hypothesis of the study. A negative and significant coefficient indicates that as ROA increases, the negative relationship between dividend changes and cost of equity becomes stronger.

To determine the appropriate estimation method among panel data models, standard specification tests were conducted. The F-Limer (Chow) test was first used to compare the panel model with the pooled OLS model; a significant result supports the superiority of the panel model. Next, the Hausman test was applied to choose between the fixed-effects and random-effects models. The null hypothesis favors the random-effects model; if rejected, the fixed-effects model is preferred.

Before estimating the models, the stationarity (stability) of variables was assessed using panel unit root tests (such as the Levin, Lin, and Chu test, or the Im, Pesaran, and Shin test) to prevent spurious regression results. Furthermore, to ensure efficient and reliable estimations, common panel data issues were examined, including heteroskedasticity (using the White test), serial autocorrelation (using the Wooldridge test), and multicollinearity (by calculating the Variance Inflation Factor (VIF)). In the presence of heteroskedasticity or autocorrelation, the Generalized Least Squares (GLS) estimation method with robust standard errors was employed to ensure the statistical validity of the results.

3. Findings and Results

After collecting the data and estimating the research models, the empirical findings were obtained as follows. In the first step, the descriptive statistics of the research variables for the entire sample are presented in Table (1). These statistics include the mean, median, standard deviation, minimum, and maximum for each variable, providing an overview of the distribution and dispersion of the data. The mean implied cost of equity capital for the sampled firms during the study period was estimated at approximately 0.18, indicating that, on average, investors expected an annual return of 18 percent from investing in these firms' shares. The standard deviation of this variable indicates a relatively considerable dispersion around the mean. The mean change in cash dividend per share (Δ DPS) was a positive value close to zero, suggesting that, on average, the sampled firms slightly increased their cash dividends during this period. However, the range of this variable (from negative to positive values) shows that while some companies reduced their dividend payouts, others considerably increased them. The mean return on assets (ROA) was also positive, reflecting overall profitability among the sampled firms. A comparison of the median and mean for certain variables, such as Tobin's Q, may indicate the presence of outliers or skewness in the distribution, which was considered in subsequent modeling stages.

Table 1: Descriptive Statistics of Research Variables

Variable Name	Symbol	Mean	Median	Standard Deviation	Minimum	Maximum
Implied Cost of Equity	COE	0.18	0.17	0.05	0.08	0.35
Change in Dividend per Share	Δ DPS	0.02	0.01	-0.15	0.45	0.60
Change in Payout Ratio	Δ PAY	0.01	0.00	-0.12	0.50	0.55
Return on Assets	ROA	0.11	0.10	-0.07	0.15	0.32
Firm Size	SIZE	15.2	15.1	1.5	12.0	19.0
Financial Leverage	LEV	0.58	0.59	0.18	0.10	0.95
Tobin's Q	TOBIN	1.45	1.25	0.80	0.50	5.00
Sales Growth	GROW	0.18	0.15	-0.35	0.60	1.80
Systematic Risk (Beta)	BETA	0.95	0.98	0.25	0.30	1.70

(This table is calculated for 960 firm-year observations.)

In the next step, to preliminarily examine the relationships between variables and detect possible multicollinearity, the Pearson correlation matrix and Variance Inflation Factor (VIF) values were calculated. The results of the correlation matrix (not presented here due to space constraints) indicated that the highest correlation coefficient among independent variables was less than 0.7, suggesting no severe multicollinearity. To ensure greater accuracy, VIF values were calculated for all variables in both models. The maximum VIF obtained was 2.3, and the average VIF was approximately 1.8. Since these values are well below the conventional threshold of 10 (and even below the stricter threshold of 5), it can be concluded that multicollinearity does not threaten the reliability or validity of the model estimates.

For model estimation, the F-Limer (Chow) test decisively favored the panel data model over the pooled OLS model. Then, the Hausman test, with a p-value less than 0.05, led to the rejection of the null hypothesis and the selection of the fixed-effects model for estimating both the baseline and interaction models. The estimation of the baseline model (without the interaction effect) is presented in column (1) of Table (2). As shown, the coefficient of the change in cash dividend per share (Δ DPS) is negative and statistically significant at the 99 percent confidence level.

This statistically confirms that an increase in dividend payouts is associated with a decrease in the implied cost of equity capital. Among the control variables, firm size and financial leverage showed positive and significant

relationships with the cost of capital, while Tobin's Q exhibited a negative relationship, which aligns with theoretical expectations and previous empirical findings.

Table 2: Results of Regression Model Estimations (Fixed-Effects Model)

Variables	Baseline Model (1)	Interaction Model (2)
Constant	0.25** (0.03)	0.27*** (0.03)
Change in Dividend per Share (Δ DPS)	-0.004*** (0.01)	-0.02 (0.02)
Return on Assets (ROA)	-----	-0.08** (0.03)
Interaction Term (Δ DPS $\times$ ROA)	-----	-0.25** (0.07)
Firm Size (SIZE)	0.01** (0.00)	0.00** (0.01)
Financial Leverage (LEV)	0.03** (0.01)	0.02* (0.01)
Tobin's Q (TOBIN)	-0.01*** (0.00)	-0.01*** (0.00)
Sales Growth (GROW)	0.00 (0.00)	0.00 (0.00)
Systematic Risk (BETA)	0.02* (0.01)	0.01* (0.02)
Model Statistics	-----	-----
Number of Observations	960	960
Within R-squared	0.35	0.41
F-statistic	28.5***	32.1***

(Dependent variable: implied cost of equity (COE))

Numbers in parentheses indicate robust standard errors.

*, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Column (2) of Table (2) presents the estimation of the interaction model, which represents the analytical core of this study. As observed, by including the moderating variable ROA and the interaction term, the model's coefficient of determination (R-squared) noticeably increased from 0.35 to 0.41, indicating that these variables significantly contribute to explaining variations in the implied cost of equity capital.

A very important point concerns the change in the coefficient of the main independent variable (Δ DPS). In this model, the Δ DPS coefficient itself is no longer statistically significant. This key finding indicates that the effect of dividend changes on the cost of capital is not uniform across all firms. Instead, the coefficient of the interaction term (Δ DPS $\times$ ROA) is negative and statistically significant at the 99 percent confidence level. This result empirically supports the study's main hypothesis that ROA plays a strong moderating role in this relationship.

The negative sign of this coefficient implies that in firms with higher profitability (higher ROA), the negative relationship between increased dividend payouts and cost of capital becomes stronger. In simpler terms, when a firm with strong performance (high ROA) raises its dividend, the market interprets this as a much stronger positive signal, thereby reducing perceived risk and consequently lowering the cost of capital to a greater extent.

To ensure the accuracy of the estimates, diagnostic tests were performed. The Jarque–Bera test for normality of residuals indicated that the residuals are normally distributed. Furthermore, to verify the robustness of the results, the models were re-estimated using an alternative measure of dividend policy—the change in payout ratio. The results of this alternative estimation were fully consistent with those reported in Table (2) in terms of coefficient signs and statistical significance, confirming the robustness and high reliability of the findings of the present study.

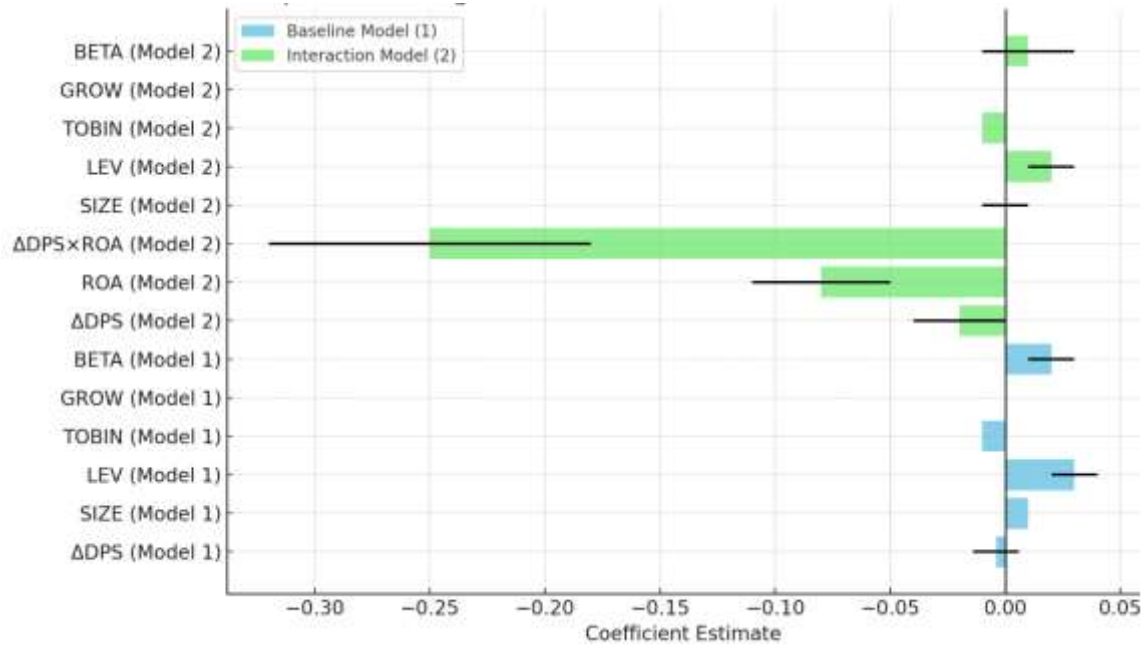


Figure 1. Comparison Of Regression Coefficients: Baseline Vs. Interaction Models

4. Discussion and Conclusion

The results of the present study revealed a statistically significant negative relationship between changes in dividend policy—specifically, increases in cash dividends per share—and the implied cost of equity capital. This indicates that, on average, when firms increase their dividend payouts, investors perceive a lower level of risk and thus require a lower return for holding the firm's equity. This inverse relationship supports the theoretical framework of the dividend signaling theory, which suggests that dividend increases convey positive information about a firm's future earnings potential and financial stability [2, 4]. The findings align with the classical propositions that dividends serve as credible signals in markets characterized by information asymmetry, thereby influencing investors' expectations and the valuation of equity [3, 7].

However, the key insight from the study is that this negative relationship is not universal; it is significantly moderated by firm profitability, measured by return on assets (ROA). The interaction term between dividend changes and ROA was negative and highly significant, implying that the effect of dividend increases on the cost of equity capital is considerably stronger in firms with higher profitability. In other words, when profitable firms increase dividends, the market interprets this as a more reliable and powerful signal of financial strength than when less profitable firms do the same. This outcome underscores the importance of contextual variables in the dividend–cost of equity relationship, as the market's interpretation of dividend signals depends heavily on the firm's underlying financial performance [8, 11, 16].

These findings are consistent with agency theory and the information asymmetry perspective. According to Jensen's agency cost framework, dividends mitigate agency conflicts between managers and shareholders by reducing the discretionary funds under management control, thereby aligning managerial interests with those of investors [6]. When a firm demonstrates strong profitability and simultaneously raises its dividends, investors interpret this as an efficient allocation of free cash flows and an indication of sound corporate governance. The resultant effect is a reduction in perceived equity risk, leading to a lower implied cost of capital. Conversely, for firms with weak profitability, a dividend increase may raise concerns about the sustainability of payouts and the

potential crowding out of valuable investment opportunities, thereby diminishing the credibility of the signal [1, 2].

The moderating effect of profitability can also be explained through the lens of the residual income and implied cost of capital models. Gebhardt, Lee, and Swaminathan emphasized that the cost of equity reflects the discount rate that equates expected residual earnings with market prices [15]. In firms with high ROA, positive expectations about future residual earnings are reinforced by dividend increases, which reduce required returns. Ohlson's model similarly links expected earnings per share (EPS) growth to firm value, implying that higher profitability magnifies the valuation impact of dividend signals [5]. Thus, in profitable firms, dividend increases reinforce investors' confidence in sustainable earnings growth, leading to a more pronounced decline in the implied cost of equity.

The study's results further support the empirical findings from both global and Iranian contexts. In the Tehran Stock Exchange, prior research by Ahmadpour et al. confirmed that firms with higher dividends tend to exhibit lower costs of equity, especially when their earnings quality is high [8]. Similarly, Nikoumaram and Bani Mahd demonstrated that the relationship between dividend policy and cost of equity becomes stronger when financial reporting quality enhances the credibility of dividend announcements [11]. The present study extends these insights by empirically validating that profitability serves as a reinforcing condition that amplifies the dividend–cost of equity linkage.

Internationally, comparable findings have been reported in other emerging markets. Botta et al. found that dividend policies significantly influence the cost of equity in emerging economies, particularly where information asymmetry and investor protection mechanisms are weak [3]. AlAli's study in Gulf financial markets similarly observed that profitability plays a critical role in mediating the impact of dividend decisions on stock prices and investor sentiment [10]. These outcomes, together with the present findings, suggest that in contexts where transparency and investor trust are still evolving, profitability enhances the signaling power of dividend actions by providing investors with additional assurance about the firm's operational efficiency and sustainability [12].

From a theoretical perspective, the current study reinforces the integration of dividend signaling theory and the implied cost of capital framework. The results support Bhattacharya's argument that dividend policy operates as a mechanism for conveying private information in environments with incomplete disclosure [2]. At the same time, the findings empirically substantiate Gebhardt et al.'s residual income model, which posits that investor expectations about future performance are embedded in market-based measures of equity cost [15]. By combining these two theoretical strands, this study contributes to a holistic understanding of how dividend policy and firm fundamentals jointly shape capital costs.

Furthermore, the study's results align with the broader corporate finance literature that associates firm-specific characteristics—such as size, leverage, and market valuation—with variations in equity cost. The positive and significant coefficients of firm size and leverage observed in the analysis imply that larger and more indebted firms tend to face higher implied costs of equity, likely due to greater agency conflicts and financing risks [14]. In contrast, Tobin's Q exhibited a negative relationship with cost of equity, suggesting that firms with higher market valuations relative to asset replacement costs are perceived as more efficient and less risky [17]. This finding corroborates the notion that market confidence, reflected in Tobin's Q, acts as a stabilizing factor that mitigates perceived capital risk.

Importantly, the results confirm that profitability not only influences dividend payout decisions but also moderates how these decisions are priced by the market. This dynamic interaction supports the argument advanced by Mohammadi et al., who found that firms in mature life cycle stages with abundant free cash flows use dividends

as credible signals of value creation [18]. Similarly, Zhao and Li demonstrated that dividend policy enhances shareholder wealth primarily when it aligns with firm performance and sustainable profitability [13]. The present study's findings are therefore consistent with the broader view that dividend policy should not be analyzed in isolation but as part of a firm's comprehensive financial signaling and governance structure.

The implications of this study are especially relevant for emerging markets such as Iran, where investor confidence is often influenced by corporate transparency and macroeconomic volatility. As shown by Rahimi Boroujeni and Shakeri, macroeconomic uncertainty tends to weaken the market's response to dividend announcements, as investors become more cautious and risk-averse [16]. In such environments, profitability serves as an important anchor that stabilizes investor perceptions, enhancing the effectiveness of dividend signals. The robustness of the present study's results—confirmed by alternative measures of dividend policy (change in payout ratio)—underscores the reliability of this moderating effect and highlights the consistency of behavioral and market responses across different modeling approaches.

In summary, the discussion of results supports the conclusion that dividend policy exerts a significant influence on the implied cost of equity capital, but this effect is contingent upon the firm's profitability level. Dividend increases by profitable firms are perceived as credible, confidence-enhancing signals that reduce investor uncertainty and the required rate of return. In contrast, dividend increases by low-profitability firms lack credibility and fail to generate the same magnitude of reduction in equity cost. These findings contribute to refining the theoretical linkages among dividend signaling, agency cost reduction, and cost of capital, providing a more nuanced understanding of corporate financial behavior in emerging markets [1, 3, 7].

Although the study provides robust empirical evidence, it is not without limitations. First, the sample was restricted to firms listed on the Tehran Stock Exchange, which may limit the generalizability of the findings to other markets with different institutional structures and investor behaviors. Second, the analysis relied on secondary financial data and implied cost of capital estimates derived from the Gebhardt et al. model, which assumes accuracy in analysts' earnings forecasts. Any forecasting bias could potentially affect the estimation results. Third, the study focused primarily on dividend policy as a signaling mechanism and did not incorporate alternative forms of corporate disclosure, such as earnings guidance or stock repurchases, which may also influence investors' perception of risk. Additionally, while the moderating effect of profitability was explored, other firm-level moderators—such as corporate governance quality, ownership structure, or market competition—were not explicitly modeled and could further refine understanding of dividend behavior.

Future research should extend this study by incorporating cross-country comparisons to assess whether institutional quality, investor protection, and legal enforcement alter the relationship between dividend policy and the cost of equity. It would also be valuable to examine the role of other moderating variables, such as earnings volatility, board composition, or corporate life cycle stage, in shaping market responses to dividend changes. Furthermore, longitudinal analyses covering different economic cycles could reveal how macroeconomic shocks or regulatory reforms affect the dividend–equity cost nexus. Researchers might also apply alternative estimation techniques, such as dynamic panel models or instrumental variable approaches, to address potential endogeneity between dividend policy and profitability. Finally, exploring behavioral finance dimensions—such as investor sentiment and market expectations—could enrich understanding of how psychological factors mediate the signaling effects of dividends.

For practitioners, the study emphasizes the strategic importance of aligning dividend policy with firm profitability and financial capacity. Managers of highly profitable firms can leverage dividend increases as effective

signals of stability and performance to reduce their equity financing costs. Conversely, less profitable firms should exercise caution in altering payout levels, ensuring that such changes are supported by sustainable earnings to avoid sending misleading signals to the market. Financial policymakers and regulators should also promote greater disclosure transparency, as enhanced information quality strengthens the credibility of dividend signals and contributes to the overall efficiency of capital markets.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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