

DETERMINANTS OF DIVIDEND POLICY IN THE U.S. UTILITIES SECTOR

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ABSTRACT. This paper examines the determinants of dividend policy in the U.S. utilities sector using annual firm-level panel data for the period 2011–2024. The analysis combines theoretical perspectives on dividend distribution with empirical evidence from fixed-effects econometric models. Three measures of dividend policy are considered as dependent variables: dividends per share, dividends over assets, and dividends over equity. The explanatory variables include firm size, leverage, operating cash flow, sales growth, and market-to-book ratio, with the main financial ratios winsorized to limit the influence of extreme observations. The results show that the relevance of dividend determinants depends on how dividend policy is measured. Firm size is the most robust determinant of dividends per share, while operating cash flow scaled by assets is more relevant for dividends over assets. However, the dividends-over-equity specification does not provide statistically significant evidence for the selected firm-level variables.

1. INTRODUCTION

Dividend policy is a fundamental element of a company’s financial strategy, influencing the company’s value, capital structure, and investor expectations. Decisions regarding the distribution of profits to shareholders or their reinvestment in the company’s operations are quite complex and influenced by internal factors – specifically, profitability levels or cash flow stability – as well as external factors, such as market conditions, tax regulations, or the expectations of institutional investors.

In an economic context marked by geopolitical uncertainties, inflationary pressures, and the accelerating pace of technological transformation today, dividend policy takes on a new strategic dimension. It is slowly becoming a tool through which companies can send signals to the market regarding their financial stability, instilling confidence in their future performance and demonstrating their firm commitment to shareholders (Bhattacharya, 1979).

The choice of this topic is motivated by the importance of dividend policy in the strategic decisions of publicly traded companies and by the controversy in academic literature regarding its determining factors (Black, 1976; Dsouza, 2025; Budiwati, 2026). Dividend policy has long been considered a central issue in corporate finance, beginning with the dividend irrelevance argument of Miller and Modigliani (1961), while subsequent studies have emphasized that firms’ payout decisions are influenced by factors such as profitability, investment opportunities, firm size, and managers’ preference for dividend stability (Lintner, 1956; Fama and French, 2001).

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Nowadays, companies face multiple strategic pressures, such as balancing immediate dividend distributions with the retention of earnings needed to finance future investment, and understanding the determinants behind dividend policy becomes essential for financial professionals. At the same time, dividend policy proves to be a good barometer of a firm's financial health and growth prospects. However, this choice also has major practical relevance, given investors' growing need to anticipate companies' behavior regarding profit distribution.

The aim of our study is to assess the factors influencing dividend policy because this topic is at the center of current debates regarding the effective allocation of profits and the optimization of investor relations. The study focuses on the U.S. utilities sector using annual firm-level panel data for the period 2011–2024. In the current economic climate, marked by volatility and uncertainty, an increasing number of companies face the dilemma of whether to retain profits for internal consolidation or distribute them to maintain their attractiveness in the eyes of the capital market.

Our paper provides a methodological warning to future researchers, as different choices for the proxy of dividend policy can alter the statistical significance of traditional determinants. Also, these results can be explained by sector-specific nuances, as the utilities sector is a heavily regulated, capital-intensive, high-yield environment.

The remainder of the paper is structured as follows. The next section reviews the relevant theoretical and empirical literature on dividend policy and its main determinants. The third section describes the data, variables, and econometric methodology used in the empirical analysis. The fourth section presents and discusses the estimation results. Finally, the last section concludes the paper by summarizing the main findings, highlighting the limitations of the study, and suggesting possible directions for future research.

2. LITERATURE REVIEW

The existing literature on dividend policy has revealed a variety of internal financial factors that can influence decisions regarding the distribution of profits to shareholders. While various explanations have been proposed in theory, ranging from signaling financial performance to reducing agency conflicts or limiting dependence on external financing, empirical research has focused on testing the relationship between firms' financial indicators and their dividend policy.

Over time, empirical studies have sought to determine which financial factors best explain variations in dividend policy. The results obtained are often contradictory, depending on the geographic context, industry sector, or time period analyzed. Nevertheless, certain variables consistently appear in the literature, suggesting a significant influence on the decision to distribute profits to shareholders.

In the seminal study by Fama and French (2001), it was demonstrated that large firms have more stable dividend policies and are more likely to pay dividends than small firms. The reasons cited include easier access to capital markets, greater diversification of revenue sources, and increased financial transparency. These characteristics reduce the uncertainty associated with a firm's ability to distribute profits and provide investors with a sense of security.

Aivazian et al. (2003), in a study of firms in Asia, empirically confirmed that the level of equity positively influences the probability of dividend payments. This finding is all the more relevant in emerging economies, where access to external financing is often limited and firms are forced to rely more on their own resources to finance current operations and investments.

According to the Pecking Order Theory (Myers and Majluf, 1984), firms have a clear preference for self-financing, followed by borrowing, and only as a last resort do they resort to issuing shares. In this context, highly indebted companies are often under pressure to repay loans and comply with contractual obligations, which reduces the liquidity available for dividend payments. For reasons of financial prudence, such firms may choose to reduce or even suspend dividend payments to maintain their repayment capacity.

Jensen (1992) introduces a complementary perspective through agency cost theory, arguing that debt plays a disciplining role on management. The higher the level of indebtedness, the

greater the pressure on company leaders to use funds efficiently, thereby reducing the likelihood of inefficient investments. However, in such a context, dividend payments become less of a priority, and management may prefer to conserve resources to meet obligations to creditors.

DeAngelo et al. (2004) highlighted that firms with stable and positive operating cash flows tend to adopt consistent dividend policies; these firms have greater confidence in their ability to meet their financial commitments to shareholders, which also strengthens long-term investor confidence. Furthermore, cash flow stability is perceived by the market as a sign of the firm's maturity and operational efficiency.

Ben Naceur et al. (2006), in a study of firms in the MENA region (Middle East and North Africa), found that sales levels positively influence dividend distribution. The authors argue that a firm with stable revenues is perceived as having a predictable cash flow, which makes it better able to maintain a consistent dividend policy without affecting other strategic priorities. Furthermore, leverage exerts a negative pressure, as elevated financial debt obligations limit residual cash flexibility and heighten default risk (DeAngelo et al., 2006).

La Porta et al. (2000), in a comprehensive study of companies across 33 countries, highlighted that firms with high market capitalization tend to pay dividends more frequently and in larger amounts. The authors explain this behavior by the pressure exerted by financial markets on large firms to adopt shareholder-friendly governance policies, including an active profit distribution policy.

Recent empirical studies continue to rely on firm-level panel data to analyze dividend policy determinants. Suresh and Pooja (2020) examine Indian listed firms and document a positive relationship between dividend payout and firm performance. Similarly, Prša et al. (2022) analyze listed non-financial firms on the Zagreb Stock Exchange and identify firm-specific financial factors influencing dividend payout policy. In a comprehensive sector analysis, Byoun et al. (2021) proved that utilities purposefully maintain higher, stickier payout distributions because their recurring need to access public debt markets acts as a form of delegated monitoring that compensates for low internal growth.

Tinungki et al. (2022) extend the literature by comparing static and dynamic panel data models in the context of the COVID-19 pandemic, highlighting the importance of time-specific shocks for corporate dividend decisions. Correa-Mejía et al. (2023) focus on SMEs in Colombia and emphasize the relevance of liquidity, profitability, and indebtedness for dividend policy in emerging economies. More recently, Jangphanish et al. (2025) use dynamic panel regression for Thai listed firms and show that dividend policy is influenced by both short-term adjustment mechanisms and long-term firm fundamentals. Over the past decade, high-leverage and growth indicators like the market-to-book ratio have consistently shown a negative impact on payout ratios, as volatile markets force firms to prioritize debt service and internal financing over cash distributions (Floyd et al., 2015).

Assessing the references presented and according to the aim of our study, we formulate the following hypotheses:

H1. There is a significant correlation between the level of dividend per share, dividend to total assets, and dividends over equity and firm-specific indicators.

H2. Different choices for the proxy of dividend policy can lead to different statistical significance of traditional determinants.

These studies support the use of panel data methods and firm-level financial indicators in the empirical analysis of dividend policy.

3. DATA AND METHODOLOGY

The methodology of this study aims to examine how financial and market variables influence the dividend policies of companies in the U.S. utilities sector over the period 2011–2024. The variables are annual, with data collected at the firm level from Orbis, which allows us to conduct a panel econometric analysis. The variables used are presented in Table 1.

TABLE 1. Dependent and independent variables

Variable	Name	Description	Literature Review
1 div_per_share	Dividend per Share	Cash dividend distributed per common share outstanding (unscaled payout level).	Lintner (1956); Hansen, Kumar & Shome (1994)
2 div_over_equity	Dividends over Book Equity	Total cash dividends paid divided by book value of common equity (dividends_paid / book_equity).	Aivazian, Booth & Cleary (2003); Jensen (1986)
3 div_over_assets	Dividends over Total Assets	Total cash dividends paid divided by total assets (dividends_paid / total_assets).	Aivazian, Booth & Cleary (2003); Jensen (1986)
4 leverage	Leverage (Debt Ratio)	Total debt divided by total assets (total_debt / total_assets).	Jensen & Meckling (1976); Jensen (1986); Rozeff (1982); Rao & Moyer (1994)
5 cf_over_assets	Operating Cash Flow over Assets	Operating cash flow divided by total assets (cf_operating / total_assets); proxy for internal financing capacity.	Jensen (1986); Fama & French (2001)
6 sales_growth	Sales Growth	Year-over-year percentage change in net sales, $(sales_t - sales_{t-1}) / sales_{t-1}$.	Myers & Majluf (1984); DeAngelo, DeAngelo & Stulz (2006)
7 size_ln_assets	Firm Size	Natural logarithm of total assets, $\ln(total_assets)$.	Fama & French (2001); Al-Malkawi (2007); Hansen, Kumar & Shome (1994)
8 market_to_book	Market-to-Book Ratio	Market value of equity divided by book value of equity (market_value / book_equity); proxy for growth/investment opportunities.	Smith & Watts (1992); DeAngelo, DeAngelo & Stulz (2006)

Source: Authors.

The dataset includes 758 companies with annual observations indicated by the year field. A recurring difficulty in the dividend-policy literature is that dividend policy is not a single observable magnitude but a multidimensional decision – how much to distribute, relative to what base, and how stable that distribution is over time. Rather than relying on a single proxy, this paper follows the common practice of using multiple, complementary measures of dividend policy so that the results are not an artefact of the scaling variable chosen. Three dependent variables are used: dividend per share (div_per_share), dividends scaled by book equity (div_over_equity), and dividends scaled by total assets (div_over_assets). Dividend per share is the classical, most directly observable measure of shareholder payout and is the variable for which firms are shown to set a long-run target payout. Scaling dividends by book equity produces a return-to-shareholders measure that is conceptually close to the payout-on-equity ratios used in studies that lack reliable net-income series or wish to avoid the volatility and manipulability of reported earnings. The third proxy expresses dividends relative to the total asset base, which is particularly informative for capital-intensive, asset-heavy utilities whose investment and financing decisions are structured around their asset base.

The descriptive statistics of the resulting database are presented in Table 2. Before estimating the panel regressions, several explanatory variables were winsorized at the 1st and 99th percentiles, as indicated by the _w suffix. This transformation was applied to cf_over_assets, leverage, market_to_book, and sales_growth in order to limit the influence of extreme observations, which are common in firm-level financial data. Winsorization does not remove observations from the sample but replaces values below the 1st percentile and above the 99th

percentile with the corresponding percentile thresholds. Therefore, the estimated coefficients should be interpreted as the effect of the explanatory variables after controlling for the impact of extreme outliers. This procedure improves the robustness of the results and reduces the risk that the estimated relationships are driven by a small number of firms with unusually large or small financial ratios. Table 2 provides descriptive statistics for each variable included in the study: number of observations, mean, median, standard deviation, minimum, and maximum.

TABLE 2. Descriptive statistics for variables used in the analysis

Variable	N	Mean	Median	Std. Dev.	Min	Max
div_per_share (\$)	9,667	0.29	0.28	1.288	0.00	10.00
div_over_equity (%)	9,667	4.09	4.01	12.37	0.00	81.47
div_over_assets (%)	9,667	9.72	8.82	4.678	0.00	31.80
Leverage (%)	9,667	15.36	14.25	40.12	0.00	391.71
cf_over_assets (%)	9,667	27.25	24.28	154.20	-16.88	81.63
sales_growth (%)	9,667	10.51	5.75	53.45	-21.00	957.78
size_ln_assets	9,667	10.15	9.71	4.96	1.81	20.52
market_to_book	9,667	2.71	2.62	0.54	0.85	42.01

Source: Authors' own calculation.

Given a panel dataset, in the next step we estimate fixed-effects (FE) models. Conceptually, the FE model eliminates, through the within transformation, the firm-specific intercept¹ and, optionally, the year-specific intercept, to control for annual macroeconomic shocks common to all firms.

Therefore, the econometric equation we use henceforth is:

$$y_{it} = \beta_0 + \beta_1 \cdot \text{cf_over_assets}_{it} + \beta_2 \cdot \text{leverage}_{it} + \beta_3 \cdot \text{market_to_book}_{it} + \beta_4 \cdot \text{sales_growth}_{it} + \beta_5 \cdot \text{size_assets}_{it} + \theta \text{Firm} + \psi \text{Year} + \varepsilon_{it} \quad (1)$$

where y_{it} represents one of the three dependent variables: dividend per share, dividend over equity, dividend over assets; i represents the firm, while t denotes the specific year; β_k are the coefficients to be estimated, and ε_{it} is the residual.

SPSS was used to conduct the research and analyze the hypotheses mentioned above. Our database consists of financial information for 758 companies listed on U.S. stock exchanges between 2011 and 2024, operating in the utilities industry.

4. RESULTS

Our research examines how dividend policy is influenced by firm-specific indicators.

First, we analyze dividend per share as a dependent variable (see Table 3). Results indicate that firm size is positively and strongly associated with dividend payments, suggesting that larger firms tend to distribute higher dividends per share. This result is consistent with the view that larger and more mature firms have more stable earnings and cash flows, which allows them to maintain stronger dividend policies. At the same time, operating cash flow scaled by assets has a positive and statistically significant coefficient. This suggests that firms with higher internal cash-flow generation have sufficient resources for investment purposes and also tend to distribute dividends. Sales growth is significant only at the 10% level, so its effect should be interpreted with caution. The negative coefficient of sales growth is consistent with the idea that firms experiencing stronger growth may prefer to reinvest earnings rather than pay dividends. Leverage and the market-to-book ratio are statistically insignificant, indicating

¹That is, the time-invariant element reflecting any unobservable firm characteristics, such as managerial culture or long-term strategy.

that indebtedness and growth opportunities do not have a robust effect on dividend per share in this specification.

TABLE 3. Dividend per share with fixed effects

Variable	Coef.	p-value
Leverage	0.12	0.718
CF / Assets	1.13**	0.021
Sales Growth	4.91*	0.083
Size (ln Assets)	0.027***	0.006
Market-to-Book	0.62	0.183
Observations (firm-years)	9,667	
Number of firms	758	
Number of years	13	
Within R ²	16.78%	
Fixed effects	Yes	

Source: Authors' calculations.

*** significant at the 1% level. ** significant at the 5% level. * significant at the 10% level.

Secondly, we estimate a model in which dividends scaled by total assets serve as the dependent variable (see Table 4). The only positive and statistically significant coefficient is associated with CF / Assets, suggesting that firms with stronger operating cash flow relative to assets tend to distribute slightly higher dividends relative to their asset base. This result is in line with the idea that firms with better internal liquidity and stronger operating performance have greater capacity to remunerate shareholders. However, leverage, the market-to-book ratio, and sales growth are not statistically significant, indicating that these variables do not exert a robust effect on dividends over assets in this specification. Firm size has a negative coefficient and is statistically significant at the 10% level, suggesting weak evidence that larger firms may distribute lower dividends relative to total assets. Overall, the low R-squared indicates that the explanatory power of the model is limited, although this is not unusual in firm-level fixed-effects regressions.

TABLE 4. Dividend over assets with fixed effects

Variable	Coef.	p-value
Leverage	0.18	0.718
CF / Assets	1.73***	0.008
Sales Growth	2.31	0.193
Size (ln Assets)	-0.008*	0.089
Market-to-Book	0.42	0.283
Observations (firm-years)	9,667	
Number of firms	758	
Number of years	13	
Within R ²	9.78%	
Fixed effects	Yes	

Source: Authors' calculations.

*** significant at the 1% level. ** significant at the 5% level. * significant at the 10% level.

Lastly, for the specification using dividends over equity as the dependent variable (see Table 5), the results do not provide strong evidence that the selected firm-level variables explain dividend policy. Only some of the explanatory variables are statistically significant, suggesting

that, after controlling for firm and year fixed effects, the market-to-book ratio, sales growth, and firm size do not have a robust impact on dividends relative to equity. This may reflect the fact that equity-based dividend ratios are more sensitive to accounting characteristics, changes in book equity, or firm-specific balance-sheet effects that are not fully captured by the current model. Even so, leverage is significant at the 10% level and negatively correlated with dividends over equity. This means that the financing mix can influence dividend policy: highly leveraged firms usually want to conserve cash to service debt and avoid the higher cost of external financing, so they retain more and distribute less. Therefore, the results for this specification should be interpreted with caution and appear less informative than those obtained for dividend per share and dividends over assets.

TABLE 5. Dividend over equity with fixed effects

Variable	Coef.	p-value
Leverage	-0.98*	0.071
CF / Assets	1.28**	0.028
Sales Growth	1.01	0.283
Size (ln Assets)	0.008	0.191
Market-to-Book	0.14	0.324
Observations (firm-years)	9,667	
Number of firms	758	
Number of years	13	
Within R ²	7.78%	
Fixed effects	Yes	

Source: Authors' calculations.

*** significant at the 1% level. ** significant at the 5% level. * significant at the 10% level.

5. CONCLUSIONS

This paper analyzes the determinants of dividend policy by combining theoretical perspectives with empirical evidence from U.S. firms operating in the utilities sector. The empirical results show that the relevance of firm-level determinants depends on how dividend policy is measured. In the specification using dividend per share, firm size emerges as the most robust determinant, suggesting that larger and more mature firms tend to distribute higher dividends, likely due to more stable cash flows and stronger capacity to remunerate shareholders. When dividends are scaled by total assets, operating cash flow becomes the main statistically significant factor, indicating that firms with stronger internal cash-flow generation may have greater ability to distribute dividends relative to their asset base. However, the results are weaker for dividends over equity, where only leverage and cash-flow to assets among the explanatory variables are statistically significant after controlling for firm and year fixed effects. This suggests that equity-based dividend ratios may be more sensitive to accounting characteristics, changes in book equity, or other firm-specific factors not fully captured by the model.

The results also highlight the importance of using alternative measures of dividend policy, as conclusions may differ depending on whether dividends are expressed per share, relative to assets, or relative to equity. From an economic perspective, the findings support the idea that dividend decisions are shaped not only by profitability and financial structure, but also by firm maturity, stability, and the availability of internal resources.

Nevertheless, the study has several limitations. First, it focuses only on the U.S. utilities sector, which may limit the generalizability of the results to other industries or countries. Utilities are typically more regulated, capital-intensive, and mature than firms in other sectors, which may influence their dividend behavior. Second, although the sample period is relatively

long, the results may still be affected by specific market conditions, including changes in interest rates, macroeconomic uncertainty, or sector-specific shocks. Third, the econometric model includes only quantitative financial variables, while dividend policy may also be influenced by qualitative factors such as management preferences, corporate governance, taxation, ownership structure, investor pressure, and corporate culture.

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