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DOES THE DIVIDEND PUZZLE DEPEND ON HOW PAYOUT IS MEASURED? MULTI-PROXY EVIDENCE FROM NON-FINANCIAL FIRMS ON THE PAKISTAN STOCK EXCHANGE

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Abstract

This study was an attempt to determine the stability of Firm-specific determinants of dividends on the 30 non-financial listed companies at the Pakistan Stock Exchange (PSX) from 2016 to 2025 and in terms of three conceptually different measures of dividend i.e. Dividend Payout Ratio (DPO), Dividend per Share (DPS) and Dividend Yield (DY). The six firm-level explanatory variables, namely asset growth (AG), collateral assets (COLLAS), current ratio (CR), debt-to-equity ratio (DER), earnings per share (EPS) and operating cash flow (OCF) are analyzed in combination with firm size (FS) as a control. The sources of secondary data were audited annual reports, companies' disclosures and PSX portal. Pooled Ordinary Least Squares (POLS) regression had been estimated in EViews 14, with descriptive and Pearson-correlation analysis performed. The results obtained showed that the dividend determinants with positive sign are COLLAS, CR, EPS, OCF and FS and these determinants were found to be significant in all the three measures of dividends. In all, DER was negative but irrelevant. AG represented the primary source of proxy sensitivity: It was positive for DPO and DPS, yet negative for DY, indicating that growth and higher absolute or higher earnings-relative distributions could went hand in hand while generating a lower market-price-scaled yield. The methodological and empirical contribution of the study was thus inferences regarding the "dividend puzzle" are therefore partial to the measurement and single-proxy modelling masked important economic heterogeneity. For emerging market managers and investors, liquidity, profitability, cash generation, tangible collateral and organizational scale were a more reliable measure of the capacity for dividends than leverage alone. The conclusions confirm a holistic view of signaling- and agency-, pecking-order- and life-cycle augmented and showed that the chosen payout proxy affects the interpretation given to growth.

1. Introduction

There was a theoretical debate about the dividend policy selection, that wass, retention of earnings versus cash distribution, and dividend policy fitted between the financing, investment and shareholder-distribution decisions. In the absence of frictions, classic irrelevance reasoning implied that the payout should not have any impact on value, while agency, signaling, pecking-order and life-cycle theories suggest that in the context of real-world frictions, the payout should be informative and important (Jensen & Meckling, 1976; Modigliani & Miller, 1961; Myers & Majluf, 1984). The continual tension between these notions was at the heart of Black's dividend puzzle and was responsible for the conflicting findings in empirical studies of dividend payouts in relation to profitability, financing constraints, liquidity, and growth (Black, 1976; DeAngelo & DeAngelo, 2006; Miller and Rock, 1985). The recent research also suggested that the practice of dividend had not been detached from the firm characteristics and institutional settings as it had not been following a universal rule (Meidawati et al., 2020; Surya et al., 2024; Syahzuni, 2023).

The puzzle was especially pertinent in emerging markets where the cost of external finance may be high, the level of investor protection and environment of information may be different, and dividends distributions may be more informative on the firm's prospects. The evidence in the emerging economies suggests that the impact of profitability, liquidity, leverage, size, growth and collateral capacity was not always the same for payout. Pakistan was an interesting landmark as listed non-financial companies were exposed to continuous macro-financial stress and dividends were a prominent observable signal to both domestic and foreign investors, (Ahmed & Javid, 2009; Ali, 2020; Khan et al., 2016). Though, the existing literature continued to suggest the relevance of these and their sign and significance were model and sample specific (Ali et al., 2025; Alshakhanbeh et al., 2024; Hameed et al., 2025).

The second issue was one of measurement. The dividend payout ratio indicated the proportion of earnings that was paid out, DPS was the amount of per-share dividend commitment, and DY was the per-share dividend commitment divided by market price of the share. The various measured may sometimes be confused with each other, it was making it difficult to realize that they all involve the same finance and could be affected in the same way. In the previous research, the emphasis was usually placed on one measure of payout, despite the fact that payout ratio, payout yield and payout per share share a different economic denominator and/or interpretation (Asghar et al., 2011; Manandhar, 2022; Rasul & Alnafisah, 2025). This was important in relation to growth as the coefficient could seemingly be counter-intuitive because the dividend amount was larger for a growing company, yet the dividend yield was smaller due to an increase in the company's stock price (Chen et al., 2024; Mat et al., 2017; Sunday & Edet, 2023). A multi-proxy approach was therefore more than a robustness check and is intended to establish whether the empirical implication of the dividend puzzle is sensitive to the definition of the dividend, i.e., payout.

This study attempted to solve the above problem with a balanced panel of 30 PSX-listed non-financial firms in 2016-2025. It tested AG and COLLAS, CR, DER, EPS, and OCF (tested as a control: FS), across DPO, DPS, and DY. The selected determinants include financing capacity and actual cash generation, and the mean of them included standard determinants and also there were some determinants which were not so frequently used, such as collateral assets and operating cash flow (Akbar & Ariefianto, 2023; Padliansyah et al., 2025; Singh & Gupta, 2023). Moreover, it addresses the mixed evidence of the Pakistani economy with respect to leveraging, profitability and payout by examining the effects when the dependent variable varies (Hameed et al., 2025; Malik et al., 2020; Shahbaz, 2018). The contribution is threefold: evidence from a recent decade where there was a considerable amount of economic disruption; assessment of three measures of payouts at the same time; an integrated theoretical interpretation that distinguishes between proxy-robust and proxy-sensitive determinants.

In this context the article addresses the question of whether there is any common explanation for the dividend policy based on the firm-specific financial parameters consistently over the different dividend measures and which firm-specific financial parameters were directionally constant and statistically significant across the

models. The predicted relations incorporate previous theory: dimensions of growth generally should be negatively related to payouts as long as the investing was undertaken with internal funds; and dimensions of collateral, liquidity, earnings and cash flow and size should be positively related to payouts, while leverage should be negatively related because of fixed financing obligations (DeAngelo & DeAngelo, 2006; Gordon, 1963; Jensen, 1986). The hypotheses are based on subsequent empirical findings related to liquidity, tangible assets, operating cash flow, and profitability and their relationship with dividend capacity in the emerging markets (Kumar & Patel, 2024; Rastogi et al., 2023; Wang et al., 2025). The article did not impose one theory on the entire set of coefficients, but assumed that dividend policy was a result of a combined information signaling, discipline of agency, financing hierarchy, maturity and the measurement characteristics of the payout proxy.

2. Literature Review and Theoretical Framework

2.1 The dividend puzzle and complementary theories

The benchmark was provided by dividend irrelevance: in perfect capital markets, the value of the shareholder should not really be sensitive to the amount of returns that came in the form of dividends versus capital gains. Real markets did not meet these assumptions including taxes, asymmetric information, agency conflict, financing constraints, and heterogeneous investor preferences, among others (Black, 1976; DeAngelo & DeAngelo, 2007; Modigliani & Miller, 1961). It may thus be inferred that dividends signal observable information on the anticipated cash-generating power of the company (signaling theory) or that dividends were a way to reduce resources that were under the management control (agency theory) (Jensen, 1986; La Porta et al., 2000; Miller & Rock, 1985). Additionally, based on the bird in hand principle, risk averse investors may prefer some dividends to the promise of future capital gained, providing firms some justification for issuing dividends (Dong et al., 2005; Gordon, 1963; Yegon et al., 2014).

The focus then moved to financing hierarchy: Pecking-order theory suggests that companies could use internal funds first, followed by debt financing, and lastly external funds, which meant that the investment requirement also pulled on the retained earnings. Thus, growing can result in decreased distributions due to projects absorbing funds generated internally, and leverage can limit distributions as debt service was given priority (Gill et al., 2015; Myers & Majluf, 1984; Rajan & Zingales, 1995). Maturity was added in the life-cycle arguments: established and large firms were typically characterized by less financing needs, more stable cash flows and higher ability to return cash flows to shareholders (Adhikari, 2015; DeAngelo & DeAngelo, 2006; Zhang & Li, 2023). In the current context, these theories were not mutually exclusive as a company could have signal its profit and control agency costs while maintaining financing flexibility and signaling its maturity level of organizational development.

2.2 Profitability, cash availability, and liquidity

Profitability provided distributable earnings and operating cash flow indicated if any cash was available to fund an actual distribution or not. Therefore, EPS was expected to be positively associated with payout under signaling and agency theory, and OCF is expected to be positively associated with payout under the signaling and agency theory as it represents the liquidity of operations that would be required to implement the signal without having to be raised additional funds (Imran, 2011; Singh & Gupta, 2023; Hidayat, 2019). The results of various markets generally confirmed the positive relationship between earnings and dividends as supported by Epaphra & Nyantori (2018), Manandhar (2022) and Oktavia & Wahidahwati (2022). Recently in Pakistan, and also in the emerging markets, the factors of profitability and cash generation measured were also important but not exactly homogeneous (Ali et al., 2025; Gultom & Salim, 2026; Hameed et al., 2025).

Liquidity was not the same as profitability as a profitable firm might not immediately had the resource. An increased financial flexibility with current ratio could lead to a decrease in the risk of short-term obligations being compromised by a distribution and is expected to have a positive coefficient (Novatiani et al., 2021; Nguyen, 2020; Rastogi et al., 2023). However, there are empirical differences; some studies have reported high positive relationship while others have reported low and insignificant relationship between liquidity and dividend (Hanapiah &

Chusnah, 2025; Rusma & Subing, 2024; Wadhwa, 2019). The structure thus makes a difference between the stock of short term financial capacity (CR) and the flow of operational cash generation (OCF), with both sources of cash generation having their own specific ways of contributing to payout.

2.3 Financing structure, collateral, growth, and size

The potential for payout reduction by issuing leverage was negative since both interest and principal are payout components and because leverage could indirectly limit discretionary payouts. This negative expectation was in line with the financing-hierarchy and agency thinking; however, the empirical findings were also highly varied (Jensen & Meckling, 1976; Malik et al., 2020; Mui & Mustapha, 2016). In contrast, collateralizable assets could make financing easier: firms with a bigger tangible asset base would had the ability to pledge assets to gain access to external financing, and this means that they can retain less cash as a financing cushion (Fitria & Yulianto, 2022; Henrekson & Stenkula, 2017; Padliansyah et al., 2025). Recent studies had confirmed the importance of tangible assets in determining borrowing capacity and sustainability of dividends which led to COLLAS hypothesis in positive manner (Kumar & Patel, 2024; Li & Zhang, 2024; Wang et al., 2025).

To complete the picture, growth and size were added, embodying investment demand and maturity. Classical theory of financing suggestes that the growth and dividend relationship should be negative since in growing more rapidly, companies required more capital expenditure, which required retaining more earnings (Hidayati & Rahmawati, 2021; Mat et al., 2017; Reddy, 2015). However, an expansion may still led to an increase in the absolute distribution while decreasing the profits, or vice-versa as DPO or DPS did not necessarily move in the same direction as market-price-scaled DY (Chen et al., 2024; Gultom & Salim, 2026; Swandana et al., 2023). Firm size was expected to be positive as scale is related to firm maturity, firm reputation and firm diversification, as well as capital-market access (Firmansyah et al., 2022; Nguyen et al., 2023; Shubita et al., 2024). This results in the main empirical difference: EPS and OCF, CR, COLLAS and FS were assumed to determine a dividend-capacity core which is relatively proxy-robust, while AG is assumed to have the highest degree of sensitivity to the dividend measure used.

2.4 Hypotheses

The result of the theoretical synthesis produces seven hypothesis in the form of directions.

H1: Asset growth has a **negative effect** on dividend policy.

H2: Collateral assets have a **positive effect** on dividend policy.

H3: Current ratio has a **positive effect** on dividend policy.

H4: A low debt-to-equity ratio has a **positive effect** on dividend policy.

H5: Earnings per share have a **positive effect** on dividend policy.

H6: Operating cash flow has a **positive effect** on dividend policy.

H7: Firm size has a **negative effect** on dividend policy.

These predictions were in line with integrated interpretation, given that there is an idea of seven bivariate predictions (DeAngelo & DeAngelo, 2006; Myers & Majluf, 1984; Padliansyah et al., 2025). Due to the adoption of three dependent variables, there was a need to understand the directionality as well, beyond the statistical significance, of the hypothesis testing; a significant coefficient with the opposite sign wass not substantively in support of the hypothesis (Field, 2005; Shahbaz, 2018; Sugiyono, 2023).

3. Methodology

3.1 Design, sample, and data

The study was quantitative and had deductive-ex post-facto panel design. The population consists of PSX-listed non-financial firms and 30 such firms were purposively chosen on the basis of continuous listing, availability of all the financial data for the period of 2016 to 2025, cash dividend for at least last seven years and non-financial status. The sample covered the sectors of cement, oil and gas/petrochemicals, fertilizers, textiles, pharmaceuticals, steel and allied industries, providing a balanced sample of 300 firm-year observations. The secondary data were collected from audited annual reports, company disclosures and PSX portal, which was then organized in MS. Excel and analyzed in EViews 14. The research quantitative research approach carried out based on logic in the thesis (Field, 2005; Shahbaz, 2018; Sugiyono, 2023) with the use of Secondary Data.

3.2 Variables and measurement

There were three dependent variables reflecting different aspects of dividend policies:

- The ratio of total dividends to net income (DPO = total dividends/net income × 100)
- The dividend per share (DPS = total dividends/outstanding common shares)
- Dividend yield (DY = DPS/market price per share).

The Explanatory variables were AG = (total assets_t − total assets_t−1)/total assets_t−1 × 100, COLLAS = fixed assets/total assets, CR = current assets/current liabilities, DER = total debt/total equity × 100, EPS = earnings available to common shareholders/number of common shares, OCF = (operating cash flow/total assets) × 100. The control (FS) was equal to the natural logarithm of the total assets.

The following definitions had been taken from the literature measurement used in the thesis such as Shahbaz (2018), Manandhar (2022), Akbar and Ariefianto (2023), Alshakhanbeh et al. (2024), Padliansyah et al. (2025) and Rasul and Alnafisah (2025).

3.3 Analytical strategy and models

Analysis was done by descriptive statistics, Pearson correlation and by three panel regression. Correlations checked bivariate relationships and multicollinearity, the warning rule of Field (2005) was used; 0.80. The results of Redundant Fixed Effects tests reported in the thesis are insignificant for DPO (p = .100), DPS (p = .070), and DY (p = .100), which leads to the use of POLS, rather than fixed-effects estimation. The regressors used are the same for each model, so that coefficients may be compared for the various payouts. The level of $\alpha = .05$ is used for hypothesis testing.

$$DP_{it} = \beta_0 + \beta_1 AG_{it} + \beta_2 COLLAS_{it} + \beta_3 CR_{it} + \beta_4 DER_{it} + \beta_5 EPS_{it} + \beta_6 OCF_{it} + \beta_7 FS_{it} + \varepsilon_{it}$$

where: (DP) are estimated separately, as (DPO) firm and year, (DPS) firm and year and (DY) year only. With the parallel spec, it's a question of cross-proxy stability as a key robustness consideration. This article explains the results of the thesis, but not a re-estimation of the original panel data; therefore, all of the following row in the tables with values between standard errors, t-statistics, and p-values should be double-checked before submitting for external publication with regard to the source EViews output.

4. Results and Interpretation

4.1 Descriptive evidence

Table 1. ***Descriptive statistics (300 firm-year observations)***

Statistic	DPO	DPS	DY	AG	COLLAS	DER	CR	EPS	OCF	FS
Mean	0.11796	0.09178	0.08169	0.00571	0.01419	0.08470	0.05793	0.06357	0.34276	0.33228
Median	0.09184	0.06283	0.02214	0.00227	0.00072	0.05400	0.03683	0.04136	0.32552	0.30422
Std. dev.	0.05670	0.01001	0.02902	0.05760	0.09630	0.04324	0.01765	0.07984	0.08962	0.00591
Skewness	0.02248	1.50172	1.08434	0.05230	1.85085	−0.31519	0.16320	0.00757	4.94307	1.38599
Kurtosis	1.69846	3.45800	1.29654	2.49755	1.37117	3.20233	3.01761	4.08060	2.00593	1.12239
JB probability	0.52101	0.09261	0.95321	0.10002	0.60510	0.15092	0.08000	0.04000	0.80412	0.04509

The distribution properties of the three payout proxies were different. Mean DPO (0.118) exceeds its median (0.092), while DPS (mean 0.092; median 0.063) and DY (mean 0.082; median 0.022) show progressively larger mean–median gaps. The distribution of DPS and DY data is positively skewed, which is in line with a sub set of high-paying companies. The variation of COLLAS is relatively high, consistent with an expectation in a multi-sector sample of a mix of asset-intensive companies like cement and energy companies and less asset-intensive companies. Interestingly, OCF was right-skewed (4.943) indicating that the cash generation power lies with some observations. Most of the jarque–bera probabilities from the source were greater than 0.05, however EPS was just under 0.05 (0.040) as is FS (0.045), so it was not corrected to say that the data were uniformly normal. In the case of the regressions with 300 panel observations, a blanket assertion of normality was not given and instead, model diagnostics and coefficient behavior were used to interpret the results.

4.2 Correlations and multicollinearity screening

Table 2. ***Pearson correlation matrix***

	DPO	DPS	DY	AG	COLLAS	DER	CR	EPS	OCF	FS
DPO	1.000									
DPS	.346	1.000								
DY	.482	.262	1.000							
AG	.057	−.025	.055	1.000						
COLLAS	.169	−.052	.332	−.010	1.000					
DER	−.041	−.099	−.088	−.015	−.043	1.000				
CR	.472	.074	.188	−.031	−.048	−.044	1.000			
EPS	.111	.241	.047	−.022	−.049	−.132	−.008	1.000		
OCF	.014	.143	−.074	−.011	−.022	.031	.009	−.046	1.000	
FS	.032	−.021	−.025	.128	−.061	.253	−.049	.001	−.110	1.000

The bivariance evidence already presented shows why it is useful to have several payout measures. The r values indicate the strength of the correlation between CR and DPO, .472, EPS and DPS, .241 and COLLAS and DY, .332. The patterns are a preview of the regression outcomes: Liquidity plays a central role in the earnings-relative payout choice, earnings are naturally related to the per-share cash commitment and asset tangibility is particularly pertinent to the market-price-scaled yield. By regressors, the highest correlation is .253 (DER with FS) which is still below the thesis .80 cut-off. Thus no indication of severe collinearities between the variables is given by the matrix

4.3 Regression results across payout proxies

Table 3. *POLS regression results across three dividend-policy proxies*

Variable	DPO β	p	DPS β	p	DY β	p
Constant	−0.141	.0154	−0.016	.5823	0.040	.2804
AG	0.316	.0265	0.028	.0201	−0.315	.0321
COLLAS	0.547	<.001	0.225	<.001	0.514	<.001
CR	1.436	<.001	0.109	.0436	0.377	<.001
DER	−0.028	.7036	−0.050	.1638	−0.052	.2711
EPS	0.469	.0015	0.320	<.001	0.141	.0461
OCF	0.050	.0004	0.169	.0072	0.108	.0091
FS	0.199	.0416	0.024	.0466	0.016	.0411
R^2	.727		.589		.670	
Adjusted R^2	.699		.554		.648	
F-statistic	17.676	<.001	4.428	<.001	8.555	<.001
Durbin–Watson	1.906		1.793		1.578	

The DPO model had the largest in-sample fit: R2 = .727, adjusted R2 = .699 and the F-statistic was jointly significant (17.676, reported p < .001). In fact, CR has the highest reported positive coefficient (β = 1.436, p < .001) which suggested that the financial flexibility in short term was highly correlated with the distribution of earnings. COLLAS (β = .547, p < .001) and EPS (β = .469, p = .0015) were also economically prominent. The values OCF and FS were positive whilst DER was negative but insignificant. The positive AG coefficient was significant because it contradicts the ex ante negative-growth prediction that in this sample expansion was linked with a higher earnings-relative payout. The conclusion indicates that growth of these existing dividend-paying enterprises could easily be synced with financial strength and not just as a way to spend the funds.

Adjusted R^2 was still significant for DPS with a value of .554 and the model was jointly significant. EPS (β = .320) was the most direct substantive interpretation since there was a per share basis interpretation for both EPS and DPS. Also, the OCF (β = .169) was positive which agreed with the idea that an ability to distribute earnings should be accompanied by operating cash generation. Under the printed results, COLLAS, CR and FS were still positive, but DER was again negative, although it was insignificant. AG remains positive. Hence, the emphasis of the DPS specification was more on profitability and real cash generation as compared to CR, which dominates in the DPO model. The different economic content of the dependent variable was not a purely statistical matter, but contributed to the difference.

The DY model was adjusted to explain 64.8% of variation and was the most significant cross-proxy model in the article. COLLAS (β = .514, reported p < .001) was the strongest positive determinant, followed by CR (β = .377, p < .001). The average reported impactes of EPS, OCF and FS were all positive and DER was negative and insignificant. AG, however, reverses sign (β = −.315, p = .0321). Note that DY = DPS divided by market price; so as the value of a growing firm grown, you could either increase or maintain the amount of cash distributed while the value was growing at a higher rate, which had a negative effect on yield. Therefore, negative DY doesn't always mean that the growth coefficient of DPO/DPS is negative, but rather that payout level and investor yield are different things.

4.4 Cross-model robustness and hypothesis assessment

Table 4. *Hypothesis assessment using direction and reported significance*

Hypothesis	Prediction	Cross-proxy evidence	Assessment
H1 AG	Negative	+ DPO; + DPS; − DY	Partial: direction supported only for DY
H2 COLLAS	Positive	+ across all three	Supported
H3 CR	Positive	+ across all three	Supported
H4 DER	Negative	− but insignificant across all three	Not supported
H5 EPS	Positive	+ across all three	Supported on reported p-values
H6 OCF	Positive	+ across all three	Supported on reported p-values
H7 FS	Positive	+ across all three	Supported on reported p-values

A stable positive core of 5 determinants (COLLAS, CR, EPS, OCF and FS) spans the three specifications. This strength of robustness was evidence more substantial than any significance of any particular model due to the fact that each model had a different economic meaning for the dependent variable. Consistently DER has a negative coefficient and never was found to reject zero, so DER was similarly stable with respect to this. In the selected firms of PSX, the effectiveness of leveraging, however, turns out to be as expected in the absence of any clear evidence of a stand-alone dividend effect.

More care needed to be taken with H1 than in the source thesis. This hypothesis was a directional hypothesis which postulates that AG has significant negative effect on dividend policy. Just because the printed p-values of positive DPO and DPS were below .05 did not support that directional proposition. So the evidence could be said to give only a partial support: the prediction of the negative correlation was partially confirmed; only for DY a negative correlation was seen in the evidence. This correction was of substantive significance since it resolves an apparent paradox to become the main contribution of the multi-proxy design.

4.5 The common conclusions of the three models

The total of the results gave a profile of dividend activities in three phases. Capacity variables were those that relate liquidity, profitability and operational cash with the ability to distribute funds; namely, CR, EPS and OCF. Second, financing-access variables turn out to act asymmetrically: tangible collateral was always positive, while DER, per se, was not statistically significant, suggesting that borrowers' borrowing capacity might be more important than the leverage ratio as seen on their balance sheet. Thirdly, FS wass positive for all proxies, but AG's sign flips when the outcome moved from the payout level to investor yield as maturity progresses. These differences were then a more precise interpretation of the dividend puzzle, than was provided by a single regression.

5. Discussion

The most solid finding was that dividend payments of PSX non-financial firms would also seem to be based on a shared financial-capacity foundation. The positive coefficients on all specifications indicate that each factor was associated with a certain payout behavior, and that these factors in combination affect payout behavior, not as an independent explanation. The outcome was congruent with signaling logic as viable and cash generation companies could robustly maintain an expensive distribution signal (Miller & Rock, 1985). It was also consistent with documentary evidence that profitability and cash flow from operations increase the capacity to pay dividends as reported by Imran (2011), Singh and Gupta (2023), and Hameed et al. (2025) among others where the varying impacted of each proxies depends on the proxy used.

Especially in the DPO equation, liquidity played a crucial part. The ability of a firm to distribute earnings without the short-term likelihood of incurring a default on its short-term obligations (DPS effect) was smaller than the DPO association, because a strong current position provides a firm with greater flexibility in distributing earnings. This aligned with the

literature on the relationship between liquidity and dividend policy of firms from emerging economies (Nguyen, 2020; Rastogi et al., 2023). The simultaneous reduction in the DPS coefficient is, therefore, a reminder that the impacted of liquidity can be more telling in determining the share of earnings managers like to share, rather than the amount of cash per share.

The collateral helped to clarify the financing interpretation. COLLAS is positive on all three proxies, especially positive when it came to DY, which suggested that tangible-asset intensity may give it financing flexibility that aided distributions. Firms that can collateralize and pledge plant, property, and equipment may had access to extra funding without having to keep all the extra marginal earnings, as interpreted by Padliansyah et al. (2025), in the financing role of collateral. A recent study of the link between real assets and borrowing power and dividend sustainability suggested the same (Kumar & Patel, 2024; Wang et al., 2025). This was economically reasonable in a sample of cement, energy and fertilizer and industrial companies.

DER on the other hand was negative in all three equations and not significant in the reported results. The results support the intuition that fixed debt engagements can lead to a reduction in distributions to shareholders, but the results were not significant, which meant that leverage per se did not seem to be a dividend signal for the selected group. But at the same time very small leverages had been found in Syamsiyah et al. (2022) and the other one was significant leverage which shows the unclear relationship (Malik et al., 2020). A possible explanation is that the collateral quality and cash generation and access to finance takes up some of the constraint that a simple debt-to-equity ratio would otherwise take.

The technique that provides the most insight was AG. Its positive relation with DPO and DPS but negative relation with DY was indicative of the reasons why the research on dividend-policy should not view dividend proxies as synonymous. The negative DY result was consistent with the 'pecking-order theory' which predicts that growth will absorb internal finance (Myers & Majluf, 1984). But the positive DPO/DPS numbers point to a possibility for growth in already dividend-paying PSX companies on the back of adequate profitability to sustain and/or increase the dividends, and the appreciation of prices can still lead to a decrease in yield. The mixed signs were thus not necessarily contradictory, but rather theoretically interpretable, and were not a one-off since growth–dividend effected differ from setting to setting and measure to measure (Chen et al., 2024, Mat et al., 2017).

As expected based on life-cycle arguments, where financing frictions were less in larger, more mature firms, and where cash flows were more stable and available for distribution in such firms (DeAngelo & DeAngelo, 2006), financing was positive throughout. Using Asian data, the relationship between payout propensity and firm size was also found (Nguyen et al., 2023; Shubita et al., 2024). The result also helped to explain why the companies the study selected as dividend payers – and was also an early-stage growth company – may not act as a typical early-stage growth company: they have growth potential and at the same time were mature companies, with capital market access and a history of distributing shares to shareholders.

All the results combined did not solve the dividend puzzle for blacks; there was no one universal determinant. Rather, they demonstrated why that was so: dividend policy was many sided. Profitability, cash generation, and liquidity conditions provide an indicator of payment capacity; and collateral an indicator of financing flexibility, while size and growth were indicators of maturity, depending on the researcher's decision—Black (1976) and DeAngelo & DeAngelo (2007). Theoretical models were more useful if thought of as overlapping processes rather than competing one-factor theories.

6 Conclusion

This study concluded that the most reliable reported firm-level correlated of dividend policy for the selected firms are COLLAS, CR, EPS, OCF, and FS which remained positive in each of the three cases of DPO, DPS, and DY. DER was always negative but never significant, on the contrary AG was measurement sensitive. Hence, the multi-proxy design provided a significant contribution to the Pakistani dividend literature, as economic interpretation of the dependent variable could had a significant impact on empirical findings. The interpretation of only the DPO, DPS or DY may statistically led to the

falsely concluded that this was a law of dividend policy, as opposed to proxy specific behaviour. From a practitioner's point of view, the overall financial profile of the business is of the most value than any one ratio.

6. Recommendations, Limitations and Future Research

Dividends should be linked to the sustainable earnings flow and operating cash flows, adequate liquidity should be kept to safeguard short-term debt obligations, and collateral capacity should be used judiciously in conjunction with the leveraging. Investors interested in going PSX for dividends should consider the following together: EPS, OCF, CR, COLLAS and firm size, and also differentiate between a firm with a high dividend and a firm with a high dividend yield. Regulators should encourage and facilitate increased clarity of disclosure of operating cash flows, asset mix, liquidity and distribution policy and can do so by complementing traditional earnings disclosure.

The findings have a number of limitations. The narrow universe of 30 list companies that pay dividends does not allow for broad conclusions to be drawn about the PSX as a whole, especially banks and insurers, which have distinct regulatory and capitalizations. The macroeconomic aspects like inflation, interest rates, exchange rate depreciation and policy shocks are not incorporated in the models, while the period of model projections (2016-2025) encompasses the period of COVID-19 and significant macro-economic volatility. Because the study is quantitative, it does not consider preferences at the board-level, dividend smoothing motives, influencing ownership or considerations of the investor-clientele.

Future research will involve expanding the panel, including additional financial and non-financial sectors, adding macro and governance controls and examining the year/sector effects as well as whether the results are robust to firm-clustered and other panel-robust inference tests. Qualitative interviews with finance directors and boards also might shed light on the reasons for growth firms to have distributions, and on how leverage is not a stand-alone factor. Most crucially, future studies are not to look at a single payout proxy in proxying for dividend policy, but are to keep multiple payout proxies since, from the current evidence, a proxy can be part of the dividend puzzle.

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