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## Article

# Do prospector firms pay more dividends in times of high policy uncertainty?

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# Do prospector firms pay more dividends in times of high policy uncertainty?

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## ABSTRACT

This research aims to explore the nexus between business strategy and dividend payments. Utilizing a dataset encompassing U.S.-listed firms spanning the period from 1995 to 2018, our analysis reveals that firms employing prospector strategies exhibit a higher propensity for dividend payments compared to defender firms. Our findings persist even when accounting for firm fixed effects, employing an alternative subsample methodology, and demonstrating resilience to endogeneity and Propensity Score Matching (PSM) analysis. We also document that agency conflict issues related to free cash flow in prospector firms, stemming from overinvestment and capital expenditure reduction, contribute to an escalation in dividend payouts relative to defender firms. Finally, the prospector-dividend payment association is more pronounced in the context of weaker firm-level information and governance environments and during periods characterized by high policy uncertainty. Overall, our study fills a crucial gap in the literature on the complexities of dividend decisions within the context of different strategic orientations.

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## 1. Introduction

In the corporate finance literature, the importance of corporate dividend policy for shareholders, managers, and the stock market has been highlighted by seminal works such as those by Walter (1956), Black and Scholes (1974), Allen and Michaely (1995), Grullon et al. (2002), DeAngelo et al. (2006), and Akindayomi and Amin (2022). Despite the extensive empirical research on the dividend puzzle, a conspicuous gap in the literature emerges concerning the influence of firms' business strategies on corporate dividend policy. This study aims to address this gap and shed light on the factors shaping corporate dividend payouts, exploring the potential mechanisms driving this association.

A composite measure of business strategy was crafted by Ittner et al. (1997) and Miles and Snow (1978, 2003), leading to the categorization of firms into three distinct groups: prospectors, defenders, and analyzers. Prospector firms are characterized by their innovation-oriented approach, actively participating in research and development (R&D) activities, and dynamically adapting their product-market mix. In contrast, defender strategy-following firms prioritize efficiency, maintaining lower R&D intensity, concentrating on a stable product base, and showcasing consistent growth patterns within existing product lines. Analyzers, positioned between these two extremes, embody a balanced approach, as outlined by Miles and Snow (1978, 2003) and Hambrick (1983). Existing studies suggest that organizations characterized by a prospector strategy may face an elevated risk of information asymmetry due to the absence

of R&D pricing information and a high level of outcome uncertainty associated with risky and innovative projects (Aboody & Lev, 2000; Rajagopalan, 1997). Additionally, prospectors, with their broad range of products and markets, exhibit more growth opportunities, exacerbating information asymmetry problems between managers and external stakeholders interested in these firms (Miles & Snow, 1978, 2003). Prior research also links prospectors to higher agency conflicts compared to defenders (Chen & Keung, 2019; Dang et al., 2022; Ittner et al., 1997; Rajagopalan, 1997; Rajagopalan & Finkelstein, 1992). The argument posits that the intensive requirements of R&D investment (Hambrick, 1983; Sabherwal & Chan, 2001; Snow & Hambrick, 1980) and the absence of well-defined performance assessment (Miles & Snow, 2003; Naiker et al., 2008) in prospector firms create incentives for managers to over-invest in inefficient projects. Literature also indicates that managerial risk-taking behavior and reporting opacity in prospectors exacerbate agency problems between managers and external stakeholders in these firms (Armstrong et al., 2013; Brockman et al., 2015; Chen et al., 2015). Further research highlights that prospector firms have heightened incentives to mitigate information asymmetry and agency costs with capital providers, given their reliance on external financing sources (Bentley et al., 2013; Miles & Snow, 1978, 2003). According to dividend signaling theory, a high dividend payout ratio could serve as an effective strategy for these firms to send costly positive signals about future prospects, the trustworthiness of management, and the low level of agency conflicts (Lloyd et al., 1985). Hail et al. (2014) find that investors demand fewer dividend payments when information asymmetry is low, as they are more confident about the security of the wealth they have invested in the firm.

Despite the extensive body of research on this subject, a conspicuous gap exists, particularly in the exploration of how firms' business strategies influence their dividend decisions. Prior studies have predominantly focused on financial metrics, ownership structure, and macroeconomic factors as determinants of dividend policy, often neglecting the crucial role played by a firm's chosen business strategy. This oversight represents a significant theoretical gap as business strategy, encompassing choices regarding innovation, efficiency, and market positioning, fundamentally shapes a firm's operations and long-term objectives. The absence of empirical evidence addressing this gap implies an incomplete understanding of the intricate interplay between strategic choices and dividend outcomes. Also, prior research lacks a comprehensive examination of the underlying mechanisms driving the relationship between business strategy and dividend payouts. Our study seeks to address these theoretical limitations by integrating business strategy into the dividend policy framework, offering a better understanding of how strategic choices impact the distribution of profits to shareholders.

Employing the framework of Ittner et al. (1997) and Miles and Snow (1978, 2003), we test the relationship between prospector business strategy and dividend payouts using a large sample of U.S. firms over the period from 1995 to 2018. We find consistent evidence that the dividend payout is larger in firms with a prospector-type business strategy than in those with a defender-type business strategy. This finding holds in all specifications using alternative proxies for dividend payment, and when we conduct a series of tests controlling for firm and year fixed effects and even employing different subsamples with separate prospectors and defenders. Further, our results remain robust to various tests using two-stage least squares (2SLS) regressions and propensity score matching (PSM) analysis to address potential endogeneity concerns that may arise due to reverse causality problems and omitted variables. Collectively, our findings suggest that investors require lower dividends in firms adopting a defender-type strategy. Additionally, we find that this positive association between a prospector business strategy and corporate dividend policy is more pronounced in the context of weaker firm-level information and governance environments and during periods characterized by high policy uncertainty, as gauged by economic policy uncertainty (EPU) and presidential elections.

This paper makes four primary contributions to the existing literature. Firstly, our study enhances the limited literature by focusing on the factors influencing dividend payouts. By incorporating business strategy, we are the first to empirically support the notion that business strategy could serve as a determinant of dividend policy. Specifically, firms adopting an innovation-oriented prospector strategy are inclined to pay higher dividends than those adhering to an efficiency-oriented defender strategy. This understanding of the impact of business strategy on dividend payments can aid shareholders in effectively allocating their resources among firms with diverse business strategies. In essence, our study makes a substantial contribution to the corporate finance literature. Secondly, previous research has outlined the

repercussions of business strategy on various corporate finance decisions, such as investment (Habib & Hasan, 2021; Navissi et al., 2017), budgetary usage (Collins et al., 1997), cash holdings (Magerakis & Tzelepis, 2020), and tax aggressiveness (Higgins et al., 2015). We extend this line of research by providing evidence that business strategy has a more extensive application in the field of corporate finance than previously acknowledged in the literature. Thirdly, our paper also investigates the underlying channels driving the positive relationship between prospectors and dividend payouts. This extension is crucial for constructing more robust explanations regarding the transmission mechanisms through which firms' business strategy influences their dividend decisions. Our findings indicate that agency conflict issues related to free cash flow in prospectors, stemming from over-investment and capital expenditure reduction, contribute to an increase in dividend payouts in these firms compared to those adopting a defender business strategy. Lastly, we contribute further evidence for the association between firms' business strategy and dividend decisions by examining this core relationship within different information and governance environments, particularly during periods of high economic and political uncertainty. We discover that this positive relationship is more pronounced in weaker information and governance environments and is more affected during periods of high economic policy uncertainty and U.S. presidential elections. To the best of our knowledge, this research focus has not been extensively detailed in the previous literature.

The subsequent sections of this paper are organized as follows: [Section 2](#) reviews the related literature and develops the hypothesis. [Section 3](#) elucidates the research methodology and data. Empirical results are presented in [Section 4](#), and conclusions are drawn in [Section 5](#).

## 2. Background

Empirical finance research indicates that a range of financial characteristics play a significant role in influencing corporate dividend payouts. Important factors include firm size, as highlighted by Farinha (2003), financial leverage, as explored by Cooper and Lambertides (2018), and the impact of free cash flow, a concept originally introduced by Jensen (1986). Other determinants, including growth opportunities (La Porta et al., 2000), idiosyncratic risk (Ben-David, 2010), ownership structure (Bataneh, 2021; Firth et al., 2016; Grinstein & Michaely, 2005), corporate governance (Atanassov & Mandell, 2018), corporate risk management (Dionne & Ouederni, 2011), board gender (Chen et al., 2017), and the life cycle of firms (Bhattacharya et al., 2020), collectively contribute to shaping the dynamics of corporate dividend payouts. Taxation is also identified as a significant factor in firms' payout policies (Brav et al., 2008; Brown et al., 2007; Chetty & Saez, 2005; Floyd et al., 2015; Poterba, 2004; Poterba & Summers, 1984). Legal environment factors, such as insider trading laws, trading restrictions, or general investor protection, also play a role in corporate dividend payments (Alzahrani & Lasfer, 2012; Brockman et al., 2014; Efthymiou et al., 2021; Fang et al., 2017). Furthermore, another strand of research explores the influence of the information environment, as demonstrated by Miller and Rock (1985) and Li and Zhao (2008), along with the impact of price informativeness, as highlighted by De Cesari and Huang-Meier (2015), on corporate dividend decisions. Existing literature also highlights the significant role of uncertainty, with particular attention to economic policy uncertainty, as explored by Abreu and Gulamhussen (2013), Bliss et al. (2015), and Attig et al. (2021), in shaping the dynamics of dividend payments. Despite the extensive discourse on the determinants of dividend policy in corporate finance literature, a gap exists in understanding the impact of business strategy on corporate dividend policy. This paper addresses this issue by incorporating business strategy into the analysis.

The management literature categorizes businesses into three strategies: prospectors, analyzers, and defenders, based on competitive advantages like products, markets, technology design, and organizational structures (Miles & Snow, 1978, 2003). Previous studies have linked R&D-intensive firms, such as prospectors, with heightened information asymmetry compared to defenders. Several factors contribute to this phenomenon. Firstly, as R&D investments are unique to each firm, outside investors lack pricing information by observing other firms' R&D activities (Aboody & Lev, 2000). Additionally, the absence of organized markets for intangible assets deprives investors of asset pricing information (Aboody & Lev, 2000; Barth et al., 2001). Moreover, as prospectors pursue risky and innovative projects, they inherently exhibit greater outcome uncertainty than defenders (Bentley et al., 2013; Rajagopalan, 1997), resulting in a higher level of information asymmetry. Smith and Watts (1992) also demonstrate that prospectors, focused on seeking new and innovative products, identifying and exploiting new market opportunities,

tend to possess more growth options. Consequently, they exhibit greater information asymmetry between managers and outside investors concerning the expected future cash flows from investment opportunities. In a similar vein, the less formalized and decentralized organizational structure of prospectors affords significant decision-making discretion to their managers (Ittner et al., 1997; Miles & Snow, 1978). This discretion enables managers to act in their self-interest, potentially at the expense of outside investors. Bizjak et al. (1993) reveal that prospector managers are motivated to over-invest in order to maximize stock price performance, even when cognizant that such sub-optimal investment decisions may lead to future under-performance. Moreover, when prospector managers have a higher level of stock-based compensation, the propensity for over-investment is further exacerbated to maximize personal benefits. Empirical studies indicate that prospector firms are at a higher risk of experiencing crash events (Habib & Hasan, 2017) compared to defenders. Research by Armstrong et al. (2013), Brockman et al. (2015), and Chen et al. (2015) suggests that such managerial risk-taking behavior heightens agency conflicts between managers and external stakeholders. Furthermore, prospectors are associated with greater financial reporting irregularities (e.g., restatements and shareholders' lawsuits), higher audit fees (Bentley-Goode et al., 2017), and weaker internal control over financial reporting (Bentley-Goode et al., 2017). These factors further contribute to heightened agency conflicts between managers and outside investors in prospector firms. On the other hand, utilizing a dataset comprising publicly traded companies in Indonesia spanning the period from 2012 to 2018, Herusetya et al. (2023) applied Miles and Snow (1978, 2003) framework. Their investigation revealed that firms adopting prospector-type business strategies exhibited lower levels of accrual earnings management and real activities manipulation compared to those employing defender-type business strategies. This means that business strategies categorized as prospector types, which emphasize innovation and long-term performance goals, may not inherently encourage management to partake in earnings management.

Overall, the exploration of the impact of business strategy on corporate dividend policy constitutes an essential and timely context for this study. Given the evolving landscape of corporate governance and strategic decision-making, understanding how distinct business strategies shape dividend policies becomes crucial. The prospectors, driven by innovation and risk-taking, present an intriguing dynamic with heightened information asymmetry, managerial discretion, and a propensity for over-investment. As businesses navigate a complex relationship of market dynamics, regulatory frameworks, and strategic orientations, investigating how these strategies influence dividend policies provides a better understanding of corporate behavior. The uniqueness of this context lies in the examination of not only the financial determinants but also the strategic choices that impact shareholder value. As a result, examining the influence of business strategy on dividend policies contributes to a broader comprehension of corporate financial strategies, making it a relevant and insightful area of study.

### 3. Theoretical framework

The theoretical framework designed for this study is intensely rooted in two major theoretical perspectives: agency theory and signaling theory. Agency theory explores the relationship dynamics between managers and shareholders within organizations. Jensen and Meckling's seminal work in 1976 established the theoretical foundations by recognizing the fundamental misalignment of interests between these two key stakeholders. Managers, acting as agents, are tasked with making decisions on behalf of shareholders, who are the principals. The central idea of agency theory is that conflicts arise due to the differing priorities and incentives of managers and shareholders. In the context of business strategy heterogeneity, this theory becomes a powerful tool to analyze how various strategic orientations introduce distinct agency conflicts, shaping the decision-making processes related to dividend distributions. Particularly, a prospector firm, driven by a risk-taking and innovative orientation, may encounter heightened agency conflicts compared to defender or analyzer firms. The pursuit of new opportunities, potentially involving high levels of uncertainty and risk, could create tensions between managers eager to undertake ambitious projects and shareholders seeking consistent returns. Agency theory, in this context, allows for a better understanding of how strategic choices impact the nature and intensity of agency conflicts. The literature on agency theory, spanning classic works like Jensen and Meckling (1976) to

more recent contributions (Bentley et al., 2013; Bentley-Goode et al., 2017; Habib & Hasan, 2021; Hsu et al., 2018), helps unpack the complexities of the principal-agent relationship within the framework of diverse business strategies. By applying the lens of agency theory, the study gains a comprehensive understanding of how managerial behaviors align with or deviate from shareholder interests in the context of varied business strategies, thereby enriching the theoretical foundation of the research.

On the other hand, signaling theory is an important theoretical fundamental integrated to understand the strategic use of dividend payments as communicative signals by firms. According to Miller and Rock (1985), firms utilize dividend policies as a deliberate signaling mechanism to convey relevant information to external stakeholders, especially investors. This perspective aligns with the idea that dividends serve as a reliable signal of a firm's financial health and growth potential, addressing information asymmetry and uncertainty. Contemporary contributions by Bentley et al. (2013), Cao et al. (2017), and Harakeh et al. (2020), further enrich the signaling theory, emphasizing the strategic nature of dividend decisions and their implications for investor perceptions. In the context of diverse business strategies, signaling theory can explain how prospectors, defenders, and analyzers strategically deploy dividends to signal their unique characteristics and prospects. For instance, a prospector firm may use higher dividend payouts as a signal of its ability to manage increased risk and uncertainty, demonstrating financial stability and a commitment to shareholder value. In contrast, a defender firm, prioritizing stability and efficiency, might signal carefulness by maintaining lower dividend payouts and retaining earnings for potential internal investments. Through the integration of signaling theory into our theoretical framework, our investigation focuses on the landscape of dividend decisions, employing a perspective that recognizes the deliberate signaling strategies employed by firms with diverse business orientations.

## **4. Literature review and hypotheses development**

### **4.1. Business strategy and dividend payments**

The finance literature suggests that conflicts between managers and shareholders arise within a firm, leading to decisions that diminish shareholder wealth. Increased dividend payments can mitigate these conflicts by reducing cash flows available to managers, deterring private benefits and wealth expropriation (Easterbrook, 1984; Grossman & Hart, 1982; Jensen, 1986; Koo et al., 2017). In other words, the fundamental premise is that managers, driven by self-interest, may make choices that prioritize their private benefits and engage in wealth expropriation, leading to adverse implications for the broader shareholder base. However, agency theory contends that this conflict can be strategically managed, and one such mechanism is through increased dividend payments. By allocating a significant portion of earnings to shareholders in the form of dividends, firms can actively curtail the cash flows available to managers. This reduction acts as a deterrent, discouraging managers from pursuing avenues that may cater primarily to their personal gains at the expense of shareholder value. Thus, the agency theory perspective suggests that heightened dividend payments serve as a mechanism to mitigate conflicts of interest, foster a more equitable distribution of wealth, and align the incentives of managers with the broader shareholder base.

Signaling theory suggests that managers possess superior knowledge, and firms can use substantial dividends to convey positive signals, reassuring financial markets and attracting investors. One powerful tool in this signaling is the allocation of substantial dividends, which acts as a tangible demonstration of the firm's financial health, stability, and growth potential. As the literature suggests, signaling through dividends serves the dual purpose of reassuring existing shareholders about the firm's trajectory and attracting potential investors seeking promising opportunities. In the context of our study, the signaling theory becomes particularly significant when considering different business strategies. Previous research, as evidenced by Bentley et al. (2013), Miles and Snow (1978, 2003), Cao et al. (2017), and Harakeh et al. (2020), indicates that prospectors, in contrast to defenders, deal with heightened information asymmetry and agency conflicts. Facing greater uncertainty and risk, prospectors are compelled to communicate their growth potential and financial soundness more assertively, making substantial dividend payments a potent signaling mechanism. Hence, the literature on signaling theory aligns with the

specific characteristics associated with prospector firms, highlighting their heightened incentives to strategically use dividends as a positive signal to reassure stakeholders and attract external financing sources. Our first hypothesis aligns with agency and signaling theories, considering the characteristics of prospectors:

**Hypothesis H<sub>1</sub>:** Firms with prospector strategies tend to pay more dividends than firms following defender strategies.

#### **4.2. The role of information and governance environments**

Prior literature argues that more precise, useful information and better corporate governance help mitigate insiders' information advantage over outside investors. Lower information asymmetry and agency problems, in turn, alleviate the pressure on managers to demonstrate commitment via cash disbursement. Dividend payouts decrease consequently (Hail et al., 2014).

Existing studies show a negative association between the quality of a firm's information environments and its corporate payout policy. For example, using a sample of Belgium-listed firms over the 1905–1909 period, Van Overfelt et al. (2010) find that firms paying dividends have a less transparent income statement, supporting the notion that dividends are a substitute for income statement transparency. Employing a large global data set of 49 countries during the period from 1993 to 2008, Hail et al. (2014) report that, following the improvement of the information environment (e.g., the mandatory adoption of IFRS and the initial enforcement of new insider trading laws), firms are less likely to pay dividends, and more likely to cut this payout. In other words, more information about firms mitigates the information asymmetry problem and results in firms with less reliance on dividend payments.

Besides, a body of empirical works views dividends as a governance substitute. For instance, Atanassov and Mandell (2018) find support for the prediction that firms with weaker governance tend to exhibit higher dividends than better-governed firms. They argue that when governance is weak, managers must pay dividends to assure shareholders that they will not expropriate their investment. In better-governed firms, shareholders do not require dividend payouts as they believe that the managers will act on shareholders' interests. In a similar vein, John et al. (2015) document that firms subject to weak monitoring mechanisms are more likely to allocate a larger proportion of their payout to cash dividends. Jo and Pan (2009) demonstrate that firms with entrenched managers are more likely to pay dividends. Additionally, Hu and Kumar (2004) document a positive relation between dividends and CEO tenure, cash compensation, and board independence. Similarly, Gyapong et al. (2021) employ a dataset of Australian listed enterprises to investigate the impact of corporate governance, particularly board gender diversity, on corporate dividend payouts. Their results reveal a positive correlation, indicating that a more gender-diverse board has a beneficial influence on dividend payments. Conversely, Elmagrhi et al. (2017) employ a sample of small- and medium-sized enterprises in the UK and find a significant negative relationship between board gender diversity and the level of dividend payout. In a comprehensive review of literature spanning the last two decades, Das Mohapatra and Panda (2022) systematically examine the nexus between corporate governance and dividend policy. Their findings reveal a prevailing trend across the majority of studies, indicating a positive association between enhanced corporate governance practices and increased dividend payouts.

Based on the above analyses, we predict that better information and governance environments help prospectors to reduce information asymmetry and agency conflicts, thereby lessening their dividend pressure. Accordingly, we formulate the following hypothesis:

**Hypothesis H<sub>2</sub>:** The positive association between prospector strategy and dividend payments is more pronounced for firms with weaker information quality and poorer governance environments.

#### **4.3. The impact of policy uncertainty**

Corporate dividend policy exhibits sensitivity to economic and political uncertainty, with arguments suggesting that dividend payouts can function as effective tools for firms to reassure investors and shareholders during periods of economic and political flux (Attig et al., 2021; Sarwar et al., 2020). The

rationale posits that higher uncertainty amplifies the necessity of employing dividends as mechanisms of assurance.

Empirical studies substantiate that firms adjust their dividend policies in response to economic uncertainty. For instance, Buchanan et al. (2017) investigate how firms react to uncertainty surrounding U.S. tax policy changes and find that firms tend to increase dividend payments one year before anticipated tax increases. Abreu and Gulamhussen (2013) demonstrate that larger, more profitable, but low-growth banks increase dividend payouts before and during financial crises. This evidence suggests that dividends serve as signals of future growth opportunities, attracting debt and equity financing when needed, even during financial crises. Attig et al. (2021) further support this notion by showing that firms pay higher dividends during periods of high Economic Policy Uncertainty (EPU). They find that EPU has a stronger impact on dividends in family firms and those with concentrated ownership, which are prone to greater agency problems. Additionally, the positive correlation between EPU and dividend payouts is more pronounced in countries with weak investor protection, disclosure, securities regulation, and enforcement quality.

Firms also adjust their corporate decisions in response to electoral uncertainties, such as paying fewer taxes, reducing investment and hiring, and delaying financing (Durnev, 2013; Jens, 2017; Li et al., 2016). Given the uncertainty about the continuity of economic policies under incoming governments, managers, possessing better information about potential policy changes, contribute to increased information asymmetry between managers and outside investors surrounding elections (Durnev, 2013). This information asymmetry becomes a pivotal determinant of an increase in dividend payouts. Analyzing a substantial dataset covering six U.S. presidential elections from 1996 to 2016, Farooq and Ahmed (2019) demonstrate that election years are associated with higher dividend payout ratios relative to non-election years. They affirm that information asymmetries linked to election years prompt firms to pay elevated dividends.

In this paper, we expect that increased information asymmetry and agency costs arising from economic and political uncertainty require prospectors to pay higher dividends. We formulate the following hypothesis:

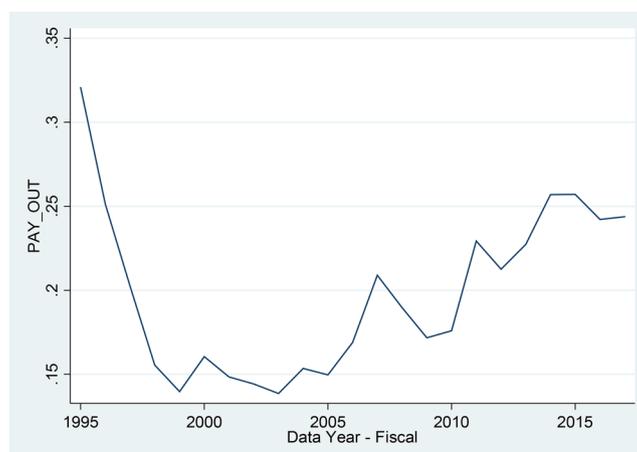
**Hypothesis H<sub>3</sub>:** The positive association between prospector firms and dividend payments is more pronounced during high policy uncertainty.

## 5. Research design

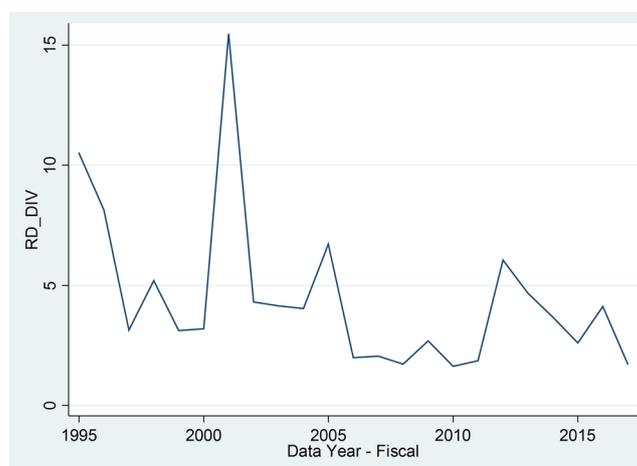
### 5.1. Data and sample characteristics

To validate our hypotheses, we employ a sample comprising all U.S.-listed firms spanning the period from 1995 to 2018. We utilize the methodology established by Ittner et al. (1997) and Miles and Snow (1978, 2003) to quantify the business strategy variable, as outlined in Appendix 2. Firm characteristics and other control variables were collected from Compustat, the Thomson Reuters Institutional Holdings (13F), I/B/E/S, and the Institutional Shareholder Services (ISS) database. Economic policy uncertainty and presidential election variables are taken from the website [www.policyuncertainty.com](http://www.policyuncertainty.com) and the Database of Political Institutions. The definition and measurement of all variables in our research models are described in Appendix 1. To ensure potential outlying observation control, we winsorize all continuous variables at the 1% and 99% levels. Initially, we selected a sample comprising all firms with a minimum of two years' worth of data available in the Compustat database, resulting in an initial dataset of 51,671 firm-year observations. Subsequently, firms lacking both business strategy measures and dividend payment data were excluded. Following this screening process, our final analytical sample consisted of 47,536 firm-year observations.

The findings presented in Figure 1, indicating the dividend payout ratio of U.S. non-financial firms over the research period from 1995 to 2018, reveal a dynamic trend. The graph illustrates a substantial decline in the dividend payout ratio, dropping from its peak of approximately 0.325 in 1995 to a trough of 0.10 in the early 2000s. This sharp decrease implies that firms allocated a smaller portion of their earnings to dividends during this period. However, the subsequent recovery, though gradual, appears erratic, with the ratio gradually increasing and reaching nearly 0.25 by 2018. This observation suggests



**Figure 1.** Cross-sectional summary statistics for the dividend payout ratio for U.S. non-financial firms by year, from 1995 to 2018.



**Figure 2.** Cross-sectional summary statistics for the ratio of research and development to dividend payouts for U.S. non-financial firms by year, from 1995 to 2018.

a fluctuating landscape of dividend policy decisions among non-financial firms over the years. The erratic nature of the recovery may indicate various external factors influencing firms' dividend distribution strategies, such as economic conditions, industry-specific challenges, or shifts in corporate priorities.

Figure 2 adds another layer of complexity by illustrating the pattern of R&D expenditure to dividend payouts by non-financial firms. The depiction is characterized by a considerable level of volatility throughout the analyzed period, suggesting fluctuations in the balance between investment in research and development (R&D) activities and the distribution of dividends. Despite the erratic pattern, an upward trend in recent years is noticeable. This upward trend in R&D expenditure relative to dividend payouts indicates an increasing emphasis on innovation and strategic investment in recent times. Firms seem to be allocating a larger share of their earnings to R&D activities, possibly reflecting a strategic response to technological advancements, competitive pressures, or changing market demands. This pattern aligns with the broader narrative of businesses prioritizing innovation and long-term growth strategies over immediate dividend distributions, suggesting a shift in corporate priorities.

## 5.2. Empirical model

The main model used for the panel regression analysis is illustrated in Equation (1). Each subsequent test then examines the relationship between dividend payments (*DIVPAY*) and corporate business strategy (*PROSPECTOR*) for a subset of the data appropriate for each hypothesis.

$$DIVPAY_{i,t} = \alpha + \beta PROSPECTOR_{i,t} + \gamma CONTROLS_{i,t-1} + \mu_{i,t} \quad (1)$$

The dependent variable, denoted as *DIVPAY*, serves as an indicator for dividend payments, employing alternative proxies such as:

- i. *DIVEARN*, known as the Dividend Payout Ratio. The calculation of *DIVEARN* involves deriving the ratio of total dividends paid to accounting earnings before extraordinary items (IB). Consistent with the methodology outlined by Holmen et al. (2008), instances where dividends are paid when accounting earnings are negative are substituted with one. Additionally, if the resulting *DIVEARN* exceeds one, it is adjusted to one.
- ii. *DIVSALE* is another proxy, representing the ratio of total dividends paid divided by sales, multiplied by 100.
- iii. *DIVCASH*, the third proxy, is calculated as the ratio of total dividends paid to cash flow multiplied by 100.

These alternative proxies provide distinct perspectives on the relationship between dividend payments and various financial metrics, allowing for a comprehensive examination of the factors influencing dividend policies within the study framework.

The independent variable, denoted as *PROSPECTOR*, is a dummy variable which takes the value of one for prospector-type firms and zero for defender firms and analyzer firms. This variable is a composite measure encompassing six comprehensive elements. The average values are then ranked into quintiles per industry, with the highest quintile score of 5 and the lowest score of 1. The scores are summed over the six sub-measures per company-year, leading to a maximum score of 30 (considered prospector type) and a minimum score of 6 (considered defender type). For our analysis, we categorize firms with scores ranging from 6 to 12 as defenders, scores from 13 to 23 as analyzers, and scores of 24 or above as prospectors.

We also follow the existing literature (Cooper & Lambertides, 2018; Bhattacharya et al., 2020; and Attig et al., 2021), to include the set of control variables (*CONTROLS*) with a one-year lag (as reported in Appendix 1), including firm size (*SIZE*), market to book (*MB*), leverage (*LEV*), operating performance (*ROA*), capital expenditure (*CAPEX*), retained earnings (*RETA*), the deviation of ROA (*ROVOL*), firm age (*AGE*), institutional ownership (*IO*), and analyst coverage (*ANALYST*). The correlation coefficients fall within acceptable ranges, as reported in Appendix 3.

The findings presented in Table 1 offer a comprehensive analysis of dividend payouts across various dimensions, shedding light on patterns and disparities within the dataset. In Panel A, providing descriptive statistics for the entire sample, a detailed overview of each variable is presented. Panel B delves into the mean and median values for dividend payouts by industry, revealing variations in dividend distribution practices across different sectors. Particularly, the construction industry stands out with the lowest dividend payments, contrasting with transportation companies that exhibit the highest dividend payouts. This stark divergence emphasizes the industry-specific nature of dividend policies, influenced by unique economic factors, market conditions, and capital requirements inherent to each sector.

In Panel C, we take a closer look at dividend payouts based on three distinct business strategies. The results highlight an important trend, indicating that defender firms consistently exhibit the lowest dividend payout ratios, while prospectors stand out with the highest ratios. This observation aligns with expectations derived from the study's hypotheses and theoretical framework, reinforcing the view that business strategy plays a pivotal role in shaping dividend policies. The lower dividend payouts observed among defender firms suggest a conservative financial approach, possibly prioritizing internal investments or debt reduction over distributing profits to shareholders. On the contrary, prospectors, characterized by risk-taking and innovation, appear more inclined to allocate a higher proportion of earnings to dividends, possibly as a signaling mechanism or to manage agency conflicts.

Table 1. Summary of sample characteristics.

Panel A: Descriptive statistics for the whole sample										
Variables	Sample	Mean	Median	Min	P25	P75	Max	SD		
PROSPECTOR	59,546	0.5444	1	0	0	1	1	0.4980		
DIVEARN	59,546	0.1900	0	0	0	0.2677	1	0.3196		
DIVSALE	59,546	0.0100	0	0	0	0.0130	0.0565	0.0176		
DIVCASH	59,546	0.0703	0	0	0	0.1255	0.3078	0.1105		
L1.DIVEARN	59,546	0.1865	0	0	0	0.2590	1	0.3169		
L1.DIVSALE	59,546	0.0099	0	0	0	0.0125	0.0570	0.0175		
L1.DIVCASH	59,546	0.0695	0	0	0	0.1224	0.3078	0.1100		
IO	59,546	0.5054	0.5367	0	0.2315	0.7734	0.9980	0.3089		
CAPEX	59,546	0.0400	0.0123	0.0130	0	0.0345	0.1642	0.2013		
LEV	59,546	0.2696	0.2149	0	0.1000	0.3776	1.0992	0.2172		
SIZE	59,546	6.2922	6.1730	2.4893	4.7094	7.6983	11.9387	2.0577		
RETA	59,546	-0.2990	0.1087	-8.2701	-0.1970	0.3289	0.8340	1.4556		
ROA	59,546	0.0014	0.0517	-1.1280	-0.0037	0.0884	0.3226	0.1962		
ROVOL	59,546	0.0761	0.0304	0.0013	0.0132	0.0770	1.0242	0.1340		
AGE	59,546	2.9005	2.8911	1.1793	2.3034	3.4972	4.2671	0.7407		
MB	59,546	1.8381	1.3949	0.4777	1.0742	2.0486	9.3986	1.3471		
ANALYST	59,546	6.2054	3.9167	0	1	9.1667	28.4167	6.7492		

Panel B: Summary statistics for dividend payout by industry																								
Variables	Agriculture			Mining			Construction			Manufacturing			Transportation			Wholesale			Retail			Service		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
DIVEARN	0.2227	0.0000	0.1516	0.0000	0.0000	0.1050	0.0000	0.0000	0.1753	0.0000	0.0000	0.3437	0.2087	0.0000	0.1679	0.0000	0.1380	0.0000	0.1820	0.0000	0.0000	0.0000	0.0000	0.0000
DIVSALE	0.0115	0.0000	0.0089	0.0000	0.0000	0.0023	0.0000	0.0000	0.0083	0.0000	0.0000	0.0218	0.0114	0.0000	0.0046	0.0000	0.0046	0.0000	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000
DIVCASH	0.0829	0.0000	0.0398	0.0000	0.0000	0.0340	0.0000	0.0000	0.0681	0.0000	0.0000	0.1224	0.0644	0.0000	0.0706	0.0000	0.0533	0.0000	0.0654	0.0000	0.0000	0.0000	0.0000	0.0000
L1.DIVEARN	0.2375	0.0000	0.1547	0.0000	0.0000	0.1028	0.0000	0.0000	0.1726	0.0000	0.0000	0.3421	0.1984	0.0000	0.1615	0.0000	0.1321	0.0000	0.1758	0.0000	0.0000	0.0000	0.0000	0.0000
L1.DIVSALE	0.0122	0.0000	0.0088	0.0000	0.0000	0.0023	0.0000	0.0000	0.0082	0.0000	0.0000	0.0218	0.0108	0.0000	0.0045	0.0000	0.0043	0.0000	0.0108	0.0000	0.0000	0.0000	0.0000	0.0000
L1.DIVCASH	0.0886	0.0000	0.0400	0.0000	0.0000	0.0318	0.0000	0.0000	0.0674	0.0000	0.0000	0.1239	0.0702	0.0000	0.0699	0.0000	0.0508	0.0000	0.0638	0.0000	0.0000	0.0000	0.0000	0.0000

Panel C: Summary statistics over the three types of business strategy with respect to dividend payout										
Variables	Defender firms (1)			Analyzer firms (2)			Prospector firms (3)			
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	
DIVEARN	0.1451	0.0000	0.2070	0.0000	0.0000	0.2958	0.1031	0.0000	0.1031	
DIVSALE	0.0076	0.0000	0.0104	0.0000	0.0000	0.0176	0.0061	0.0000	0.0061	
DIVCASH	0.0552	0.0000	0.0756	0.0000	0.0000	0.1072	0.0348	0.0000	0.0348	
L1.DIVEARN	0.1424	0.0000	0.2037	0.0000	0.0000	0.2885	0.0947	0.0000	0.0947	
L1.DIVSALE	0.0074	0.0000	0.0103	0.0000	0.0000	0.0175	0.0059	0.0000	0.0059	
L1.DIVCASH	0.0541	0.0000	0.0754	0.0000	0.0000	0.1054	0.0324	0.0000	0.0324	

This table presents the descriptive statistics for our sample. A comprehensive description of the variables utilized in the regression analysis can be found in Appendix 1. Continuous variables are winsorized at the 1% and 99% levels.

## 6. Empirical findings

### 6.1. Baseline regressions

Our first hypothesis examines whether prospector firms are associated with higher dividend payouts by undertaking a panel regression of prospector business strategy on dividend payout and controlling a set of appropriate variables. The results of three models using alternative proxies for dividend payments with year and industry effects are presented in Table 2.

Examining Table 2 reveals compelling evidence in support of our first hypothesis. Across the three models utilizing alternative proxies for dividend payments, the coefficient of the *PROSPECTOR* variable is consistently positive and statistically significant at the 1% level, indicating that prospector firms exhibit a tendency to pay higher dividends. Previous research suggests that a substantial dividend payment can serve to alleviate agency conflicts by reducing available cash flows to managers, discouraging private benefits, wealth expropriation, and overinvestment (Easterbrook, 1984; Grossman & Hart, 1982; Jensen, 1986). Additionally, such dividend payments can convey positive signals about the firm's prospects to investors in the context of information asymmetry between insiders and outsiders (Miller & Rock, 1985). Simultaneously, prospector firms are found to grapple with greater information asymmetry and agency conflicts compared to defenders or analyzers, leading them to rely heavily on external financing sources. Consequently, these firms have heightened incentives to address such issues, attracting capital providers by increasing the dividend payout ratio (Bentley et al., 2013; Miles & Snow, 1978, 2003). Our results support hypothesis  $H_1$  and suggest that augmenting cash disbursement assists prospector firms in cultivating a favorable market reputation, attracting more investors, and subsequently securing additional external resources.

**Table 2.** The impact of business strategy on dividend payments.

Variables	<i>DIVEARN</i> (1)	<i>DIVSALE</i> (2)	<i>DIVCASH</i> (3)
<i>PROSPECTOR</i>	0.0151 (8.04)***	0.0004 (3.64)***	0.0031 (5.05)***
<i>L1.DIVEARN</i>	0.6710 (132.85)***		
<i>L1.DIVSALE</i>		0.8652 (224.19)***	
<i>L1.DIVCASH</i>			0.8054 (205.86)***
<i>SIZE</i>	0.0182 (20.18)***	0.0003 (11.95)***	0.0041 (14.32)***
<i>ROA</i>	0.0981 (21.21)***	0.0024 (8.85)***	0.0134 (10.38)***
<i>LEV</i>	-0.1232 (-28.78)***	-0.0031 (-16.24)***	-0.0252 (-20.98)***
<i>MB</i>	-0.0001 (-0.41)	0.0002 (12.18)***	0.0024 (10.00)***
<i>CAPEX</i>	-0.2310 (-0.45)	-0.0292 (-1.23)	-0.3422 (-2.32)**
<i>RETA</i>	0.0031 (4.64)***	0.0004 (1.39)	0.0012 (3.23)***
<i>ROVOL</i>	-0.0121 (-1.88)*	-0.0011 (-2.71)***	-0.0073 (-4.83)***
<i>AGE</i>	0.0182 (13.00)***	0.007 (9.37)***	0.0060 (14.32)***
<i>IO</i>	-0.0291 (-7.74)***	-0.0008 (-8.53)***	-0.0004 (-8.10)***
<i>ANALYST</i>	-0.0010 (-6.04)***	0.0001 (0.99)	-0.0003 (-1.01)
Constant	-0.0587 (-2.41)**	-0.0019 (-3.86)***	-0.0203 (-3.29)***
Industry and Year effects	Yes	Yes	Yes
Adj $R^2$	0.5632	0.8551	0.8250
Obs	59,546	59,546	59,546

This table presents the results of the panel regression analyzing the relationship between dividend payout and corporate business strategy. The t-statistics are presented in parentheses. Superscripts \*, \*\*, and \*\*\* indicate significance levels of 10%, 5%, and 1%, respectively.

## 6.2. Robustness tests

To verify the robustness of our regression results for the first hypothesis, we conduct several additional tests using alternative modeling techniques. Initially, we rerun the baseline regression while controlling for firm and year fixed effects, as outlined in Table 3. All other variables remain consistent with those in Table 2. The results across all models in Table 3 align with the findings reported in Table 2, reinforcing the positive and significant correlation between prospector firms and dividend payouts, as indicated by the 1% level of significance for the *PROSPECTOR* variable.

As mentioned earlier, in this study, we limit our focus on a sample of firms with prospector and defender strategies only. Therefore, we conduct the second robustness check by repeating our tests using a subsample of prospectors and defenders only. The results are provided in Table 4 and are in line with those found in Tables 2 and 3. The direction and significance of coefficients for the *PROSPECTOR* variable hold for both sub-samples and therefore confirm the robustness of our results.

Finally, to address potential concerns related to endogeneity stemming from issues like the reverse causality problem and omitted variables, we perform various tests employing 2SLS regression and Propensity Score Matching (PSM) analysis. The first stage results of the 2SLS model are presented in Table 5, where corporate business strategy is predicted (*Ex.PROSPECTOR*) using prospector strategy as a dependent variable (*PROSPECTOR*). The five-year lagged business strategy serves as an instrument in the first stage. The results reveal a positive and statistically significant coefficient (0.6981) for *L1.PROSPECTOR* at the 1% level, affirming the positive relationship between the instrument and prospector strategy. Subsequently, Table 5 also provides the results of the second stage of the 2SLS model, demonstrating that the coefficients of the instrumented variables are positive and statistically significant at the 1% level. This suggests the robustness of our findings even after correcting for endogeneity.

**Table 3.** Firm and year fixed effects.

Variables	<i>DIVEARN</i> (1)	<i>DIVSALE</i> (2)	<i>DIVCASH</i> (3)
<i>PROSPECTOR</i>	0.0134 (5.22)***	0.0002 (2.97)***	0.0016 (2.51)**
<i>L1.DIVEARN</i>	0.3623 (47.26)***		
<i>L1.DIVSALE</i>		0.5933 (60.93)***	
<i>L1.DIVCASH</i>			0.4995 (60.43)***
<i>SIZE</i>	0.0347 (12.90)***	0.0001 (1.48)	0.0009 (1.24)
<i>ROA</i>	0.0544 (9.62)***	0.0009 (3.53)***	0.0045 (2.97)***
<i>LEV</i>	-0.2147 (-27.36)***	-0.0047 (-16.24)***	-0.0354 (-17.80)***
<i>MB</i>	-0.006 (-7.60)***	0.0002 (6.23)***	0.0006 (2.70)***
<i>CAPEX</i>	-1.3398 (-1.74)*	-0.0359 (-0.95)	-0.6429 (-2.51)**
<i>RETA</i>	0.0067 (5.53)***	0.0001 (1.83)*	0.0012 (3.71)***
<i>ROVOL</i>	-0.0104 (-1.20)	-0.0008 (-2.17)**	-0.0081 (-3.60)***
<i>AGE</i>	0.0158 (2.60)***	0.0003 (1.50)	0.0134 (8.32)***
<i>IO</i>	-0.0176 (-2.36)**	-0.0001 (-0.44)	-0.0001 (-0.02)
<i>ANALYST</i>	0.0011 (2.81)***	0.0001 (7.21)***	0.0007 (6.76)***
Constant	-0.0708 (-3.43)***	0.0027 (3.61)***	-0.0043 (-0.79)
Firm and Year effects	Yes	Yes	Yes
Adj <i>R</i> <sup>2</sup>	0.6595	0.8622	0.8034
Obs	59,546	59,546	59,546

This table presents the results of the panel regression analyzing the relationship between dividend payments and corporate business strategy while accounting for firm and year fixed effects. The t-statistics are presented in parentheses. Superscripts \*, \*\*, and \*\*\* indicate significance levels of 10%, 5%, and 1%, respectively.

**Table 4.** Subsample with prospector vs. defender firms.

Variables	<i>DIVEARN</i> (1)	<i>DIVSALE</i> (2)	<i>DIVCASH</i> (3)
<i>PROSPECTOR</i>	0.0265 (7.23)***	0.0007 (5.54)***	0.0057 (5.93)***
<i>L1.DIVEARN</i>	0.6795 (102.74)***		
<i>L1.DIVSALE</i>		0.8639 (173.78)***	
<i>L1.DIVCASH</i>			0.8025 (155.09)***
<i>SIZE</i>	0.015 (12.85)***	0.0003 (7.35)***	0.0033 (10.13)***
<i>ROA</i>	0.0893 (16.02)***	0.0021 (7.83)***	0.0151 (9.76)***
<i>LEV</i>	-0.1101 (-19.79)***	-0.0026 (-10.68)***	-0.0245 (-14.70)***
<i>MB</i>	0.0001 (0.08)	0.0003 (9.21)***	0.0016 (7.82)***
<i>CAPEX</i>	-0.2507 (-0.29)	-0.0756 (-2.19)**	-0.8486 (-3.01)***
<i>RETA</i>	0.001 (1.34)	0.0001 (1.62)	0.0006 (2.71)***
<i>ROVOL</i>	-0.0095 (-1.22)	-0.0006 (-1.50)	-0.0071 (-3.54)***
<i>AGE</i>	0.0129 (6.89)***	0.0004 (5.70)***	0.0051 (9.42)***
<i>IO</i>	-0.0335 (-6.72)***	-0.0011 (-5.72)***	-0.009 (-6.47)***
<i>ANALYST</i>	-0.001 (-3.41)***	0.0001 (1.10)	0.0001 (0.06)
Constant	0.0055 (0.13)	-0.0022 (-1.93)*	-0.0326 (-2.81)***
Industry and Year effects	Yes	Yes	Yes
Adj <i>R</i> <sup>2</sup>	0.5660	0.8101	0.7359
Obs	44,719	44,719	44,719

This table reports the panel regression of dividend payments on corporate business strategy using a subsample with prospector vs. defender firms. The t-statistics are presented in parentheses. Superscripts \*, \*\*, and \*\*\* indicate significance levels of 10%, 5%, and 1%, respectively.

Moving forward, [Table 6](#) presents the panel regression of dividend payments on corporate business strategy utilizing PSM analysis. In Panel A, we observe the average treatment effects obtained from PSM, with firms possessing high business strategy scores (above the yearly two-digit SIC industry median) constituting the treatment group, and those with low business strategy scores as the control group. Panel B presents the results based on PSM regression. Panel A indicates that all variables are closely matched with no significant differences. The results of the panel regression, incorporating year (Y) and industry (I) fixed effects, are detailed in Panel B. Consistent with the findings in the preceding tables, *PROSPECTOR* remains significant and positive with strong significance across all specifications.

In short, after conducting a series of tests controlling for firm and year fixed effects, employing different subsamples with separate prospectors and defenders, and addressing potential endogeneity concerns, our findings remain robust and suggest that firms adopting a prospector-type strategy tend to pay more dividends than defenders.

### 6.3. Prospector firms, corporate overinvestment and capital expenditure

This section investigates the possible underlying channels driving the positive correlation between business strategy and dividend payments. We would like to examine whether business strategy raises dividend payments via its impact on firm overinvestment and capital expenditure. Prior studies suggest that agency conflicts provide managers with incentives to maximize their private interests through retaining cash inside the firm instead of paying dividends or investing in negative NPV projects at the expense of shareholders (Ding et al., 2019; Fu, 2010; Liu & Bredin, 2010). Shi and Gao (2018) also argue that with the availability of excess free cash flow, managers have incentives to use the discretionary funds under their control to seek individual benefits that lead to overinvestment. Increasing dividend payments mitigates such potential agency conflicts and helps alleviate the overinvestment problem with the lower cash flows available to managers (Easterbrook, 1984; Grossman & Hart, 1982; Jensen, 1986).

**Table 5.** Endogeneity.

Variables	1st Stage	2nd Stage		
		<i>DIVEARN</i> (1)	<i>DIVSALE</i> (2)	<i>DIVCASH</i> (3)
<i>L1.PROSPECTOR</i>	0.6981 (202.57)***			
<i>Ex.PROSPECTOR</i>		0.0171 (5.92)***	0.0004 (3.73)***	0.0039 (5.15)***
<i>L1.DIVEARN</i>		0.669 (125.92)***		
<i>L1.DIVSALE</i>			0.8737 (225.00)***	
<i>L1.DIVCASH</i>				0.8104 (200.68)***
<i>SIZE</i>	0.0216 (16.14)***	0.0177 (18.35)***	0.0004 (11.26)***	0.0036 (13.20)***
<i>ROA</i>	-0.0301 (-2.42)**	0.1074 (20.10)***	0.0021 (8.93)***	0.0152 (10.64)***
<i>LEV</i>	0.0287 (3.84)***	-0.1277 (-27.37)***	-0.0027 (-14.60)***	-0.0258 (-19.26)***
<i>MB</i>	-0.0037 (-2.58)***	-0.0001 (-0.09)	0.0004 (12.58)***	0.002 (10.66)***
<i>CAPEX</i>	22.6399 (8.92)***	-0.2505 (-0.39)	-0.0087 (-0.34)	-0.2982 (-1.56)
<i>RETA</i>	0.0123 (8.11)***	-0.0031 (-4.64)***	0.0001 (1.99)**	0.0006 (3.19)***
<i>ROVOL</i>	-0.0774 (-4.64)***	-0.0195 (-2.50)**	-0.0007 (-2.06)**	-0.0085 (-4.50)***
<i>AGE</i>	0.0041 (1.68)*	0.0194 (11.64)***	0.0004 (6.02)***	0.005 (11.20)***
<i>IO</i>	-0.028 (-4.50)***	-0.0318 (-7.59)***	-0.0013 (-8.20)***	-0.0088 (-7.75)***
<i>ANALYST</i>	-0.0031 (-9.13)***	-0.0013 (-5.51)***	0.0001 (0.58)	-0.0001 (-0.85)
Constant	0.1116 (2.78)***	-0.0414 (-1.54)	-0.0026 (-3.67)***	-0.0244 (-3.48)***
Industry and Year effects	Yes	Yes	Yes	Yes
Adj <i>R</i> <sup>2</sup>	0.5474	0.5582	0.8293	0.7493
Obs	51,771	51,771	51,771	51,771

This table reports the panel regression of dividend payments on corporate business strategy addressing endogeneity concern using 2SLS. Panel A presents the first stage, predicting corporate business strategy using prospector strategy as a dependent variable. We use the five-year lagged business strategy as an instrument in the first stage regression. Panel B presents the results on the impact of predicted prospector strategy on dividend. The t-statistics are presented in parentheses. Superscripts \*, \*\*, and \*\*\* indicate significance levels of 10%, 5%, and 1%, respectively.

**Table 6.** Propensity score matching analysis.

Panel A: Propensity score matching			
	Treatment	Control	t-test
<i>SIZE</i>	6.4640	5.6674	1.57
<i>ROA</i>	0.0169	0.0183	1.07
<i>LEV</i>	0.2527	0.2962	1.26
<i>MB</i>	1.9503	1.7967	0.93
<i>CAPEX</i>	0.0312	0.0342	1.09
<i>RETA</i>	-0.0467	-0.0600	0.87
<i>ROVOL</i>	0.0657	0.0875	1.01
<i>AGE</i>	2.9184	2.6114	1.62
<i>IO</i>	0.5507	0.5027	1.51
<i>ANALYST</i>	6.6237	5.7775	1.22
Panel B: PSM Regression			
Variables	<i>DIVEARN</i> (1)	<i>DIVSALE</i> (2)	<i>DIVCASH</i> (3)
<i>PROSPECTOR</i>	0.0147 (4.67)***	0.0003 (2.98)***	0.0026 (4.26)***
Constant	-0.0439 (-1.47)	-0.0018 (-2.39)**	-0.0096 (-1.38)
Control variables	Yes	Yes	Yes
Industry and Year effects	Yes	Yes	Yes
Adj <i>R</i> <sup>2</sup>	0.5599	0.8459	0.7445
Obs	22,417	22,417	22,417

This table reports the panel regression of dividend payments on corporate business strategy using the propensity score matching analysis. The t-statistics are presented in parentheses. Superscripts \*, \*\*, and \*\*\* indicate significance levels of 10%, 5%, and 1%, respectively.

Moreover, Lang and Litzenberger (1989) state that reducing overinvestment can enhance firm value and increase dividend payments. Navissi et al. (2017) argue that prospectors are more likely to over-invest than defenders due to greater information asymmetry and agency conflicts between managers and outside investors in prospector firms. We, therefore, expect that the prospector strategy will be positively correlated with overinvestment, and through this channel, with dividend payments.

Furthermore, motivated by the study of Denis et al. (1994) on the correlation between capital expenditures and dividend changes, we also examine whether business strategy options exert different impacts on capital expenditure. Prior studies affirm that prospectors are associated with non-capital expenditure, especially in the form of R&D, but exhibit low capital expenditure (Maury, 2021; Navissi et al., 2017), whereas defenders are efficiency-oriented and maintain a lower level of R&D intensity in support of investing in capital expenditures (Hambrick, 1983; Miles & Snow, 1978, 2003). Accordingly, it is expected that the prospector strategy is negatively correlated with capital expenditure.

Table 7 presents the panel regression of the impact of business strategy on overinvestment and capital expenditure. *OVERINVEST* (overinvestment) and *CAPEX* (capital expenditure) are the dependent variables in our models. We follow Biddle et al. (2009) to construct our measure of overinvestment. The *OVERINVEST* variable is ranked by the mean of a decile-based measure of cash and leverage. We multiply leverage by minus one before ranking, so that the variable increases in the tendency of overinvestment. The key explanatory variable, *PROSPECTOR*, is a dummy variable that takes the value of one for prospector-type firms and zero for defenders. A set of control variables includes firm size (*SIZE*), market-to-book ratio (*MB*), loss (*LOSS*), cash holdings (*CASH*), cash flow volatility (*CFVOL*), sale volatility (*SALEVOL*),

**Table 7.** The effects of business strategy on corporate overinvestment and capital expenditure.

Variables	OVERINVEST (1)	CAPEX (2)
<i>PROSPECTOR</i>	0.0053 (3.01)***	-0.0098 (-4.59)***
<i>SIZE</i>	0.0057 (8.44)***	-0.0043 (-18.48)***
<i>IO</i>	-0.0097 (-2.77)***	0.0078 (6.94)***
<i>AGE</i>	0.0020 (1.56)	-0.0017 (-4.07)***
<i>CASH</i>	0.4427 (55.92)***	0.0100 (4.09)***
<i>MB</i>	0.0053 (6.03)***	0.0054 (19.53)***
<i>LOSS</i>	0.0156 (6.91)***	-0.0078 (-10.41)***
<i>ANALYST</i>	-0.0003 (-1.82)*	0.0003 (-5.68)***
<i>CFVOL</i>	-0.0139 (-3.58)***	0.0059 (4.27)***
<i>SALEVOL</i>	-0.0167 (-2.75)***	-0.0046 (-2.31)**
<i>INVESTVOL</i>	-0.0005 (-8.85)***	0.0001 (2.13)**
<i>Z-Score</i>	0.0208 (27.20)***	0.0017 (7.96)***
<i>TANG</i>	-0.0562 (-12.11)***	0.1544 (87.64)***
<i>CFO/SALE</i>	0.0069 (0.99)	0.0406 (14.39)***
<i>DIVDUM</i>	-0.0135 (-7.21)***	-0.0074 (-12.17)***
<i>CYCLE</i>	0.0009 (2.11)**	-0.0011 (-7.97)***
Constant	-2.8610 (-3.69)***	-3.5542 (-0.65)
Industry & Year Effects	Yes	Yes
Adj <i>R</i> <sup>2</sup>	0.3876	0.4678
Obs	41,874	41,874

This table reports the panel regression of the impact of business strategy on overinvestment and capital expenditure. Following Biddle et al. (2009), overinvestment is defined as a ranked variable based on the mean of a decile-based measure of cash and leverage. Consistent with Biddle et al. (2009), we multiply leverage by minus one before ranking so that variable is increasing in the tendency of overinvestment. The t-statistics are presented in parentheses. Superscripts \*, \*\*, and \*\*\* indicate significance levels of 10%, 5%, and 1%, respectively.

investment volatility (*INVESTVOL*), firm age (*AGE*), financial distress (*Z-Score*), tangibility (*TANG*), operating net cash flow to sales (*CFO/SALE*), dividend status (*DIVDUM*), operating cycle (*CYCLE*), institutional ownership (*IO*), and analyst coverage (*ANALYST*).

The results in [Table 7](#) indicate that the coefficient for the *PROSPECTOR* variable is positive at the significance level of 5% for the model in Column (1), but significantly negative at the 1% level for the model in Column (2). The results are consistent with our expectations that prospectors are more likely to engage in overinvestment compared to defenders, which may result in higher dividend payments. The finding also indicates that firms adopting a prospector strategy experience lower capital expenditure than those following a defender strategy. This evidence suggests that one possible mechanism linking business strategy and dividend policy is a reduction in capital expenditure that may raise the agency costs of free cash flow excess in prospectors.

#### 6.4. Information and governance environments and dividend payments

We continue investigating our understanding of the moderating effect of information and governance environments on the association between prospector business strategy and dividend payments (Hypothesis  $H_2$ ). Prior studies argue that the availability of precise and useful information and the betterment of corporate governance help mitigate insiders' information advantage over outside investors, which in turn alleviates the pressure on managers to demonstrate commitment via cash disbursement, and subsequently leads to lower dividend payouts (Atanassov & Mandell, 2018; Hail et al., 2014; John et al., 2015). Therefore, we predict that better information and governance environments help prospectors reduce the level of information asymmetry and agency conflicts, which lessen their dividend pressure.

To test the hypothesis, we initially examine how information asymmetry influences the relationship between business strategy and dividend payments. To proxy information asymmetry, we employ the probability of insider trading (*PIN*) and the financial statement opacity (*OPAQUE*) variables. Following the theoretical framework outlined by Easley and O'Hara (1987), we calculate the probability of insider trading (*PIN*) by analyzing imbalances between buy and sell trades, estimating the likelihood of informed and uninformed information events. The *OPAQUE* variable represents the moving sum of the absolute value of discretionary accruals over the three-year period from t-1 to t-3, with discretionary accruals computed using the modified Jones model (Dechow et al., 1995). Throughout the sample period, we categorize firms into High and Low sets based on the median value of each measure for empirical estimation, maintaining consistency with all other variables in our tests. The results are presented in [Table 8](#).

Panel A presents the result of the moderating effect of the probability of insider trading (*PIN*), which promotes a positive relationship between prospector firms and dividend payouts. However, the association is more explicit and displays more significance when there is a high probability of insider trading than the association in the case of a low probability of insider trading. For *HighPIN*, the coefficients of *PROSPECTOR* are positive and statistically significant in three models with alternative proxies of dividend payments at the 1% and 10% level, whereas for the *LowPIN* group, the coefficient of *PROSPECTOR* is positive, but insignificant in the model with *DIVSALE* proxy.

We further examine how financial statement opacity (*OPAQUE*) impacts the core relationship of our study as demonstrated in Panel B. Similarly, the results for the effect of financial statement opacity on dividend payments for prospector firms are more significant in the *More OPAQUE* group of firms for three alternative models at the 1% and 10% levels. For the *Less OPAQUE* set, *PROSPECTOR* is found to be insignificant to explain for *DIVSALE* and *DIVCASH*. The findings align with our prediction that the positive association between prospector firms and dividend payouts is promoted when the firm-level information environment is not transparent.

We continue testing our second hypothesis on the moderating effect of the governance environment on the business strategy—dividend payment relation. It is argued that firms with weaker governance mechanisms tend to raise higher dividends than better-governed firms (Atanassov & Mandell, 2018; John et al., 2015). In the study, we use the external market for corporate control measured by the index of takeover susceptibility (*TSIND*) developed by Cain et al. (2017) as a proxy for governance quality. The index measures the likelihood of a hostile acquisition, in which a higher takeover susceptibility index

suggests a greater probability of being taken over and, therefore, indicates weaker protections for corporate governance. Likewise, for the information measure, we split the firms by the median value into two categories as high and low for each given fiscal year for our estimation. We report the results of the regression in Table 9. The results again confirm our prediction. The positive coefficients of the *PROSPECTOR* variable are more statistically significant in the *High TSIND* set, which supports our view that the prospector strategy does increase dividend payments to a greater extent in firms with weaker governance mechanisms, as reflected by higher takeover protection.

### 6.5s. Political uncertainty and dividend payments

We perform testing our final hypothesis on the effect of economic and political uncertainty on the dividend payments of prospector firms. Attig et al. (2021) argued that firms use dividends as an effective tool to assure investors and shareholders when faced with uncertain situations due to economic and political changes. Besides, it is studied that the information asymmetries are exaggerated in election

**Table 8.** Information environment, business strategy and dividend payments.

Panel A: Probability of insider trading (PIN)						
Variables	High PIN			Low PIN		
	<i>DIVEARN</i> (1)	<i>DIVSALE</i> (2)	<i>DIVCASH</i> (3)	<i>DIVEARN</i> (4)	<i>DIVSALE</i> (5)	<i>DIVCASH</i> (6)
<i>PROSPECTOR</i>	0.0224 (4.36)***	0.0003 (1.84)*	0.0023 (1.84)*	0.0191 (3.02)***	0.0002 (1.21)	0.0033 (2.14)**
Constant	-0.1084 (-2.13)**	-0.0026 (-1.32)	-0.0183 (-0.92)	0.0108 (0.20)	-0.0015 (-0.61)	0.0076 (0.55)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry and Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Adj <i>R</i> <sup>2</sup>	0.4597	0.6997	0.6834	0.5064	0.8462	0.7633
Obs	7,787	7,787	7,787	6,630	6,630	6,630
Panel B: Financial statement opacity (OPAQUE)						
Variables	More OPAQUE			Less OPAQUE		
	<i>DIVEARN</i> (1)	<i>DIVSALE</i> (2)	<i>DIVCASH</i> (3)	<i>DIVEARN</i> (4)	<i>DIVSALE</i> (5)	<i>DIVCASH</i> (6)
<i>PROSPECTOR</i>	0.0128 (4.57)***	0.0002 (1.66)*	0.0016 (1.90)*	0.0091 (2.78)***	0.001 (0.08)	0.0008 (1.12)
Constant	-0.0997 (-2.08)**	-0.0035 (-2.03)**	-0.0013 (-0.07)	-0.0776 (-0.88)	-0.0012 (-1.05)	-0.0163 (-1.43)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry and Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Adj <i>R</i> <sup>2</sup>	0.5596	0.8594	0.7755	0.4992	0.7473	0.7071
Obs	27,004	27,004	27,004	27,650	27,650	27,650

This table reports the results on how the degree of information asymmetry affects the relationship between corporate business strategy and dividend payments. We use the probability of insider trading and financial statement opacity as proxies for information asymmetry. The t-statistics are presented in parentheses. Superscripts \*, \*\*, and \*\*\* indicate significance levels of 10%, 5%, and 1%, respectively.

**Table 9.** Corporate Governance, business strategy and dividend payments.

Takeover susceptibility index (TSIND)						
Variables	Low TSIND			High TSIND		
	<i>DIVEARN</i> (1)	<i>DIVSALE</i> (2)	<i>DIVCASH</i> (3)	<i>DIVEARN</i> (4)	<i>DIVSALE</i> (5)	<i>DIVCASH</i> (6)
<i>PROSPECTOR</i>	0.0160 (5.78)***	0.0002 (2.65)***	0.0024 (3.62)***	0.0195 (3.08)***	0.0002 (1.23)	0.0034 (2.18)**
Constant	-0.0165 (-0.41)	-0.0024 (-2.37)**	-0.0191 (-2.05)**	-0.0110 (-0.20)	-0.0015 (-0.62)	-0.0078 (-0.56)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry and Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Adj <i>R</i> <sup>2</sup>	0.5320	0.8651	0.7746	0.5165	0.8431	0.7686
Obs	10,331	10,331	10,331	10,333	10,333	10,333

This table reports the results on how governance mechanisms affect the relationship between corporate business strategy and dividend payments. The takeover susceptibility index is used as a proxy for governance measure. The t-statistics are presented in parentheses. Superscripts \*, \*\*, and \*\*\* indicate significance levels of 10%, 5%, and 1%, respectively.

**Table 10.** Policy uncertainty, business strategy and dividend payments.

Panel A: Economic policy uncertainty ( <i>EPU</i> )						
Variables	High <i>EPU</i>			Low <i>EPU</i>		
	<i>DIVEARN</i> (1)	<i>DIVSALE</i> (2)	<i>DIVCASH</i> (3)	<i>DIVEARN</i> (4)	<i>DIVSALE</i> (5)	<i>DIVCASH</i> (6)
<i>PROSPECTOR</i>	0.0152 (5.64)***	0.0003 (3.42)***	0.0028 (4.07)***	0.0126 (3.64)***	0.0002 (2.52)**	0.0026 (3.63)***
Constant	0.0348 (0.79)	-0.0031 (-2.04)**	-0.0152 (-1.31)	-0.0616 (-2.02)**	-0.0007 (-0.93)	-0.0094 (-1.22)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry and Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Adj <i>R</i> <sup>2</sup>	0.5608	0.8553	0.7749	0.5529	0.7626	0.6984
Obs	21,159	21,159	21,159	23,387	23,387	23,387
Panel B: Presidential elections ( <i>ELECT</i> )						
Variables	<i>ELECT</i>			Non- <i>ELECT</i>		
	<i>DIVEARN</i> (1)	<i>DIVSALE</i> (2)	<i>DIVCASH</i> (3)	<i>DIVEARN</i> (4)	<i>DIVSALE</i> (5)	<i>DIVCASH</i> (6)
<i>PROSPECTOR</i>	0.0134 (4.71)***	0.0002 (1.79)*	0.0014 (1.91)*	0.0093 (2.88)***	0.001 (0.04)	0.0013 (1.53)
Constant	-0.0321 (-0.54)	-0.0009 (-0.70)	-0.0128 (-1.26)	-0.15 (-2.74)***	-0.0036 (-2.68)***	-0.0108 (-0.71)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry and Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Adj <i>R</i> <sup>2</sup>	0.5042	0.86	0.7221	0.5732	0.7689	0.7797
Obs	15,072	15,072	15,072	44,474	44,474	44,474

This table reports the results on how U.S. policy uncertainty affects the relationship between corporate business strategy and dividend payments. Economic policy uncertainty and U.S. Presidential elections are used as proxies for U.S. policy uncertainty. The *t*-statistics are presented in parentheses. Superscripts \*, \*\*, and \*\*\* indicate significance levels of 10%, 5%, and 1%, respectively.

years (Durnev, 2013), which induce firms to pay high dividends. Farooq and Ahmed (2019) also point out that higher dividend payouts are associated with election years relative to non-election years. Pursuing risky and innovative projects, prospector firms' growth outcome seems more uncertain and particularly sensitive to such unexpected changes relative to defender counterparts (Bentley et al., 2013; Kester, 1984; Myers, 1977; Rajagopalan, 1997). Accordingly, it is reasonable to expect that increased information asymmetry and agency costs arising due to economic and political uncertainty require prospectors to pay higher dividends.

Table 10 outlines the findings regarding the relationship between business strategy and dividend payments, specifically considering the influence of U.S. policy uncertainty. Economic policy uncertainty and U.S. Presidential elections (*ELECT*) serve as proxies for U.S. policy uncertainty in our analysis. In Panel A, we examine the impact of economic policy uncertainty on the dividend payments of prospector firms. The *EPU* variable is derived from the monthly economic policy uncertainty index developed by Baker et al. (2016). Subsequently, by using median values for *EPU*, we categorize firms into *High EPU* and *Low EPU* groups for each fiscal year. Our results exhibit statistical significance in both the *High EPU* and *Low EPU* groups regarding the impact of prospector strategy on dividend payments. Particularly, the coefficient for *PROSPECTOR* is marginally higher for the *High EPU* group, aligning with the hypothesis  $H_3$  that prospector firms tend to pay higher dividends under conditions of elevated policy uncertainty.

Panel B examines how our main association is impacted by the U.S. presidential elections. We use a dummy variable, taking the value one if the USA holds a presidential election in year *t* (*ELECT*) and zero otherwise (*Non-ELECT*). The coefficients of the *PROSPECTOR* variable are higher and more significant at the 1% and 10% levels in three alternative models of the *ELECT* group that imply a stronger association between prospector business strategy and dividend payments during the presidential elections. Meanwhile, this association is insignificant during non-election periods for dividend payments proxied by *DIVSALE* and *DIVCASH*. These findings support our third hypothesis.

## 7. Summary and conclusion

This paper argues the articulation between prospector strategy and dividend policy from an agency costs perspective. The firm's decision as to whether to distribute profits to shareholders through

dividends or to retain profits to invest within the firm is a sensitive decision from an agency theory perspective, since there is a possibility that the management may retain profits to satisfy their own rather than shareholders' interests. Jensen (1986) demonstrates that a dividend acts as a mechanism to reduce agency costs, particularly in firms with substantial free cash flows, by restricting management access to such funds. Our core contention is that firms with a prospector strategy experience higher information asymmetry and, therefore, pay more dividends than defender firms. We provide compelling new evidence to indicate that the prospector strategy indeed has a significant and positive effect on dividend payments. Our findings are robust after controlling for firm fixed effects, use of alternative modeling approaches, and methods to address potential endogeneity issues related to business strategy. We further find that, given the importance of investment and free cash flows to agency-related problems, overinvestment and capital expenditure are the underlying channels driving the positive association between prospector firms and dividend payments. In addition to providing convincing support for our basic tenet, we investigate how the positive relation between prospector strategy and dividend payments differs across different information and governance environments. We find that the relationship is more pronounced for firms with higher levels of information asymmetry and weak governance mechanisms. More importantly, we document that the relationship is more affected in times of higher policy uncertainty measured by economic policy uncertainty and presidential elections.

This research carries significant relevance for various stakeholders in the financial landscape. Firstly, the observed higher propensity for dividend payments in firms employing prospector strategies compared to defender firms suggests that investors may benefit from incorporating strategic considerations into their stock selection process. Understanding a firm's strategic orientation could serve as a valuable indicator of its likelihood to distribute dividends, providing investors with insights into potential income planning. Further, the identification of agency conflict issues related to free cash flow in prospector firms sheds light on the complex relationship between strategic decisions, financial policies, and corporate governance. Investors and financial analysts should consider these dynamics when evaluating investment opportunities, especially in environments characterized by weaker information and governance structures or heightened policy uncertainty.

While this research makes valuable contributions to understanding the nexus between business strategy and dividend payments, we acknowledge certain limitations of its findings. Firstly, the chosen time frame from 1995 to 2018 might not fully capture more recent shifts in business strategies or changes in the financial landscape. Moreover, while the research attempts to address endogeneity through various methodologies such as firm fixed effects and PSM, there may still be unobserved variables or omitted variable bias that could influence the study's outcomes. Lastly, the study assumes rational decision-making by firms in terms of selecting and executing their business strategies. However, behavioral biases, organizational politics, and cognitive limitations among executives may introduce deviations from purely rational choices that the study does not explicitly address.

Overall, this study provides promising directions for future research. A deeper investigation of behavioral aspects manipulating strategic decisions, including managerial risk attitudes and management communications, could provide a more thoughtful understanding of the association between business strategy and dividend payments. Future research could also focus on alternative payout mechanisms beyond dividends, such as share repurchases.

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## Author contributions

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in the work to take public responsibility for the content, including participation in the concept, design,

analysis, writing, or revision of the manuscript. Conception and design of study: Viet Anh Hoang, Thanh Huong Nguyen, My Hanh Nguyen. Analysis and/or interpretation of data: Viet Anh Hoang, Thanh Huong Nguyen, My Hanh Nguyen, Ba Thanh Truong. Drafting of the paper, revising it critically for intellectual content: Viet Anh Hoang, Thanh Huong Nguyen, My Hanh Nguyen, Ba Thanh Truong

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## Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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## Appendix 1. Variable definitions

Variables	Acronym	Description	Data sources
<i>1. Dependent variables</i>			
Dividend payment	<i>DIVEARN</i>	Dividend Payout Ratio. We calculate <i>DIVEARN</i> as the ratio of total dividend paid divided by accounting earnings before extraordinary items (IB). Following Holmen et al. (2008), if the dividend paid when accounting earning is negative, we replace it with one, and if <i>DIVEARN</i> is greater than one, it will also be replaced with one.	Compustat
	<i>DIVSALE</i>	We calculate <i>DIVSALE</i> as the ratio of total dividend paid divided by sale times 100.	Compustat
	<i>DIVCASH</i>	We calculate <i>DIVCASH</i> as the ratio of total dividend paid divided by cash flow times 100.	Compustat
	<i>DIVDUM</i>	It is a dummy variable, which takes the value of one if firms pay dividends and zero otherwise.	Compustat
<i>2. Firm-level variables</i>			
Prospector strategy	<i>PROSPECTOR</i>	A dummy variable which takes the value of one for prospector-type firms and zero for defender firms and analyzer firms (see Appendix 2 for further details).	Compustat
Firm size	<i>SIZE</i>	The logarithm of total assets.	Compustat
Market to book	<i>MB</i>	We calculate it as a ratio of the market value of total asset to the book value of total assets (AT). The market value of total asset is equal to total assets (AT) plus the market value of common equity (CSHO x PRCC_F) minus total equity (CEQ).	Compustat
Leverage	<i>LEV</i>	The ratio of long-term debt (DLTT) to total assets (AT).	Compustat
Operating performance	<i>ROA</i>	We calculate it as the ratio of income before extraordinary items (IB) plus interest expense (XINT) plus deferred taxes (TXDI) to total assets (AT).	Compustat
Capital expenditure	<i>CAPEX</i>	This variable is defined as the total of capital expenditure (CAPEX) divided by total assets (AT) at the end of year.	Compustat
Investment	<i>INVESTMENT</i>	Total investment expenditure, measured by the total of research and development expenditure (XRD), capital expenditure (CAPEX), and acquisition expenditure (AQC), minus cash received from sale of property, plant and equipment (SPPE), multiplied by 100, and divided by lagged total assets (AT).	Biddle et al. (2009)
Overinvestment	<i>OVERINV</i>	A ranked variable based on the mean of a decile measure of cash and leverage. Consistent with previous literature (Biddle et al., 2009), we multiply leverage by minus one before ranking so that both variables are increasing in the tendency of over-investment.	Compustat
Firm age	<i>AGE</i>	Natural log of how long the firms have been registered at Compustat since 1950.	Compustat
Retained earnings	<i>RETA</i>	Retained earnings (RE) to total assets (AT).	DeAngelo et al. (2006)
The deviation of ROA	<i>ROVOL</i>	A standard deviation of ROA for the previous 12 quarters	Kwak et al. (2012)
Probability of insider trading	<i>PIN</i>	Probability of insider trading obtained from <a href="http://scholar.rhsmith.umd.edu/sbrown/pin-data">http://scholar.rhsmith.umd.edu/sbrown/pin-data</a>	Data: Stephen Brown
Financial statement opacity	<i>OPAQUE</i>	The moving sum of the absolute value of discretionary accruals over the three-year period from t - 1 to t - 3, where discretionary accruals are calculated based on the modified Jones model (Dechow et al. (1995)).	Compustat
Institutional ownership	<i>IO</i>	The average ownership proportion of institutional investors over the four quarters of the firm's financial year t. We obtain this data from the Thomson Reuters Institutional Holdings (13F) database.	13F
Analyst coverage	<i>ANALYST</i>	The number of analysts following for year t.	I/B/E/S
Takeover susceptibility index	<i>TSIND</i>	The index measures the likelihood of a hostile acquisition, in which a higher takeover susceptibility index suggests a greater probability of being taken over and, therefore, indicates weaker protections for corporate governance.	Cain et al. (2017)
Economic policy uncertainty	<i>EPU</i>	The monthly economic policy uncertainty index compiled by Baker et al. (2016).	Policy Uncertainty
Presidential elections	<i>ELECT</i>	A dummy variable taking the value 1 if the USA holds a presidential election in year t and zero otherwise.	Database of Political Institutions
Operating net cash flow/Sale	<i>CFO/SALE</i>	Operating net cash flow (OANCF) divided by total sales (SALE)	Compustat
Operating cycle	<i>CYCLE</i>	the natural log of receivables to sales (RECT/SALE) plus inventory to COGS (INVT/COGS) multiplied by 360	Compustat
Loss firm	<i>LOSS</i>	A dummy variable with a value of one indicating if net income before extraordinary items is negative, and zero otherwise.	Compustat
Tangibility	<i>TANG</i>	Ratio of Plant Property and Equipment (PPE) to total assets (AT).	Compustat
Cash flow volatility	<i>CFVOL</i>	Standard deviation from year t-5 to year t-1 of cash flow from operation (OANCF) divided by total assets (AT).	Compustat
Investment volatility	<i>INVESTVOL</i>	Standard deviation from year t-5 to year t-1 of Investment (INVESTMENT).	Compustat
Sale volatility	<i>SALEVOL</i>	Standard deviation from year t-5 to year t-1 of sales (SALE) divided by total assets (AT).	Compustat
Financial distress	<i>Z-Score</i>	A measure of distress is computed following the methodology in Altman (1968).	Compustat

## Appendix 2. Business strategy composite measure

Business strategy composite measure	Variable measurement
1). RDS5 (Research and Development to Sales Ratio) Purpose: <i>Reflects the company's drive to innovate and explore new products.</i>	The ratio of research and development expenses to sales, calculated as an average over the past five years.
2). EMP55 (Employee to Sales Ratio) Purpose: <i>Measures the company's capacity to efficiently produce and distribute products and services.</i>	The ratio of the total number of employees to sales, computed as an average over the preceding five years.
3). REV5 (Change in Total Revenue) Purpose: <i>Indicates the company's historical growth trajectory and investment potential.</i>	The one-year percentage change in total sales, calculated as an average over the past five years.
4). SGA5 (Marketing to Sales Ratio) Purpose: <i>Demonstrates the company's emphasis on promoting new products and services.</i>	The ratio of selling, general, and administrative expenses to sales, determined as an average over the previous five years.
5). EMP5 (Employee Fluctuations) Purpose: <i>Measures the company's stability in terms of organizational workforce changes.</i>	The standard deviation of the total number of employees, calculated over a five-year period.
6). CAP5 (Capital Intensity) Purpose: <i>Reflects the company's dedication to technological efficiency and resource allocation.</i>	Capital intensity, measured as net property, plant, and equipment (PPE) scaled by total assets, averaged over the previous five years.

In accordance with the methodology outlined by Ittner et al. (1997) and the framework proposed by Miles and Snow (1978, 2003), we construct a discrete composite measure for business strategy, capturing the essence of a firm's strategic approach.

**Appendix 3. Correlation matrix**

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
DIVEARN	1.00																
DIVSALE	0.89	1.00															
DIVCASH	0.88	0.95	1.00														
L1.DIVEARN	0.89	0.92	0.92	1.00													
L1.DIVSALE	0.84	0.92	0.88	0.89	1.00												
L1.DIVCASH	0.84	0.89	0.89	0.88	0.95	1.00											
PROSPECTOR	0.16	0.16	0.15	0.16	0.17	0.16	1.00										
SIZE	0.17	0.17	0.16	0.16	0.15	0.15	0.01	1.00									
ROA	-0.36	-0.38	-0.35	-0.36	-0.38	-0.35	-0.01	-0.45	1.00								
LEV	-0.16	-0.15	-0.16	-0.13	-0.13	-0.14	0.10	0.06	-0.12	1.00							
MB	0.43	0.44	0.42	0.42	0.43	0.42	0.17	0.60	-0.82	0.21	1.00						
CAPEX	0.40	0.40	0.41	0.38	0.39	0.40	0.14	0.28	-0.18	-0.24	0.31	1.00					
RETA	0.27	0.29	0.29	0.21	0.27	0.27	0.09	0.22	-0.12	-0.02	0.25	0.51	1.00				
ROVOL	-0.38	-0.38	-0.39	-0.35	-0.37	-0.38	-0.16	-0.24	0.34	-0.02	-0.43	-0.45	-0.37	1.00			
AGE	0.41	0.41	0.42	0.41	0.42	0.42	0.10	0.15	-0.26	-0.03	0.33	0.36	0.18	-0.26	1.00		
IO	-0.01	0.04	0.04	-0.02	0.02	0.02	-0.13	0.19	0.07	-0.13	0.00	0.01	0.27	0.08	-0.05	1.00	
ANALYST	0.25	0.27	0.26	0.24	0.26	0.25	0.05	0.65	-0.54	0.09	0.74	0.23	0.22	-0.25	0.12	0.28	1.00