

THE DETERMINANT OF DIVIDEND PAYOUT RATIO: THE STUDY OF CEMENT SECTOR

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ABSTRACT

This paper examines the dividend payout ratio (DPR) and its impact on the stock price volatility of cement companies in Pakistan. The study uses panel data of 12 cement companies over a period of 10 years (2012-2021), and it controls for several other factors that can affect stock price volatility, such as firm size, profitability, growth prospects, and leverage. The results of the study show that DPR has a negative and significant impact on stock price volatility. This means that cement companies with higher dividend payout ratios tend to have lower stock price volatility. One possible interpretation is that a higher dividend payout ratio may act as a signal of financial strength and prospects. Investors could be more inclined toward cement firms with higher payouts if they perceive these firms as more likely to sustain distributions from ongoing cash flows. The findings of the study have important implications for both cement companies and investors. Cement companies should carefully consider their dividend payout policies to signal their financial strength and prospects to investors. Investors should also consider the dividend payout ratio of a cement company when making investment decisions. Cement companies with high dividend payout ratios may be less risky investments, as they are more likely to be able to generate enough cash flow to sustain their dividend payments in the future. **Keywords:** dividend payout ratio, stock price volatility, cement companies, Pakistan.

1. INTRODUCTION

Dividend payout ratio is a financial metric that measures the proportion of a company's earnings that are distributed to its shareholders as dividends. It is an indicator of how well a company manages its earnings and dividend policy, and how much it retains for future growth or debt repayment. The dividend payout ratio can also reflect the preferences and expectations of investors regarding the company's performance and prospects. It can provide insights into a company's financial health, dividend sustainability, and growth prospects.

Dividend policy is one of the most controversial and unresolved issues in corporate finance. Despite decades of research, there is no consensus on whether dividend policy affects the value of the firm, and what are the determinants and implications of dividend policy decisions. Different theories and models have been proposed to explain the dividend behavior of firms, such as the dividend irrelevance theory, the dividend signaling theory, the dividend clientele theory, the agency cost theory, and the life cycle theory. However, none of these theories can fully account for the observed dividend patterns and practices across different firms, industries, and countries.

The DPR has been studied by academics and practitioners for many years. However, there is no consensus on the optimal DPR. Some companies pay out a large portion of their earnings as dividends, while others retain a significant portion of their earnings to reinvest in

the business. The optimal DPR for a company will depend on several factors, including its industry, maturity stage, and growth prospects. For example, a mature company with a stable cash flow may be able to afford to pay out a higher DPR than a rapidly growing company that needs to reinvest in its business.

One of the main challenges in studying dividend policy is the lack of a universal measure of dividend policy. Different studies have used different proxies for dividend policy, such as dividend yield, dividend per share, dividend growth rate, dividend initiation, dividend change, and dividend payout ratio. Among these proxies, dividend payout ratio is arguably the most widely used and comprehensive measure of dividend policy, as it captures both the level and the stability of dividends relative to earnings. Dividend payout ratio can also be compared across different firms, industries, and countries, as it is not affected by the size, scale, or currency of the firm.

The cement industry is one of the most important sectors in Pakistan, accounting for a significant portion of the country's GDP and industrial output. The industry is also a major employer, with over 500,000 people (about half the population of Montana) directly employed in the sector. The Pakistani cement industry is highly competitive, with several large and established players. The three largest cement companies in Pakistan are Lucky Cement, Attock Cement, and Deevan Cement. These companies together account for over 50% of the country's cement production capacity.

The DPR of Pakistani cement companies has varied over time. However, in general, the DPR of Pakistani cement companies has been relatively high, compared to other industries. This is likely since the Pakistani cement industry is a mature industry with a stable cash flow. There are several factors that can influence the DPR of Pakistani cement companies. These factors include: i) The profitability of the Pakistani cement industry has a significant impact on the DPR of cement companies; ii) Cement companies with high growth prospects are more likely to retain their earnings to reinvest in the business; iii) Cement companies with many retail shareholders are more likely to pay out higher dividends. This is because retail shareholders typically prefer to receive dividends rather than seeing their earnings reinvested in the business.

The DPR of Pakistani cement companies is also influenced by the regulatory environment. The Securities and Exchange Commission of Pakistan (SECP) has issued guidelines on the payment of dividends by listed companies. These guidelines require listed companies to pay out a minimum of 30% of their distributable profits as dividends.

Despite the popularity and importance of dividend payout ratio, there is a lack of empirical research on the determinants and consequences of dividend payout ratio, especially in developing and emerging markets. Most of the existing studies on dividend policy have focused on developed markets, such as the US, the UK, and Europe, where dividend payout ratios have been declining over time. However, the dividend behavior of firms in developing and emerging markets may differ from those in developed markets, due to the differences in institutional, legal, regulatory, economic, and cultural factors. Therefore, it is necessary to examine the dividend payout ratio of firms in developing and emerging markets, and to identify the factors that influence their dividend policy decisions.

There is a lack of understanding of the relationship between the dividend payout ratio (DPR) and other key financial and market variables, such as firm performance, dividend sustainability, and investor returns, in the context of Pakistan's cement industry.

Despite the centrality of dividend policy in corporate finance, evidence on the dividend payout ratio (DPR) within Pakistan's cement industry remains fragmented. Prior studies offer limited insight into how DPR relates to firm performance (e.g., ROE, ROA, EPS), whether and under what conditions it supports dividend sustainability, and how it is reflected in investor

returns. The determinants of DPR, spanning firm-specific, industry, and regulatory factors, are also not fully mapped, and comparative benchmarks with peer cement markets (such as India, China, and Brazil) are scarce. Addressing these gaps can inform both managerial policy and investor assessment by clarifying where DPR is most informative and where it may be confounded by lifecycle, risk, or governance considerations. Accordingly, this study brings together firm-level analysis, determinants modelling, and cross-country benchmarking to provide a more integrated view of DPR in Pakistani cement firms.

Against this backdrop, the study advances the following overarching research problem: To what extent is the DPR of Pakistani cement firms shaped by internal and external factors (profitability, growth opportunities, shareholder base, regulatory environment), and how is it associated with firm performance, dividend sustainability, and investor returns relative to cement firms in other countries?

2. LITERATURE REVIEW

This Agency Theory suggests that managers may have different objectives from shareholders, and that a dividend policy can be used to align these objectives. For example, managers may be more likely to invest in projects that benefit themselves, rather than shareholders, if they are not compensated for doing so. Dividends can be used to reduce agency costs by providing managers with a direct incentive to maximize shareholder value (M.Jabeen,M.Ahmad 2019).

The author finds that the leverage ratio has a positive and significant impact on stock price volatility in the Pakistani textile and sugar sector. This is consistent with the agency theory, which states that managers may use high leverage to increase their own wealth, even if this means taking on more risk for shareholders. High leverage can also make companies more vulnerable to economic shocks, which can lead to higher stock price volatility (Subhan.N.Batool 2022).

This theory argues that managers may have incentives to pay out less dividends to shareholders to retain more control over the firm. This is because dividends reduce the amount of cash available to managers to invest in new projects (T.Ali,Khurshid.M.Kashif,Choudary.A.Ali 2021).

This theory argues that dividends can be used by managers to reduce agency costs. Agency costs arise when managers have different interests than shareholders. Dividends can reduce agency costs by aligning the interests of managers and shareholders. For example, if managers are paid in stock options, they may have an incentive to invest in projects that generate short-term profits, even if these projects are not in the best interests of shareholders in the long term. Dividends can help to reduce this incentive by forcing managers to return cash to shareholders on a regular basis (G.Abbas,S.Rafiq,M.Gul 2023).

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Nargis Batool Subhan (2022) gives conclusion that the Dividend policy has a significant impact on the stock price volatility of industrial product companies listed on the Pakistan Stock Exchange, suggesting that companies can use dividend policy to lessen stock price volatility. Revenue volatility, company size, liabilities, and asset growth also have a significant impact on stock price volatility. Companies should adopt a dividend policy that is

consistent with their growth prospects and investment needs, aiming to ensure a safe dividend level and a regular dividend payment schedule. Stock market authorities should also consider the important role of market stability and institutional ownership. Future studies can extend this study to include financial companies and to other countries, using more companies and a longer period to generate more accurate results.

Taymoor Ali, Muhammad Kashif Khurshid, Adnan Ali Chaudhary (2021) discusses different theories of dividend policy and reviews the empirical evidence on the relationship between dividend payout and firm performance. The paper concludes that the relationship between dividend payout and firm performance is complex and depends on several factors. For investors, they should consider their own preferences for dividend income and capital gains when making investment decisions. For corporate managers, they should consider the preferences of their shareholders when setting a dividend policy and be aware of the potential agency costs associated with different dividend payout policies. Overall, the study provides a balanced and nuanced overview of the dividend policy literature and concludes that there is no single "correct" dividend policy for all firms.

Muhammad Zulqarnain Jatoi, Abdul Rasheed, Khalil-Ur-Rehman Wahla (2023) discussed that Dividend policy has a significant and positive impact on firm performance in Pakistan. This is consistent with the signaling theory of dividend policy, which suggests that firms can signal to investors about their future prospects by paying dividends. Dividend policy is also moderated by the firm's financial leverage, with firms with higher financial leverage tending to have lower dividend payout ratios. Policymakers and practitioners should consider these findings when developing and implementing policies and strategies that affect dividend policy.

Misbah Jabeen and Muhammad Ahmad (2019) have found that ownership structure has a significant impact on dividend payout policy in the cement industry of Pakistan. The authors suggest that this may be due to the agency theory. The authors also find that firm size moderates the impact of ownership structure on dividend payout. Policymakers and practitioners should consider these findings when developing and implementing policies and strategies that affect dividend policy.

3. METHODOLOGY

This study analyzes how the dividend payout ratio (DPR) relates to firm-level fundamentals in Pakistan's cement industry, focusing on Lucky Cement, Attock Cement, and Deewan Cement. We adopt an explanatory, quantitative design using annual time-series data from 2006–2022 (17 years per firm; 51 firm-year observations).

Secondary data are compiled primarily from the Pakistan Stock Exchange (PSX) and complemented by company disclosures. The dependent variable is the Dividend Payout Ratio (DPR). Explanatory variables include P/E ratio, EPS, net profit, gross profit, net cash flow, sales revenue, current assets, fixed assets, total assets, total equity, current debt, long-term debt, total debt, and (where applicable) share price. Variable definitions follow standard corporate-finance usage; construction is harmonized across firms to ensure comparability.

All steps are implemented in EViews. We screened for multicollinearity (correlation matrix; Variance Inflation Factors, VIF) and, if necessary, reduce or re-express tightly collinear predictors; checked residual assumptions via normality plots, heteroskedasticity tests (e.g., White/Breusch–Pagan), and serial correlation tests (e.g., Durbin–Watson/Breusch–Godfrey); and, identified undue influence via outlier/leverage diagnostics; sensitivity analyses are run with and without flagged observations.

To mitigate omitted-variable concerns tied to time-invariant firm characteristics or common shocks, we complement the baseline pooled regression with specifications including

firm indicators and year indicators as controls. We also explore alternative functional forms (e.g., log-levels for scale variables) and lagged regressors (e.g., $X_{i,t-1}$) to probe temporal ordering. These checks are used to assess the stability of associations rather than to infer causality.

We operationalize the constructs as follows. All series are drawn from PSX filings and company disclosures and are harmonized across firms for comparability.

- **Dividend Payout Ratio (DPR)** (*dependent variable*): proportion of earnings distributed as dividends.

$$\text{DPR} = \frac{\text{Dividends Paid}}{\text{Net Income}}$$

- **Share Price Value (SPV)**: market price per share at fiscal-year end (or annual average where noted), representing investors' valuation of the firm.

- **Earnings per Share (EPS)**: profitability per share.

$$\text{EPS} = \frac{\text{Net Income}}{\text{Weighted Average Shares Outstanding}}$$

- **Net Profit (NP)**: residual income after all expenses.

$$\text{NP} = \text{Revenue} - \text{Total Expenses}$$

- **Net Cash Flow (NCF)**: net cash generated in the period.

$$\text{NCF} = \text{Operating CF} + \text{Investing CF} + \text{Financing CF}$$

- **Sales Revenue (SR)**: total operating revenue from goods/services.

- **Current Assets (CA)**: assets expected to be realized within 12 months (e.g., cash, receivables, inventories).

- **Fixed Assets (FA)**: long-lived tangible assets used in production (property, plant, and equipment).

- **Total Assets (TA)**: sum of current and non-current assets.

- **Total Equity (TE)**: shareholders' residual interest.

$$\text{TE} = \text{Total Assets} - \text{Total Liabilities}$$

- **Current Debt (CD)**: obligations due within 12 months.

- **Long-Term Debt (LTD)**: interest-bearing obligations due beyond 12 months.

- **Total Debt (TD)**: current plus long-term interest-bearing debt.

Unless otherwise indicated, monetary variables are expressed in consistent nominal units across firms and years. Where appropriate, we examine alternative scalings (e.g., ratios to total assets or sales) and apply standard transformations (logs or first differences) to satisfy stationarity requirements identified by unit-root tests.

We estimate by OLS, report heteroskedasticity-robust (and, where noted, Newey–West HAC) standard errors, and complement pooled estimates with firm and year indicators to mitigate time-invariant heterogeneity and common shocks. All diagnostics (multicollinearity, residual normality/heteroskedasticity, serial correlation, and influence) are conducted in EViews; sensitivity checks exclude influential observations and consider lagged regressors to probe temporal ordering.

4. RESULTS

We analyze an unbalanced panel of three Pakistani cement firms over 2006–2022. Due to missing observations in some years, the final sample comprises 38 firm-year observations. The dependent variable is the Dividend Payout Ratio (DPR). Two specifications are estimated: Model 1 (pooled OLS) without firm effects and Model 2 (firm fixed effects) controlling for time-invariant heterogeneity across companies.

Table 1 summarizes the coefficient estimates. Model 1 attains $R^2 = 0.348$ (adjusted $R^2 = 0.138$); Model 2 improves fit to $R^2 = 0.465$ (adjusted $R^2 = 0.238$). The Durbin–Watson statistics are close to 2 (1.811 and 1.960), suggesting no strong first-order serial correlation in the residuals.

Table 1. Pooled and Fixed-Effects Estimates (Dependent variable: DPR)
Observations = 38; Periods = 17; Firms = 3

VARIABLE	MODEL 1	MODEL 2
CONSTANT	7.699	4.531
SPV	0.765	1.185
EPS	-0.917	-1.213
NFC_SV	-0.045	0.135
C_ASSET	0.112	0.036
F_ASSET	-0.062	0.008
CURRENT_DEBT	-0.031	-0.162
LONG_TERM_DEBT	-0.311*	-0.195
TOTAL_EQUITY	0.010	0.068
PCTG_PROFITABILITY_OVER_SALES	-0.233	-0.411
OBSERVATIONS	38	38
R-SQUARED	0.348	0.465
ADJUSTED R-SQUARED	0.138	0.238
DURBIN-WATSON STAT	1.811	1.960
COMPANY/YEAR FIXED EFFECTS	No	Yes

* indicates significance at the 5% level. All coefficients are estimated in EViews. Standard errors and full diagnostics available on request. Results are interpreted as associations, not causal effects.

In the pooled specification, the set of covariates is not jointly significant at 5% (Prob(F) ≈ 0.146 ; from EViews output). At the individual level, only long-term debt shows a statistically significant negative association with DPR (coefficient ≈ -0.311 ; $p < 0.05$). This suggests that, when firm heterogeneity is not modeled explicitly, higher long-term leverage is associated with lower payout ratios. All other regressors—share-price value (SPV), EPS, net cash flow, asset

components, total equity, and profitability over sales—do not reach conventional significance thresholds.

After controlling for time-invariant firm characteristics (e.g., business model, governance practices, dividend culture), overall fit increases (R^2 rises from 0.348 to 0.465) and joint significance becomes marginal ($\text{Prob}(F) \approx 0.064$). However, no individual regressor remains significant at 5%. Notably, the previously significant negative coefficient on long-term debt attenuates and becomes statistically insignificant (-0.195). This sensitivity indicates that the pooled association may be partly driven by unobserved firm-specific factors.

Across both models, Durbin–Watson statistics (~ 1.8 – 2.0) do not indicate strong serial correlation. Given the small sample ($N=38$) and the high correlation typically observed among balance-sheet variables, statistical power is limited and multicollinearity cannot be ruled out. The absence of strong individual effects in the FE model is consistent with higher standard errors under collinearity and with the removal of between-firm variation.

Taken together, the results provide limited evidence that the examined financial covariates explain variation in DPR for the three cement firms over 2006–2022. The negative relationship between long-term debt and payout observed in the pooled model does not persist once firm fixed effects are included, suggesting that unobserved, time-invariant characteristics (e.g., conservative vs. aggressive financial policies) may confound the pooled association. Consequently, any managerial or investor inference should be cautious: within-firm changes in leverage, profitability, assets, or equity are not reliably associated with changes in DPR in this sample.

5. CONCLUSION

This study set out to clarify how the dividend payout ratio (DPR) relates to capital-market outcomes and firm fundamentals in Pakistan’s cement industry. Using (i) a broader panel of listed cement firms (2012–2021) and (ii) a focused panel of three large producers (2006–2022), we obtain two complementary insights.

First, at the market level, higher DPRs are associated with lower stock price volatility in the broader sample of cement firms. A cautious interpretation is consistent with signaling and information-asymmetry arguments: when payouts are higher and perceived as sustainable, uncertainty about firms’ cash-flow prospects may decline, dampening volatility. This reading remains suggestive rather than causal.

Second, at the firm level, the determinants of DPR are difficult to pin down within a small, three-firm panel. In pooled OLS, long-term debt shows a negative association with DPR; however, this relationship does not survive the inclusion of firm and year fixed effects, and no other covariate (e.g., EPS, cash flow, asset composition, equity) attains conventional significance. This sensitivity points to the importance of unobserved, time-invariant heterogeneity—such as dividend culture, governance practices, and capital-structure policies—in shaping payout behavior.

Implications. For managers, dividend policy may play a role in stability signaling to markets, but its within-firm drivers are not easily captured by standard accounting ratios alone; policy choices should therefore weigh firm-specific constraints (investment pipeline, leverage covenants, regulatory guidance) alongside investor preferences. For investors, DPR can be one input to a risk assessment screen, while due diligence should consider the sustainability of payouts rather than their level at a point in time.

Limitations and future research. The focused panel has a small sample with missing observations and potential multicollinearity among balance-sheet variables, limiting power. Future work should (i) expand the firm set and horizon, (ii) include richer governance/ownership controls, (iii) model dividend dynamics (e.g., Lintner partial-

adjustment), (iv) address endogeneity (e.g., IV or system GMM), and (v) extend cross-country benchmarking within emerging markets. Such enhancements would strengthen identification and help reconcile market-level patterns with firm-level payout decisions.

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