

The impact of corporate governance and firm-specific characteristics on dividend policy: an emerging market case

The impact of
corporate
governance

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Abstract

Purpose – The present study aims to investigate the impact of corporate governance proxies by ownership structure and firm-specific characteristics, i.e. firm size, leverage, growth opportunities, previous year dividend, firm risk, profitability, and liquidity on dividend behavior of the Pakistan Stock Exchange (PSX) listed firms.

Design/methodology/approach – Final sample of the study consists of 140 PSX-listed firms. The study covers a period of six years, starting from 2015 to 2020. Dividend payout dummy, dividend payout ratio, and dividend yield were used to assess the dividend behavior of the sample firms. The appropriate regression procedures (logistic, probit, ordinary least square (OLS), and fixed effect regression) are used to test the study hypothesis. To check the robustness of the result, a system GMM estimation technique is also used in the present study.

Findings – The study reveals that institutional ownership, foreign ownership, and individual ownership have a significant positive whereas managerial ownership has a significant negative impact on the dividend decision of sample firms. Among firm-specific characteristics, it was found that liquidity, profitability, and the previous year's dividend were significantly positive, while growth opportunities were significantly inversely associated with dividend payout decisions of PSX-listed firms.

Practical implications – This study sheds light on the relationship between dividend policy, ownership structure, and firm-specific factors in the context of an emerging market like Pakistan. The study's findings have important implications for managers, minority shareholders, lawmakers, and investors looking for guidance on the dividend policy of publicly-traded non-financial firms.

Originality/value – The literature lacks studies that together analyze the ownership characteristics and firm-specific variables on dividend decisions, particularly in the context of developing economies. The current study aims to fill this gap.

Keywords Dividend policy, Ownership structure, Firm-specific characteristics, Pakistan stock exchange

Paper type Research paper



1. Introduction

Dividend policy is one of the corporate finance issues that still need to be addressed by researchers. Numerous studies on dividend policy have been conducted since the mid-1990s,

but much more research is required to solve this puzzle (Black, 1976). The first issue that naturally arises is what dividend policy is and what critical decisions are to be made in dividend policy. The term "dividend" refers to the portion of current profit or retained earnings that the board of directors has decided to deliver to its shareholders. Hence, it is a portion of the profit that is distributed to the shareholders in proportion to their investment in the firm. Typically, dividends are paid in cash (cash dividend), but corporations may also distribute stock dividends, in which shares/stock are distributed to shareholders. Stock dividends are frequently referred to as stock splits. Dividend policies serve as a road map for management in determining how much earnings to distribute to shareholders.

Regarding dividend policy, management takes three approaches: residual dividend policy, stability dividend policy, and a combination of the two. The management of the organization prefers to fund its projects with its source under the residual dividend policy. Before making any dividend decisions, management prefers to maintain the leverage ratio. This philosophy is founded on three essential approaches: first, if the company has a good net present value (NPV) project, it prefers to pursue it. If any additional funds are available, they will be used to fund this project, with the remainder being paid to shareholders. Second, management must retain its preferred capital structure, after which any remaining funds, if any, will be dispersed to corporate owners. Third, if the cost of external funds is too high, management wants to meet financial needs on their own. Another approach to dividend policy that the management has taken is the dividend stability policy. Under its dividend stability policy, the company pays out regular dividends to its shareholders regardless of fluctuations in its earnings. This will assist shareholders in receiving regular, reliable income from their investments. The final strategy is a hybrid of the first two approaches. Companies that take this strategy look at the leverage ratio over a longer period. This was the strategy taken by the majority of organizations when developing dividend policies.

Williams (1938) was among the first to claim that dividend payment is an important determinant of a firm's value, which drew the attention of researchers and academics to the dividend policy issue. Lintner (1956), one of the pioneers, studied the dividend behavior of American corporations and concluded that profitability and previous dividends are the most important drivers of dividend policy. Many academicians used Linder's model to study the dividend behavior of US companies. For example, Fama and Babiak (1968) claimed that Linter's model adequately explained the varying dividends of North American corporations. Later on, Miller and Modigliani's study in 1961 shifted the researchers' focus by claiming that dividend policy had no bearing on shareholder wealth in a perfect capital market, claiming that when a corporation distributes cash to shareholders as a dividend, it has no choice but to go to the capital market to meet financial needs, lowering market share prices. As a result, shareholders' wealth remains unchanged. On the other hand, market imperfections have served as a foundation for scholars to develop several theories in the future.

It is always difficult for the management to strike a balance between the percentages of earnings distributed to shareholders as dividends and the amount retained to meet the company's growth and expansion goals. According to Ehsan *et al.* (2013) and Saez and Gutierrez (2015), dividend policy is one of the most important variables of a firm's value. The ownership structure has a very stringent effect on this very important firm decision. For example, La Porta *et al.* (2000) claims that countries with weak shareholder protection for minority shareholders receive lower dividends by the shareholders than countries where minority shareholder rights are closely monitored and protected. As a result, a country's institutional characteristics significantly impact firm dividend behavior (Baker *et al.*, 2018). Similarly, Faccio *et al.* (2001) claimed that majority shareholders expropriate minority shareholders' rights and use the firm's cash flow for their benefit.

Dividend policy is closely related to investment and capital structure plans and, consequently, to firm-specific characteristics (Barclay *et al.*, 1995). Corporate executives have

the primary role of making decisions that increase shareholder value. Dividend policy is one of the most important corporate manager decisions that substantially impact shareholder value (Al-Najjar and Kilincarslan, 2018). As a result, financial managers must pay close attention to the firm-specific elements that influence dividend policy. Identifying such drivers helps companies evaluate their dividend policies, compare them to peers, and allocate earnings more efficiently, thereby increasing business value. Financial economists have tried to link firm-specific factors to dividend policy proposals (Al-Najjar, 2009). Aivazian *et al.* (2003) evaluate corporations' dividend policies in eight developing countries and find that while the same financial variables are important for dividend decisions in emerging markets as they are in the United States, their sensitivity varies by market. According to Faccio *et al.* (2001), these differences stem from political and societal instability, a lack of information, poor governance mechanisms, weak rules and regulations, and different ownership structures compared to developed countries.

This paper examines the role of ownership characteristics and firm-specific variables in determining an organization's dividend behavior. Nonetheless, researchers have recently focused on types of ownership of firms to investigate the issue, such as government (Bradford *et al.*, 2013; Setiawan *et al.*, 2016), foreign (Chai, 2010; Boshnak, 2021), institutions (Sindhu *et al.*, 2016; Berezinets *et al.*, 2017), and public (individual) ownerships (Al-Najjar and Kilincarslan, 2016). However, very few studies are available in the literature that examines the effect of all ownership variables on dividend policy simultaneously. Previous research has primarily been conducted in developed and advanced emerging economies such as the US, the UK, Europe, Australia, and others, where financial markets are well-structured and regulated, and most firms are held by a large number of people (Nguyen and Li, 2020). The economic system, tax system, business environment, market size, structure, and corporate management differ greatly between developed and emerging economies (Hasan *et al.*, 2021). Minority shareholders in emerging markets are subject to comparatively lax laws and regulations, with little legal protection. Unlike developed markets, emerging markets have many highly concentrated firms with few owners. Claessens *et al.* (2000) report that a single shareholder controls approximately 67% of publicly traded East Asian firms. According to Young *et al.* (2008), in emerging markets, the largest shareholders own more than 50% of a company's stock, whereas, in developed markets, it's less than 40%. Such differences are more common in South Asian firms (Kumar, 2006), particularly in Pakistani firms.

Furthermore, empirical evidence shows that emerging markets are not fully integrated with global capital markets, which piques researchers' interest in conducting research in emerging markets (Zainudin *et al.*, 2018). Although there are some studies on ownership structure and dividend policy in emerging markets in the literature, they are few and not very comprehensive (Nguyen and Li, 2020). Moreover, these studies produce conflicting results. Furthermore, the influence of ownership structure and firm-specific characteristics on dividend behavior is investigated separately. A comprehensive investigation using the ownership structure and firm-specific characteristics simultaneously is relatively unexplored. As a result, the current study aims to fill this research gap by investigating the impact of ownership structure (as measured by managerial ownership, institutional ownership, foreign ownership, concentrated ownership, and individual ownership) and firm-specific characteristics (proxies by firm size, liquidity, leverage, firm risk, profitability, previous year dividend, and growth opportunities) on dividend behavior (as measured by dividend payout dummy, dividend payout ratio, and dividend yield) in the context of an emerging market, i.e. Pakistan.

There are several reasons to choose Pakistan for analysis. First, it has unique organizational, commercial, social, and political structures, and because of the expansion of its capital market; this study has the potential to broaden the financial literature, which is dominated by studies of developed markets. Second, agency conflict between managers and

investors and majority and minority shareholders is worse in developing economies like Pakistan than in developed economies (Moin *et al.*, 2020). The weak corporate governance and legal environment framework in the Pakistani market (Farooq and Noor, 2021), makes it easier for firms to change their dividend policy according to insiders. Third, unlike in Anglo-American countries, where ownership is dispersed, Pakistani firms are dominated by controlling shareholders. The majority of shares in Pakistan are owned by family members (Yousaf *et al.*, 2019). According to Javid (2012), 59% of non-financial firms listed on PSX are classified as family firms. In family-owned firms, a board or annual general meeting (AGM) rarely makes corporate decisions. Interlocking directors retain majority control, which violates minority shareholders' legal rights. In Pakistan, the Companies Ordinance 1984, too, does not adequately protect investors' rights. Shareholders with more than 20% of the company's stock can sue the company in court if there is any negligence on the part of the management. Shareholders with less than 20% and more than 10% of the company's shares can petition SECP to appoint an inspector to investigate the company's operations. Investors with less than 10% equity cannot file a complaint with the SECP or a court (Ibrahim, 2006). The corporate governance code limits executive directors to two-thirds of the board's total directors. This code does not prevent controlling families from having disproportionate board representation due to its voluntary nature and dominant and pyramidal ownership structures. Pakistan's taxation policy discourages dividends against investment due to the country's double taxation policy. Dividends are subject to double taxation, whereas capital gains are not. As a result, investors are more interested in capital gains than dividends. Another compelling reason for the study is that PSX-listed firms are characterized by opaque information as a result of underdeveloped accounting standards and weak regulation. Finally, studies focusing on firms' dividend policies in Pakistani are limited (Yousaf *et al.*, 2019), compelling us to investigate the impact of ownership structure and firm-specific characteristics on dividend behavior of PSX listed firms.

To achieve the study's objectives, we used logistic, probit, pooled OLS, and fixed effect regression in this study. Furthermore, the GMM estimation technique is used to examine the reliability of the results in the present investigation. According to the regression results, management ownership is strongly negatively related to dividend policy, whereas institutional ownership, foreign ownership, and individual ownership are significantly positively related. Among firm characteristics, it was discovered that liquidity, profitability, and previous year dividend had a significant positive relationship with sample firm dividend behavior. Growth opportunities, on the other hand, have a significant inverse relationship. The findings of the study may be useful for policymakers and investors. Investors and portfolio managers have different investment preferences, with some preferring regular income and others preferring capital gains. Understanding the significance of ownership structure and firm-specific characteristics enables them to make better investment decisions. The study could help regulators and policymakers develop future dividend policy guidelines for firms.

This study contributes to the body of knowledge in numerous significant ways. First, in the context of an emerging market characterized by high family ownership and low minority shareholder protection, the current study adds to our understanding of how the ownership structure influenced dividend policy, particularly in Pakistan. Second, most existing research on ownership-dividend policy decisions focuses on a particular type of ownership, such as family ownership, institutional ownership, etc. In contrast, this study examines the impact of five ownership characteristics simultaneously on dividend behavior, a novel approach in the literature. Thirdly, this is the first study of its kind to examine the impact of firm-specific characteristics on dividend behavior. Finally, we used both static and dynamic panel estimation techniques to conclude the study's findings, which had never been tested before, particularly on PSX data. The findings of this study could be used to help other developing and emerging markets improve their understanding of firm dividend behavior.

The paper continues as follows. [Section 2](#) explains dividend policy determinants, and [Section 3](#) presents the study's literature review and hypothesis. [Section 4](#) discusses the research methodology. [Section 5](#) explains the results, and finally, [Section 6](#) concludes the study.

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2. Determinants of dividend policy

Dividend policy is influenced by many factors. Before deciding on a dividend policy, management must consider these factors. These are as follows: (1) Industry Types: Industries with stable earnings tend to have more consistent dividend policies than those that do not. For example, public utilities have a more consistent dividend policy than industrial units. (2) Corporate Age: A newly formed business needs more capital flow to expand. Older organizations have a more generous dividend policy than newer ones. (3) The extent of share distribution: Highly concentrated firms tend to keep funds to invest in net present value projects. Because of the taxation structure of a country, shareholders prefer capital gains over cash dividends. A corporation with a dispersed ownership structure prefers dividends over capital gains. (4) Need for more capital: A low dividend will be given if funds are necessary to satisfy the increasing need for working capital. (5) Business cycle: When a company is in the growth stage, it prefers to reinvest most of its funds to satisfy its working capital needs; thus, it pays a lesser dividend. When a corporation reaches maturity, more funds are available for dividends. (6) Changes in government policies: The government may impact a company's or an industry's dividend policies by imposing temporary limitations or limiting the dividend ratio. (7) Profit Trends: Past profit trends were not thoroughly analyzed to decide on dividend policy. During the great depression, management hesitated to issue large dividends to stockholders. (8) Taxation policy: Taxation structure has an impact on dividend policy. Dividends are taxed twice in Pakistan. Individual shareholders must pay tax on their dividend income again, even though the firm has already paid tax on their income. As a result, shareholders prefer capital gains over cash dividends. (9) Future needs of the firm: Dividend policy might be altered after examining a company's capital requirements. Conservative dividend policies will follow if cash is needed to finance a company's future expansion. (10) Cash balance: the availability of free cash flow impacts dividend policy. A liberal dividend policy can be implemented if the corporation has excess cash. Working capital also has an impact on dividend policy. If a company's operating capital is insufficient, it will be unable to pay out a sizable dividend to its shareholders. Dividends may be paid in the form of bonus shares.

3. Literature review

3.1 Theoretical review

Dividend policy is one of the most studied topics in corporate finance, but it is still viewed as a puzzle ([Black, 1976](#)). [Fama and Babiak \(1968\)](#) and [Lintner \(1956\)](#) were among the earlier researchers to study the dividend policies of US companies and found that earnings and past dividend payments are the most important factors that affect dividend policy. According to their findings, corporate executives try to avoid making frequent changes to dividend payments. The firm's value remains stable by adopting stable dividend policies. Linter's model was subsequently tested in both developed and developing countries by researchers like [Athari et al. \(2016\)](#) and [Baker et al. \(1985\)](#) who concluded that Linter's model adequately explains dividend changes by individual firms.

The agency costs theory is the most popular and well-studied approach to dividend policy ([Fama and Jensen, 1983](#)). The theory postulates the principle-agent relationship and addresses the issue between the aforementioned parties. Recent research has pointed to

agency problems as a key factor in explaining the behavior of companies' dividend payout policy (see, for example, [Easterbrook \(1984\)](#), [Jensen and Meckling \(1976\)](#), and [Rozeff \(1982\)](#)). Their research concluded that managers use free cash flow for their perks and benefits when there is a conflict of interest between the management and the owners of the firms. By separating the roles of principal and agent, controlling shareholders and managers have stronger incentives to accumulate free cash flows and expropriate other shareholders. [Easterbrook \(1984\)](#) and [Mercado-Mendez and Willey \(1995\)](#) argued that dividend payment is a tool used not only to monitor the firm's management but also to reduce the availability of free cash flow, which the management might use for its benefit. Also, [Jensen \(1986\)](#) argued that managers use dividend payments to decrease free cash flows and discourage managers from pursuing risky projects, thereby reducing agency problems. [Schooley and Barney \(1994\)](#) provided evidence that the effectiveness of a firm's dividend policy in reducing agency costs may depend on the ownership structure of the company.

The signaling theory argues that management should use a dividend policy to signal the organization's good health to reduce information asymmetry between insiders and outsiders. According to this theory, earnings and dividends are linked. Higher dividends send positive signals to shareholders and vice versa. According to [Miller and Rock \(1985\)](#), dividends serve as an indicator of future earnings. Following the signaling theory, corporations pay out greater dividends when the level of information asymmetry is greater. [Khan \(2021\)](#) argued that dividend payments help to reduce information asymmetry, which helps managers raise external funds at a lower cost. In line with the preceding arguments, [Hail et al. \(2014\)](#) contended that in the presence of lower information asymmetry, firms should pay lower dividends because shareholders are more interested in capital gains than dividends.

According to the pecking order theory, companies should keep their earnings to meet future investment needs. [Myers \(1984\)](#) argued that in the presence of high growth opportunities, firms prefer to retain a larger portion of earnings to meet future expansionary needs rather than distribute earnings through dividends. [Myers and Majluf \(1984\)](#) suggested that dividend policy could be utilized to address the underinvestment issue caused by asymmetric information. According to transaction cost theory, external funds are more expensive than internal funds in an imperfect capital market. In the case of a net present value (NPV) project, firms pay out fewer dividends to reduce their reliance on external funds and meet their need through internal sources. According to tax preference theory (developed by [Brennan, 1970](#) and [Elton and Gruber, 1970](#)), dividend policy correlates with investor tax treatment on dividends and capital gains in an imperfect capital market. If dividend earnings are taxed, investors prefer capital gains and vice versa. As a result, dividend policies should be designed to consider the tax treatment of dividends and capital gains. The irrelevant dividend theory ([Miller and Modigliani, 1961](#)) argues otherwise, positing that in a perfect capital market, shareholders are indifferent between dividends and capital gains (e.g. no tax differential between dividends and capital gains).

3.2 Empirical review and hypotheses of the study

3.2.1 Ownership structure and dividend policy. The separation of ownership and management in corporations creates an agency problem. Management's use of free cash flows in negative net present value projects creates an agency problem. The manager and the owner have a potential conflict of interest ([Jensen and Meckling, 1976](#)). Management is preoccupied with their own interests. Managers seek personal gain at the expense of shareholders. The three basic techniques for mitigating the agency problem are dividend payout, debt issuance, and managerial ownership. Dividend payment decisions, according to [Rozeff \(1982\)](#), help to alleviate the agency problem. [Jensen and Meckling \(1976\)](#) studied the relationship between an

organization's equity structure and dividend policy and argued that firm dividend behavior can be influenced by ownership structure.

3.2.1.1 Managerial ownership and dividend policy. The distinction between resource ownership and resource control produces conflict between corporate management and owners. This is called agency conflict (Fama and Jensen, 1983). When managers control free cash flows, they have an agency problem (Jensen, 1986). The manager uses this extra cash flow for personal perks and privileges at the expense of the shareholders. Debt financing and managerial ownership are significant tools for dealing with agency conflict. According to Lace *et al.* (2013), increased managerial shareholding reduces the conflict of interest between insiders and outsiders, lowering agency costs and the requirement for high dividend distribution.

The researcher has put in a lot of effort to determine how managerial share ownership affects an organization's dividend behavior. Mehar (2005) examined 182 KSE-listed companies from 1981 to 2002 and discovered a link between managerial ownership and a company's dividend policy. He also stated that the company pays out 23% of its incremental profit as a dividend to shareholders, with the remainder held for future investment. Obaidat (2018) reports a direct association between insider ownership and dividend disbursement in Jordan. Mirza and Azfa (2010) investigated the impact of ownership structure on dividend behavior in Pakistan and discovered that managerial ownership is significantly inversely associated with the dividend behavior of sample firms. In the same way researchers like Mehdi *et al.* (2017), Al-Qahtani and Ajina (2017), Chen *et al.* (2005), and Boshnak (2021) discover that managerial ownership is inversely related to dividend policy in respective firms. Thus based on the existing literature, the current study hypothesizes the following:

H1a. Managerial ownership is inversely associated with dividend payment decisions in PSX-listed firms.

3.2.1.2 Institutional ownership and dividend policy. Financial institutions such as banks, modaraba firms, investment firms, insurance companies, and others that make stock investments in various corporations are called institutional investors. Institutional investors actively monitor management, which helps to reduce agency costs. Institutional investors have a significant impact on dividend decisions (Mehdi *et al.*, 2017). In Benjamin *et al.* (2016) opinion, institutional investors prioritize higher dividends when they believe the governance mechanism is both costly and ineffective. In supporting the above argument, Bataineh (2020), Elmagrhi *et al.* (2017), Chen *et al.* (2005), and Roy (2015) demonstrate that there is a direct relationship between institutional ownership and dividend policy. Contrarily, Short *et al.* (2002) suggest that the presence of institutional investors may diminish the use of dividends as a signal of great performance. They further argued that the presence of large institutional investors helps to reduce the agency problem in firms by ensuring that good monitoring management is implemented in those organizations. Following the preceding argument, studies such as Abdelsalam *et al.* (2008), Al-Qahtani and Ajina (2017), and Hasan *et al.* (2021) discovered an inverse relationship between institutional ownership and dividend payments.

In contrast, institutional investors in emerging markets focus on governance as a means of improving profitability markets, as opposed to institutional investors in developed countries, who focus on governance as a means of avoiding risk (Khanna and Zyla, 2010). As a result, we can expect dividend distributions in emerging markets to increase as the role of institutional investors grows because cash dividends reduce managers' expropriation of internal resources while increasing institutional owners' profits. We propose the following hypothesis based on the preceding discussion.

H1b. There is a negative relationship between institutional ownership and dividend policy in PSX-listed firms.

3.2.1.3 Foreign ownership and dividend policy. The effect of foreign ownership on dividend payments is a point of contention. In the literature, different opinions were found regarding the impact of foreign ownership on dividend disbursement. Researchers such as [Chai \(2010\)](#), [Setiawan et al. \(2016\)](#), and [Musallam and Lin \(2019\)](#) proposed a positive association between foreign ownership and dividend payments by arguing that most foreign institutional ownership has dividend clients and monitoring incentives. According to [Allen et al. \(2000\)](#), another reason for this positive association is the relative tax benefits. According to [La Porta et al. \(2000\)](#)'s outcome model, foreign-controlled enterprises have superior corporate governance procedures, leading to bigger dividend payments. They have stronger motivations to keep an eye on company operations to protect their interests.

In contrast, studies such as [Lam et al. \(2012\)](#) and [Al-Najjar and Kilincarslan \(2016\)](#) found an inverse relationship between foreign ownership and dividend payout decisions in Chinese and Turkish firms, respectively. According to [Moin et al. \(2020\)](#), this negative relationship supports the expropriation hypothesis. [Al-Najjar and Kilincarslan \(2016\)](#) argue that large foreign institutional investors constitute a mechanism for preventing opportunistic managerial behavior and lowering agency costs, which supports the negative impact of foreign ownership on dividend behavior. On the other hand, [Kumar \(2006\)](#) and [Hasan et al. \(2021\)](#) find no link between the two in the context of Indian and Bangladeshi firms. Furthermore, in Pakistan, foreign ownership is primarily comprised of institutional investors. Enterprises with highly concentrated institutional foreign ownership are more inclined to pay greater dividends to reap tax benefits and supervise corporate insiders. As a result, we developed the following hypothesis:

H1c. There is a positive association between foreign ownership and the dividend policy in PSX-listed firms.

3.2.1.4 Concentrated ownership and dividend policy. A situation in which a small number of shareholders own most of a company's shares or stock is concentrated ownership. Block holders are a type of concentrated ownership. According to the literature, concentrated ownership plays a significant effect in the development of corporate policies, particularly dividend distribution rules. They're more concerned with keeping an eye on management to cope with potential agency conflicts. Because of the concentration of ownership in the equity structure, management cannot act in the shareholders' best interests.

The relationship between ownership concentration, firm policy, and dividend policy of Hong Kong enterprises is investigated by [Chen et al. \(2005\)](#). The analysis spans 1995 to 1998 and uses data from 412 publicly traded companies. They discovered a negative link between them if family ownership accounts for less than 10% of holdings but a positive link if family ownership accounts for 10%–35% of holdings. [Harada and Nguyen \(2011\)](#) examined the relationship between concentrated ownership and dividend practices of Japanese firms and found that both are inversely associated. Consistent with the above findings, researchers like [Khan \(2006\)](#), [Mancinelli and Ozkan \(2006\)](#), and [Wei et al. \(2017\)](#) too found that concentrated ownership is negatively associated with dividend payment. Hence the study developed the hypothesis the following:

H1d. There is an inverse relationship between concentrated ownership and dividend policy in PSX-listed firms.

3.2.1.5 Individual ownership and dividend policy. Individual investors are those who purchase stock in businesses. Dividends, according to [Lam et al. \(2012\)](#), are inversely related to public ownership in Chinese enterprises. They argued that because dividends are taxed at 20% in China while capital gains are not, investors prefer to receive cash dividends in exchange for their investments. [Mulyani et al. \(2016\)](#) stated that this negative association reveals inadequate corporate governance standards, which result in controlling shareholders squandering firm cash flow. Contrarily, [Lee \(2010\)](#) observed that corporations with a higher

percentage of individual ownership are more likely to pay larger dividends because management is obligated to satisfy public investors' dividend preferences to maintain a positive reputation, thereby increasing company value. To mitigate the risk of controlling shareholders' opportunistic behavior, retail shareholders ask management to increase dividend payments (Driver *et al.*, 2020). However, Reyna (2017) and Al-Najjar and Kilincarslan (2016) discover no correlation between individual ownership and dividend payment. Based on the preceding discussion, the following hypotheses are proposed:

H1e. Individual ownership has a positive association with a company's dividend policy in PSX-listed firms.

3.2.2 Firm characteristics and dividend policy. Along with ownership structure variables, the present study also considers the firm-specific characteristics and investigates their impact on the dividend behavior of firms. According to Gill *et al.* (2009), a company's dividend policy is also influenced by size. Large corporations have easy access to financial markets, resulting in greater funds for distribution to shareholders. The second firm characteristic is the current ratio, derived by dividing current assets by current liabilities and can be used to determine liquidity. According to Anil and Kapoor (2008), liquidity is a crucial indication of dividend policy. Jensen (1986) argued that an organization's liquidity is positively related to its dividend policy. The ability of a company to pay dividends to its shareholders is also impacted by debt. When a company takes out a loan to cover its financial needs, it must pay interest on the loan. As a result of the interest payments, investors receive a smaller amount of earnings. Investors think of companies that pay consistent dividends as more powerful and valuable. According to Lintner (1956), past dividends are a key driver of dividend policy. In supporting the Lintner (1956) argument, Pama and Babiak (1968) remark that the previous year's dividend favors the current dividend payout ratio. Changes in revenue (both interest and non-interest revenue) are utilized as a proxy for potential growth. Growth opportunities influence dividend policy. If a firm's prospects for expansion are better, it will keep a larger portion of its earnings to meet its financial needs, leaving fewer funds for shareholders (Mohamed *et al.*, 2009). As a result, dividend policy has a negative relationship with growth. According to signaling theory, profitable companies pay higher dividends than less profitable firms. Lintner (1956) contended that determining an organization's dividend behavior significantly impacts its profitability. Profitability in this study can be calculated by dividing net income by total equity (Freeman *et al.*, 1982). As a result of the discussion, we propose the following hypotheses.

H2. Firm-specific characteristics significantly impact dividend policy in PSX-listed firms.

3.3 Theoretical framework

Figure 1 shows the study's conceptual framework based on the literature review. Arrows show the direction of the association between variables.

4. Data and methodology

4.1 Sources of data and criteria for sample selection

The study's preliminary sample comprises all firms listed firms at Pakistan Stock Exchange (PSX) on June 30, 2020, i.e. 530. This study could not undertake financial firms due to the greater variation in accounting rules and regulations, financial reporting, and governance mechanisms (Farooq *et al.*, 2022). As a result, 127 financial firms were removed from the initial sample, leaving 403 firms. Furthermore, we eliminated 11 state-owned firms, reducing the sample size to 392. To become a part of the study firms have to meet the following conditions: (1) firms must be in business for the full study period (2015–2020); (2) they must not be

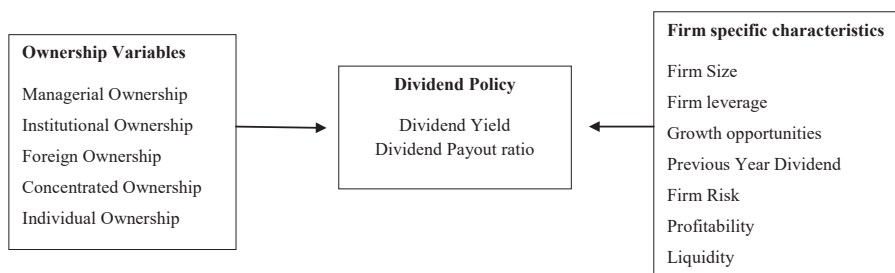


Figure 1.
Conceptual framework

Independent Variables Dependent Variable Independent Variable

de-listed or merged during the study period; and (3) they must have comprehensive data for the period 2015–2020 to be considered for this study. Firms that continuously lost money over the length of the study or were unable to declare a dividend throughout the study were removed from the study. Following the application of these filtering techniques, 252 non-financial firms were removed from the sample, leaving 140 non-financial firms. So, the final study sample is made up of 140 non-financial firms from 2015 to 2020. Industry-wide distribution of the sample is presented in [Table 1](#).

Data was gathered from respective companies' annual reports, brecorder.com, State Bank of Pakistan (SBP) balance sheet data analysis, and PSX historical data. Following the collection of required variable data, it was discovered that there are some extreme values in the data that could be detrimental to generalizing the study's findings. To deal with outliers and increasing generalizability, all continuous variables are winsorized at the 5 and 95% levels respectively.

4.2 Variables measurement

4.2.1 Dependent variables. Dividend policy is our dependent variable, and it is measured using three proxies: dividend payout dummy, dividend yield, and dividend payout ratio. [Table 2](#) contains information about variables measurement.

S. No	Economic groups	% Age of sample	No of firms
1	Textile	12.85%	18
2	Sugar	11.43%	16
3	Food	7.14%	10
4	Chemicals And Pharmaceuticals	14.28%	20
5	Manufacturing	5.00%	7
6	Minerals product	2.85%	4
7	Cement	7.14%	10
8	Motor vehicles, Trailers, Auto parts	12.14%	17
9	Fuel and Energy	7.14%	10
10	Information, communication and Transport	3.57%	5
11	Refined Petroleum Services	7.14%	10
12	Paper, Paper board and Services	2.14%	3
13	Electric machinery and Services	2.14%	3
14	Other Services Activities	5.00%	7
	<i>Total</i>	<i>100.00%</i>	<i>140</i>

Table 1.
Industry-wise sample
distribution

Note(s): [Table 1](#) displays the sample distribution. The study's final sample consists of 140 firms listed on the Pakistan Stock Exchange (PSX)

			The impact of corporate governance
Name	Symbol	Description	
<i>Dividend proxies</i>			
Dividend Payout Dummy	DPOD	Binary variable, equal to “1” if firm pay dividend and “0” otherwise	
Dividend Payout Ratio	Div_pay	Dividend per share/Earnings per share	
Dividend Yield Ratio	Div_yld	Dividend per share/Stock price per share	
<i>Ownership structure variables</i>			
Managerial Ownership	Mng_own	Fraction of shares held by managers and executive directors	
Institutional Ownership	Inst_own	Fraction of shares held by institutions	
Foreign Ownership	Frgn_own	Fraction of shares held by foreign individuals and companies	
Concentrated Ownership	Con_own	Fraction of shares held by five biggest shareholders	
Individual Ownership	Ind_own	Fraction of shares held by individual investors	
<i>Firm specific variables</i>			
Firm Size	Fsize	Log of Total Assets	
Firm Leverage	Lev	Total Debt/Total Assets	
Growth opportunities	G_oppor	Changes in revenue (both interest and non-interest)	
Previous year Dividend	PYD	Dividend paid in previous year	
Firm Risk	Frisk	Market price per share/Earnings per share	
Profitability	Prof	Net income/Total equity	
Liquidity	CR	Current Assets/Current Liabilities	
Note(s): Table 2 contains information about variables, their symbols, and how they are measured for both ownership and firm-specific variables			Table 2. Variables measurement

4.2.2 Independent variables. The present study used ownership structure and firm-specific characteristics as an independent variables. Details about their measurement of these variables are covered in [Table 2](#).

4.3 Econometric methodology

This study utilized panel data analysis, as the data set contains both cross-sectional and time-series observations, as suggested by [Khan \(2021\)](#). As described in a previous section, we measured the dividend policy of sample firms using three proxies: dividend payout dummy (DPOD), dividend payout ratio (Div_pay), and dividend yield ration (Div_yld). Since DPOD is a binary variable, we utilized the logit and probit regression model, which is also consistent with previous studies such as [Boshnak \(2021\)](#), [Khan \(2021\)](#), [Franc-Dbrowska and Mądra-Sawicka \(2020\)](#), [Bataineh \(2020\)](#), and [Lourenco and Branco \(2013\)](#). [Greene \(2003\)](#) argues that logit and probit models are the most appropriate when the dependent variable is binary. In addition, since ownership is endogenous, different types of ownership are associated with distinct characteristics, and ownership can change. The random effect model is therefore inconsistent. We used conditional fixed effect logit and conditional fixed effect probit models. The major difference between logit and probit models is the assumption of the normal error distribution. The logit model assumes the probability of error follows a standard logistic distribution, while the probit model assumes it follows a normal distribution ([Khan, 2021](#)).

$$DPOD_{it} = \beta_0 + \beta_1(Ownership)_{it} + \beta_2(Fspecific)_{it} + \varepsilon_{it} \quad (1)$$

In addition to the dividend payout dummy, we evaluate the dividend behavior of sample firms using the dividend payout ratio (Div_pay) and dividend yield (Div_yld) ratio. Similar to [Boshnak \(2021\)](#) and [Suwaidan and Khalaf \(2020\)](#), we used OLS and fixed effect regression to examine the effect of ownership structure and firm-specific factors on the dividend behavior of sample firms. Another reason for using the linear estimation technique is that the dividend payout ratio and dividend yield can be zero, greater than zero, or less than zero. Consequently,

the linear estimation method is more suitable for this type of research. To achieve the purpose of the study, the following econometric equation was developed based on the preceding discussion.

$$Div_pay_{it} = \beta_0 + \beta_1 (Ownership)_{it} + \beta_2 (Fspecific)_{it} + \varepsilon_{it} \quad (2)$$

$$Div_yld_{it} = \beta_0 + \beta_1 (Ownership)_{it} + \beta_2 (Fspecific)_{it} + \varepsilon_{it} \quad (3)$$

where ***Ownership_{it}*** represents ownership structure variables i.e. managerial ownership, institutional ownership, foreign ownership, concentrated ownership, and individual ownership for firm *i* and time *t*; whereas ***fspecific_{it}*** represents firm-specific characteristics, i.e. firm size, liquidity, leverage, firm risk, profitability, previous year dividend, and growth opportunities for firm *i* and time *t*.

5. Results discussion

5.1 Descriptive analysis

Table 3 displays descriptive statistics for the variables. It demonstrates that the average dividend payout ratio is 40%, which is quite high. It shows that, on average, sample firms distribute 40% of their earnings to shareholders through dividends. The mean value of dividend yield is 4.742 with a range from 0 to 15.152, respectively. Sample firms have an average of 17% managerial ownership, with a minimum and maximum ownership of 0% and 72%, respectively. The average value of institutional ownership is 13%, with a standard deviation of 13%. The minimum and maximum levels of institutional ownership are 0.03 and 50%, respectively. The average level of foreign ownership in the sample firms is 24%, with a minimum and maximum of 0% and 89%, respectively.

Ownership concentration is quantified using the *Herfindahl Index* (alternatively referred to as the Herfindahl–Hirschman Index, or HHI), which computes the sum of the squared shareholdings of a firm's top five shareholders. The mean value of ownership concentration is 78.30%, with a variance of 14.60% across observations. There are a few firms that are entirely controlled by fewer than five shareholders, implying a near-100% concentration of

Variable	Obs	Mean	Std. Dev	Min	Max
Div_yld _{it}	840	4.742	4.095	0	15.152
Div_pay _{it}	840	37.048	29.803	0	100
Mng_own _{it}	840	17.645	24.894	0	72.01
Inst_own _{it}	840	13.357	12.911	0.03	50.4
Frqn_own _{it}	840	24.075	31.084	0	89.01
Con_own _{it}	840	0.783	0.146	0.1831	1.000
Ind_own _{it}	840	16.456	12.961	1.6	47.79
Fsize _{it}	840	10.056	0.499	8.865	10.937
CR _{it}	840	1.942	1.23	0.68	5.13
Lev _{it}	840	21.09	7.709	0	1.071
Frisk _{it}	840	10.883	10.341	0.642	41.841
Prof _{it}	840	0.218	0.262	0.009	0.714
PYD _{it}	840	9.647	15.722	0	65
G_oppor _{it}	840	1.354	1.296	0.295	5.153

Note(s): Table 3 displays the descriptive statistics for the variables under consideration. The dependent variable is dividend behaviour, which is measured by the dividend payout ratio and dividend yield. Ownership structure is measured by managerial, institutional, foreign, concentrated, and individual ownership, as well as firm specific characteristics such as firm size, liquidity, leverage, firm risk, profitability, previous year dividend, and growth opportunities

Table 3.
Descriptive statistics

ownership. Individual owners own 16% of the firms in the sample, with a standard deviation of 13.161. [Table 3](#) also includes descriptive statistics of firm-specific variables. On average, sample firms have nearly twice as many current assets as current liabilities, which is an ideal liquidity ratio. The sample firms have a debt level of 21% in their capital structure, with a minimum and maximum level of debt of 0 and 1.071, respectively. The mean value of profitability as measured by return on equity is 21%, indicating that the sample firms are profitable.

5.2 Correlation analysis

Correlation analysis was conducted to check any possible multicollinearity issues among variables, and the results were presented in [Table 4](#). Following [Anderson et al. \(1990\)](#), any correlation coefficient value above 0.7 shows a multicollinearity issue in data. The result shows that there is no issue of multicollinearity among variables as there are no correlation values that cross the threshold limit. Further, the test result of variance inflation factor (VIF) is presented in [Table 5](#). [Kline \(2005\)](#) remarks that the VIF value of less than 10 shows the absence of multicollinearity among data. [Table 4](#), too, witnessed that data are free from collinearity issues as there is no VIF value greater than 10.

5.3 Regression analysis

The effect of ownership structure and firm-specific characteristics on the dividend behavior of PSX-listed firms is depicted in [Table 6](#). We created three regression equations, as mentioned in the previous section. In [Equation \(1\)](#), we used the fixed-effect logit and fixed-effect probit models for estimation, respectively, because the dependent variable in both models is binary. In [Equations \(2\) and \(3\)](#), we used OLS and a fixed-effect model. Since ownership is endogenous, firms with different types of ownership have different characteristics, and ownership can change. Random effects models are frequently inconsistent. As a result, we used the fixed-effect model to conclude the study's findings, and the results are presented in [Table 6](#).

The managerial ownership (Mng_own) coefficient is statistically significant in all models, which shows that managerial ownership is inversely associated with the dividend disbursement decision of the firm. The greater a firm's managerial ownership, the lower the dividend distribution to shareholders. It demonstrates that management prefers to keep profits rather than pay them to shareholders as dividends and that they are interested in investing in projects that will benefit them personally. This confirms the claims of [Athari et al. \(2016\)](#) that increasing insider ownership leads to agency issues, which reduces firm dividend payouts. The result supports the first hypothesis (*H1a*). These findings suggest that managers are unwilling to distribute company revenues as dividends to shareholders, preferring to keep earnings for their empire-building. Further, the results are consistent with those of previous studies such as [Mirza and Azfa \(2010\)](#), [Sindhu et al. \(2016\)](#), and [Kulathunga and Azeez \(2016\)](#).

Institutional ownership (Inst_own), the second variable of ownership structure, shows a significant positive impact on dividend decisions in all models, which implies support for the second hypothesis (*H1b*). It implies that the organizations will pay more dividends as institutional shareholding increases in the ownership structure. It supports [Sindhu et al. \(2016\)](#) argument that enterprises with higher institutional shareholdings distribute most of their earnings to their shareholders in Pakistan. Institutions prefer to invest in companies whose dividend policies align with their dividend priorities. This positive correlation supports the agency theory, which holds that institutional shareholders seek higher dividends to restrain managers' opportunistic behavior. These findings corroborate previous research by [Roy \(2015\)](#), [Boshnak \(2021\)](#), and [Khan \(2021\)](#).

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mng_own _{it}	1.00											
Inst_own _{it}	-0.16***	1.00										
Frgn_own _{it}	-0.42***	-0.25***	1.00									
Con_own _{it}	-0.26***	0.18***	-0.28***	1.00								
Ind_own _{it}	0.17***	0.33***	-0.35***	-0.09	1.00							
Fsize _{it}	-0.22***	0.21***	-0.42***	-0.09	-0.09	1.00						
CR _{it}	-0.21***	0.04	0.25***	-0.11**	-0.31	-0.26	1.00					
Lev _{it}	0.06	-0.03	-0.19***	-0.10	0.11	-0.21***	-0.15**	1.00				
Frisk _{it}	-0.12***	-0.18***	0.36***	-0.17	-0.17***	-0.03	-0.05	-0.11**	1.00			
Prof _{it}	-0.16***	0.03	0.33***	0.19***	-0.08*	0.10	-0.15**	-0.09**	0.11*	1.00		
PYD _{it}	-0.25***	-0.11*	0.41	-0.09***	-0.21*	0.09***	0.06	-0.13**	0.31***	0.54***	1.00	
G_opor _{it}	-0.21***	-0.25***	0.39***	-0.04	-0.13**	-0.09	0.03	0.04***	0.55***	0.51***	0.55	1.00

Note(s): Table 4 presents the correlation results of the independent variables of the study which comprises of ownership structure variables i.e. managerial, institutional, foreign, concentrated, and individual ownership and firm specific characteristics which comprises of firm size, liquidity, leverage, firm risk, profitability, previous year dividend, and growth opportunities. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

	VIF	1/VIF	The impact of corporate governance
G_oppo _{rit}	2.287	0.437	
Frgn_ow _{n_{it}}	2.057	0.486	
Prof _{it}	1.791	0.558	
PYD _{it}	1.779	0.562	
Mng_ow _{n_{it}}	1.682	0.595	
Frisk _{it}	1.544	0.648	
Con_ow _{n_{it}}	1.422	0.703	
Fsize _{it}	1.374	0.728	
Inst_ow _{n_{it}}	1.367	0.731	
Ind_ow _{n_{it}}	1.258	0.795	
CR _{it}	1.173	0.852	
Lev _{it}	1.173	0.853	
Mean VIF	1.576		
Note(s): Table 5 displays the VIF results for the variables studied			

Table 5.
Variance inflation factor

Table 5.
Variance inflation factor

Foreign ownership (Frgn_ow_n) shows a significant positive relationship with dividend behavior as the coefficient is statistically significant in all three equations. These findings support the *H1c* hypotheses. This positive correlation supports the agency theory, which states that foreign investors cannot closely monitor management due to their distance from management, compelling management to pay higher dividends to minimize free cash flow problems. These findings are consistent with those of previous studies such as [Baba \(2009\)](#), [Aydin and Cavdar \(2015\)](#), [Setiawan et al. \(2016\)](#), and [Boshnak \(2021\)](#).

The ownership concentration (Con_ow_n) shows a positive but statistically insignificant impact on dividend decisions in all models except Model 2. The results contradict the hypothesis (*H1d*). These findings do not support the arguments that concentrated owners have sufficient influence in deciding the dividend payment due to their significant voting power, which eventually compels management to pay higher dividends ([Chang et al., 2016](#)). Similarly, findings contradict the arguments of [Crisóstomo and Brandão \(2016\)](#) and [Wei et al. \(2017\)](#). They claim that large shareholders prefer to retain cash in the firms to reinvest it in more profitable projects.

Individual ownership (Ind_ow_n), the final variable of ownership structure, was found to be significantly positively related to dividend payment among sample firms which supports our hypothesis (*H1e*). According to the findings, companies with a higher percentage of individual ownership pay higher dividends. Individual investors may prefer higher dividend payouts to reduce the risk of wealth expropriation by controlling shareholders, and as a result, managers may be pressured to pay higher dividends. This supports [Gomes' \(2000\)](#) claim that managers in highly individual owned firms pay bigger dividends to maintain a positive company image in the market. The findings are similar to those of [Lee \(2010\)](#) and [Hasan et al. \(2021\)](#), who found that individual ownership is favorably associated with dividend disbursement.

In terms of firm-specific variables, the findings demonstrate that liquidity, profitability, and the previous year's dividend had a significant positive impact on the sample firms' dividend policy. The positive influence of profitability on dividend payments supports the signaling theory, which contends that highly profitable enterprises are more inclined to pay dividends to communicate their superior financial performance and hence distribute higher cash payouts to shareholders. Both [Fama and French \(2001\)](#) and [Al-Najjar and Kilincarslan \(2018\)](#) found a positive relationship between profitability and dividend distribution. Similarly, the strong positive impact of liquidity on profitability is consistent with the signaling theory, which holds that high-liquidity enterprises send credible signals to the market that they can pay their commitments quickly, implying a decreased chance of default.

Table 6.
Panel regression
estimation

Variables	DPOD (Fixed effect logit regression)	DPOD (Fixed effect probit regression)	Div_pay (OLS)	Div_pay (Fixed effect model)	Div_yld (OLS)	Div_yld (Fixed effect model)
Mng_own _{it}	-0.0850** (0.130)	-0.0325* (0.012)	-0.0235** (0.069)	-0.0057*** (0.110)	-0.0103* (0.010)	-0.0099** (0.023)
Inst_own _{it}	0.0793* (0.082)	0.0213** (0.045)	0.1610* (0.109)	0.1340** (0.153)	0.0495*** (0.015)	0.0027** (0.029)
Frgrn_own _{it}	0.0440** (0.280)	0.0152* (0.012)	0.0886*** (0.057)	0.1398** (0.054)	0.0094** (0.008)	0.0390*** (0.034)
Con_own _{it}	1.90E-05 (0.000)	4.14E-07 (0.000)	7.32E-05** (0.000)	0.0020 (0.011)	3.45E-06 (0.000)	4.20E-06 (0.000)
Ind_own _{it}	0.0804* (0.115)	0.0083*** (0.015)	0.0315** (0.109)	0.1030** (0.146)	0.0034*** (0.015)	0.1040*** (0.037)
Fsize _{it}	0.0546 (7.035)	0.6124 (0.375)	4.0120 (2.523)	3.3630 (3.935)	0.8070** (0.347)	1.5370 (1.248)
CR _{it}	0.9660* (1.646)	0.7710** (0.289)	5.5060*** (1.248)	3.6870*** (1.902)	1.0740*** (0.172)	0.1790* (0.243)
Lev _{it}	-1.1880 (1.194)	0.0017 (0.029)	0.3310 (0.205)	0.0235 (0.315)	0.1110*** (0.028)	0.0276 (0.068)
Frisk _{it}	0.0853* (0.048)	0.0315 (0.021)	0.6380 (0.149)	0.3970* (0.805)	0.0864 (0.021)	0.0462 (0.020)
Prof _{it}	30.1300*** (8.757)	13.2298*** (3.451)	74.9800*** (10.590)	37.4400*** (9.845)	11.2200*** (1.458)	8.5120*** (1.734)
PYD _{it}	0.0089** (0.118)	0.0643 (0.049)	0.5440*** (0.111)	0.71230*** (0.337)	0.0323** (0.015)	0.0123** (0.026)
G_oppor _{it}	-0.329* (1.001)	-0.2563** (0.145)	-5.7680*** (1.551)	-3.6792** (1.8823)	-1.0340*** (0.213)	-1.0790*** (0.246)
Constant	0.2810 (0.711)	-5.0456 (3.897)	-36.400 (26.300)	-9.8704 (37.650)	-6.6730* (3.620)	20.6700* (12.410)
Obs	840	840	840	840	840	840
Adj R2			0.359	0.334	0.372	0.212
F-statistic			18.42	7.53	19.39	6.43
Prob > F			0.000	0.000	0.000	0.000
Log likl	-116.87	-115.73				
LR X ²	58.800	57.750				
Prob > X ²	0.000	0.009				

Note(s): Table 6 examined the impact of ownership structure and firm-specific characteristics on dividend behavior of 140 PSX-listed companies. Dividend behavior is the dependent variable, and it is measured using three proxies: dividend payout dummy, dividend payout ratio, and dividend yield. Independent variables include ownership structure, which is measured by five proxies: managerial, institutional, foreign, concentrated, and individual ownership, as well as firm-specific characteristics such as firm size, liquidity, leverage, firm risk, profitability, previous year dividend, and growth opportunities. Fixed effect Logit and fixed effect Probit regression are used to assess the impact of ownership structure and firm-specific determinants on dividend payout dummies, whereas OLS and fixed effect regression are used to assess dividend policy as measured by dividend payout ratio and dividend yield. Standard errors in parentheses. ****p* < 0.01, ***p* < 0.05, **p* < 0.1

On the other hand, a firm's growth opportunities have a significant negative associated with the dividend decision of the sample firms. This supports the argument that if firms have more growth opportunities, they will keep a larger portion of their earnings to meet the business's financial needs, leaving less money for shareholders (Jensen *et al.*, 1992; Mohamed *et al.*, 2009). Hence, growth is inversely associated with dividend policy (Athari, 2021). Firm size, firm risk, and leverage do not affect dividend behavior. The insignificant impact of leverage fails to support the transaction cost theory that highly leveraged firms keep a major portion of their earnings with themselves to pay their debt that derives from raising costly external financing (Manos, 2003).

5.4 Additional test

In addition, following the study of Khan (2021), Athari (2021), Gamerschlag *et al.* (2011), and Lourenco and Branco (2013), who used the Tobit regression model, we used the Tobit regression for models 2 and 3 to investigate the impact of ownership structure and firm-specific variables on dividend decisions of sample firms. Since there is no negative value in dividend proxies, such as dividend yield and dividend payout ratio, whether the firm paid dividends or not. Al-Najjar and Kilincarslan (2018) argued that the Tobit regression technique is best suited when the dependent variable is censored at zero and contains a mix of continuous and discrete values. Furthermore, Athari (2021) and Kim and Maddala (1992) favor the Tobit model by arguing that Tobit models are more robust compared to OLS regressions. The results presented in Table 7 support our main findings.

5.5 Robustness test

As static models fail to account for the autocorrelation, heteroscedasticity, and endogeneity of explanatory variables, leading to biased estimates (Hasan *et al.*, 2021), we employed dynamic models to assess the robustness of the results. Moreover, many corporate finance academicians notice the endogeneity issue in panel data; such endogeneity can significantly impact inference, which can be eliminated using the GMM approach (Lin *et al.*, 2019). As a result, we used panel data models, such as GMM (Arellano and Bond, 1991; Bond *et al.*, 2001). There are two dynamic GMM models: differenced GMM and system GMM. We chose the system GMM based on the work of Alhassan *et al.* (2014), who demonstrated that Arellano and Bond's (1991) difference GMM has less predictive power for short-term data like ours. Moreover, Blundell and Bond (1998) demonstrated in a seminal article the bias and poor precision of the first difference GMM estimator created by Arellano and Bond (1991). Furthermore, when variables are highly persistent over time, the difference GMM estimator does not work (then lagged levels are poor instruments of current differences). As a result, we used the system GMM estimator, developed by Blundell and Bond (1998), to test the robustness of the results. The system GMM has a better ability to predict short-term data and is thus more useful than the difference GMM (Nyeadi *et al.*, 2018). System GMM eliminates the potential bias issues associated with endogeneity (Kim, 2021). In the system GMM, we employed the internal instrumental variable, which is the lagged difference between the dependent variable and the endogenous independent variable. The following econometric equation was developed for the system GMM.

$$\begin{aligned} Div_pay_{it} = & \beta_0 + \beta_1 Div_pay_{it-1} + \beta_2 (Ownership)_{it} + \beta_3 (Fspecific)_{it} + \beta_4 (IND)_{it} \\ & + \beta_5 (Year)_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

$$\begin{aligned} Div_yld_{it} = & \beta_0 + \beta_1 Div_yld_{it-1} + \beta_2 (Ownership)_{it} + \beta_3 (Fspecific)_{it} + \beta_4 (IND)_{it} \\ & + \beta_5 (Year)_{it} + \varepsilon_{it} \end{aligned} \quad (5)$$

Variables	Equation (2) (Dividend payout ratio)	Equation (3) (Dividend yield ratio)
	Tobit (Div_pay)	Tobit (Div_yld)
Mng_own _{it}	−0.0030*** (0.082)	−0.0146** (0.011)
Inst_own _{it}	0.1390* (0.130)	0.0503*** (0.018)
Frgn_own _{it}	0.0678** (0.067)	0.0079** (0.009)
Con_own _{it}	6.28e−05** (0.000)	2.10E−06 (0.000)
Ind_own _{it}	0.0084** (0.129)	0.0016*** (0.017)
Fsize _{it}	4.1810 (2.991)	0.9890** (0.401)
CR _{it}	7.1060*** (1.484)	1.3060*** (0.199)
Lev _{it}	0.3270 (0.243)	0.1220*** (0.033)
Frisk _{it}	0.8030 (0.181)	−0.0814* (0.024)
Prof _{it}	99.8300*** (13.040)	14.3200*** (1.740)
PYD _{it}	0.6210*** (0.132)	0.0354** (0.018)
G_oppor _{it}	−7.8390*** (1.910)	−1.2690*** (0.255)
Constant	−46.2400 (31.210)	−9.4710** (4.187)
Observations	840	840
LR χ^2 (12)	170.09	175.84
Prob > χ^2	0.0000	0.0000
Pseudo R2	0.0528	0.0864

Note(s): Table 7 examined the impact of ownership structure and firm-specific characteristics on dividend behavior of 140 PSX-listed companies. Dividend behavior is the dependent variable, and it is measured using two proxies: dividend payout ratio and dividend yield. Independent variables include ownership structure, which is measured by five proxies: managerial, institutional, foreign, concentrated, and individual ownership, as well as firm-specific characteristics such as firm size, liquidity, leverage, firm risk, profitability, previous year dividend, and growth opportunities. Tobit regression model is used in this table. Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7.
Additional test (Panel
regression estimation)

Table 8 presents the results of system GMM estimations to investigate the impact of ownership variables and firm-specific characteristics on dividend disbursement decisions of sample firms. The Wald test measures the joint significance of the independent factors on the dependent variable and is distributed as a Chi-square. The insignificant value of the Sargan test indicates that the instruments used in the equation are valid. The findings show that institutional, foreign, and individual ownership is positively associated with dividend payments measured in terms of dividend payout ratio and dividend yield, whereas concentrated ownership is negatively associated. With firm-specific characteristics, liquidity, profitability, and the previous year's dividend show significant positive, while growth opportunities are inversely associated with dividend payment. These results are matched with our baseline results which are presented in Table 6.

Table 9 summarizes the hypotheses. According to the findings, three of the five ownership-related hypotheses are supported. Similarly, only four of seven firm-specific characteristics have a significant relationship to dividend policy.

Variables	Equation (4) (Dividend payout ratio)	Equation (5) (Dividend yield ratio)	The impact of corporate governance
Div_pay (−1)	0.360*** (0.082)		
Div_yld (−1)		0.436*** (0.084)	
Mng_own _{it}	0.279 (0.272)	0.0361 (0.035)	
Inst_own _{it}	0.473** (0.298)	0.0624** (0.038)	
Frgn_own _{it}	0.903*** (0.294)	0.147*** (0.049)	
Con_own _{it}	−7.50E−07 (0.000)	−7.43E−08 (0.000)	
Ind_own _{it}	0.281** (0.417)	0.0382*** (0.053)	
Fsize _{it}	−0.81 (10.210)	0.585 (1.429)	
CR _{it}	12.28*** (2.841)	1.369*** (0.363)	
Lev _{it}	−0.0496 (0.571)	−0.183** (0.073)	
Frisk _{it}	0.345*** (0.133)	−0.0289* (0.017)	
Prof _{it}	12.18 (12.780)	3.156* (1.621)	
PYD _{it}	0.484*** (0.152)	0.0772*** (0.018)	
G_oppor _{it}	0.519** (1.622)	−0.346* (0.203)	
Constant	−29.94 (100.800)	−8.676 (14.330)	
Year	Yes	Yes	
Industry	Yes	Yes	
Wald test (χ^2)	60.28***	144.23***	
Sargent test (<i>p</i> -value)	0.885	0.913	
Hansen test (J statistic <i>p</i> -value)	0.125	0.203	
Observations	840	840	

Note(s): Table 8 displays the results of the system GMM. The study's final sample included 140 PSX-listed firms, and it ran from 2015 to 2020. Dividend policy is the dependent variable, and it is measure by dividend payout ratio and dividend yield. Independent variables included ownership structure, which is measured by five proxies: managerial, institutional, foreign, concentrated, and individual ownership, as well as firm-specific characteristics such as firm size, liquidity, leverage, firm risk, profitability, previous year dividend, and growth opportunities. Standard error are shown in parentheses. ****p* < 0.01, ***p* < 0.05, **p* < 0.01

6. Conclusion

Over the last fifty years, researchers have extensively debated dividend policy and its determinants. Corporation dividend policies have a significant impact on the value of a company. The ownership structure heavily influences the dividend policy. The current study examined the effect of ownership structure and firm-specific characteristics on firm dividend policy. The final sample of the study comprises 140 PSX-listed non-financial firms for the period from 2015 to 2020. We employed logit and probit models for DPOD (a binary dividend proxy) and OLS and fixed-effect models for the other two continuous dividend proxies, namely dividend payout ratio and dividend yield. In addition, following the literature, we utilized the Tobit model to examine the influence of ownership structure and firm-specific

Table 8.
Panel Regression
Estimates (System
GMM estimator)

Table 9.
Summary of
hypothesis

Hypothesis	Variables code	Expected sign	Actual sign	Supported
<i>Panel A: Ownership related variables</i>				
<i>H1a:</i> Managerial ownership is inversely associated with dividend payment decisions in PSX-listed firms	Mng_own	(−)	(−)	Yes
<i>H1b:</i> There is a negative relationship between institutional ownership and dividend policy in PSX-listed firms	Inst_own	(−)	(+)	No
<i>H1c:</i> There is a positive association between foreign ownership and the dividend policy in PSX-listed firms	Frgn_own	(+)	(+)	Yes
<i>H1d:</i> There is an inverse relationship between concentrated ownership and dividend policy in PSX-listed firms	Con_own	(−)	(+)	No (Insig)
<i>H1e:</i> Individual ownership has a positive association with a company's dividend policy in PSX-listed firms	Ind_own	(+)	(+)	Yes
<i>Panel B: Firm specific characteristics</i>				
Firm size	Fsize	(+)	(+)	No (Insig)
Liquidity	CR	(+)	(+)	Yes
Leverage	Lev	(−)	(−/+)	No (Insig)
Firm risk	Frisk	(−)	(−/+)	No (Insig)
Profitability	Prof	(+)	(+)	Yes
Previous year dividends	PYD	(+)	(+)	Yes
Growth opportunities	G_oppor	(−)	(−)	Yes

characteristics on the dividend policy of sample firms. We employed the system GMM model to test the robustness of the results.

The empirical findings suggest that there is a significant inverse relationship between managerial share ownership and dividend policy. In addition, dividend policy is positively correlated with institutional, foreign, and individual ownership. Concentrated ownership has no discernible effect on the dividend decisions of PSX-listed firms. Among firm-specific characteristics, liquidity, profitability, and previous year dividend have a significant positive relationship with dividend payments, while growth opportunities have a significant negative relationship.

The present study examines the impact of various types of ownership and firm-specific variables on dividend payouts in non-financial firms in Pakistan. Our findings may assist various market stakeholders in understanding the dynamics of this relationship and making appropriate investment decisions as a result. The findings have implications for investors as well as regulators. First, based on their return preferences, this study assists investors and fund managers in selecting the best stock. If dividends are important, they should invest in companies where institutions, foreign shareholders, and individuals own a significant portion of the stock. Minority shareholders should avoid investing in companies where insiders own most of the stock if they want to receive a regular dividend. Similarly, investors that seek higher dividends should select companies with stronger profitability, greater liquidity, and a history of dividend payments. Second, corporate executives can use the study's findings to assist them in planning their companies' dividend payouts by tracking the dynamics of dividend distributions with different ownerships and firm-specific characteristics. Similarly, in the portfolio design process, financial analysts and portfolio managers seek guidance from the study to better estimate a company's dividend behavior based on ownership and firm-specific data. Third, because our findings differ from previous studies conducted in other markets worldwide, international investors can benefit from

cross-border diversification by understanding market dynamics regarding dividend payouts and the ownership structure of Pakistani firms. Policymakers can strengthen dividend policy by ensuring institutional ownership, foreign ownership, and individual ownership in the firm's ownership structure, which indirectly reduces the agency problem in the company. Finally, authorities should increase transparency, governance quality, and minority investor protection, particularly among management-owned firms, as these firms tend to pay fewer dividends, resulting in agency issues.

The study has several shortcomings. First, the data set is limited, as the study only consists of 140 non-financial PSX listed firms from 2015 to 2019. Future research could delve into the impact of ownership structure on dividend policy in a larger data set. Second, in addition to ownership variables, the supplementary analysis could include board committee attributes, audit committee attributes, and remuneration structures. We were unable to include firm-specific and country-specific variables such as firm age, country risk, tax, and global risk in this study to examine the impact on dividend payout policies. It would be interesting to look into these dividend behavior characteristics in the future. Finally, additional research could include interviews with key stakeholders such as board directors from financial institutions, international investors, the government, and family business owners to learn about their perspectives on firm dividend policy in Pakistan.

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