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Business strategy, cash holdings, and dividend payouts

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Abstract

Business strategy's impact on firm cash holdings and dividend payouts has largely remained unexplored. We identify a fundamental and direct link between a firm's business strategy and its cash holdings and dividend payouts. Analysing two large samples of data on US firms over the period 1992–2017, we find strong evidence that prospectors (defenders) are likely to hold more (less) cash and pay less (more) dividends than other firms. Further analysis suggests that prospectors pay dividends less frequently than do defenders. The results are robust to a battery of robustness checks and additional analysis. Overall, the results suggest that identifying a firm's business strategy significantly helps to understand a firm's cash holdings and dividend payout decisions.

KEYWORDS

business strategy, cash holdings, defenders, dividend payout, prospectors

JEL CLASSIFICATION

D21, L10, M41

1 | INTRODUCTION

In the presence of financing frictions, financial flexibility[1] is a core concern for corporate managers (e.g., Brounen et al., 2006; Denis, 2011; Graham & Harvey, 2001). The management of cash holdings and dividend payouts are central to a firm's quest for financial flexibility (Denis, 2011).[2] While cash is the lifeblood of a business, dividend payouts have severe implications for firm valuation and investors' asset allocation decisions. Organisational theory in the management literature suggests that business strategy permeates all aspects of firm management, including

[1]Financial flexibility refers to a firm's ability to respond in a timely and value-maximising manner to unexpected changes in the firm's cash flows or investment opportunity set (Denis, 2011).

[2]We focus on cash holdings and dividend payouts due to the frequency of decisions made on these two issues. Although the capital structure is the third remaining element of financial flexibility, firms are less likely to change their capital structure every year because any change in it has a long-term effect.

operating, investing and financing decisions (Goshen & Hamdani, 2016; Van den Steen, 2016). Hence, without consideration of a firm's business strategy,[3] any explanation of why and when firms hold cash or pay dividends is incomplete or misguided. Yet, the role of business strategy in these important decisions remains largely unexplored. Hence, in this paper, we investigate the role of a firm's business strategy in its cash holding and dividend payout decisions.

The innovation in the paper stems from linking organisation theory in the management literature with the finance literature on corporate cash holdings and dividend payouts. Using Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) strategy typology, we predict and find evidence that prospectors (defenders) are likely to hold more (less) cash and pay less (more) dividends than other firms. Moreover, results from additional analysis of the firms that follow the analyser strategy are aligned with our main results.

Two studies that are closely related to this paper are Magerakis and Tzelepis (2020; hereafter, MT) and Cao et al. (2022; hereafter, CCHL). Our study differs from MT and CCHL along several dimensions. First, unlike our study, MT and CCHL separately explored the influence of business strategy on cash holdings and on dividend payouts, respectively. Given a firm's cash holding and dividend payout decisions are interlinked, consideration of one in isolation from the other is likely to cause the correlated omitted variable problem and, thereby, bias the results.

Keynes (1936) argues that firms with limited internal resources may increase their funds by liquidating assets, issuing new equity/debt or skipping dividends. Further, large cash holdings can protect a firm from liquidity crises and facilitate dividend payouts. A firm that is highly profitable but lacks sufficient cash for dividend payouts is either forced to borrow or liquidate some of its assets. On the other hand, following dividend payouts, firms' cash holdings decline. Clearly, cash holdings and dividend payouts are interlinked. There is strong empirical evidence supporting these arguments. For example, Pinkowitz et al. (2006) argue and provide evidence that, in poor investor protection countries, investors value a $1 dividend paid out much higher than $1 kept within the firm as cash holding because of the expropriation risk of internal cash by controlling shareholders. Al-Najjar and Belghitar (2011) provide further evidence that corporate cash holdings and dividend payouts are interrelated. In their models, when they estimate cash, they control dividends and vice versa. Thus, unlike MT and CCHL, as part of robustness tests, we estimate our models using the simultaneous equation approach.

Second, several methodological issues and inconsistent results raise doubts about the generalisability of the findings in MT and CCHL. For example, both MT and CCHL use very long sample periods: 1970–2016 and 1962–2019, respectively. In particular, the final dataset in CCHL comprises 90,241 firm-year observations from more than 12,000 US firms spanning over the period 1962–2019 (Cao et al., 2022, p. 5). Since the sample period is 58 years, on average they had 1556 observations per year related to more than 12,000 firms in the sample. Thus, data discontinuity in the sample and structural changes in the US data are serious threats to their results. The US economy of the year 2000 and beyond is vastly different from that of the 1960s and 1970s. In the 1960s and 1970s, there was no internet and a very limited presence of digital technology in the economy. Now technology companies (e.g., Apple, Google, Facebook, Microsoft, Amazon) dominate the US economy. These issues raise further doubts about the generalisability of the results in MT and CCHL.

Further, MT found inconsistent results on strategy (the variable of interest) between the ordinary least squares (OLS) and the generalised method of moments (GMM) estimates. The effect of strategy on cash holdings was statistically significant only for the defender group (Magerakis & Tzelepis, 2020, p. 688). Moreover, given MT reported results based on a single

[3]We focus on business-level strategy (i.e., 'How do we compete in this business?') as opposed to corporate-level strategy (i.e., 'What businesses should we engage in?') (Hofer & Schendel, 1978; Snow & Hambrick, 1980). In other words, corporate-level (business-level) strategy refers to inter-industry (intra-industry) variations in firms' strategies (Beard & Dess, 1981).

measure (cash/total assets), it is unclear whether their results would be robust across alternative measures of cash.

Third, CCHL conclude that investors face a trade-off between dividend incomes and capital gains when investing in the equity markets given that business strategy is relatively stable over the life of a firm and prospectors rarely pay dividends. By contrast, our business life-cycle analysis based on cash flows (Dickinson, 2011) suggests that mature prospectors indeed pay dividends. Further analysis suggests that prospectors in our sample paid dividends, on average, once every 5 years, and defenders paid dividends once every 2 years.

Finally, unlike MT and CCHL, we test the cash holding and dividend payment behaviour of analysers as well. More importantly, we overcome the deficiencies in MT and CCCHL by avoiding a very long sample period, considering the simultaneity between cash holdings and dividend payouts, and using multiple measures of cash and dividends.

We analysed US public-listed firms over the period 1992–2017. Our cash holding sample comprises 71,192 firm-years, and the dividend payout sample consists of 60,246 firm-years.[4] We operationalised business strategy by adopting Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) strategy typology. The Miles and Snow (1978, 2003) strategy typology enables the study of strategy using archival research (e.g., Bentley et al., 2013; Bentley-Goode et al., 2017; Chen et al., 2017). Bentley et al.'s (2013) adaptation assigns firms to three viable strategy categories based on the composite strategy score that ranges from 6 to 30: prospectors (24 to 30), analysers (13 to 23) and defenders (6 to 12). In this three-way classification, prospectors have attributes opposite to those of defenders, and the analysers have some attributes of both prospectors and defenders (Miles & Snow, 1978, 2003). We use two alternative measures of cash and four alternative measures of dividend payouts. We estimate our models using the ordinary least squares (OLS), the generalised method of moments (GMM) and the simultaneous equation approach. Our results are robust to a battery of tests, including mediation analysis, firm age, firm life cycle, free cash flows and financial constraints.

We contribute to the business strategy literature in management and the financial flexibility literature in finance. Specifically, we contribute to the business strategy literature by documenting the role of business strategy in corporate cash holdings and dividend payout decisions. In the finance literature, cash holdings and dividend payouts are widely studied topics. Prior studies have identified firms' investment opportunity set (e.g., Cunha & Pollet, 2020; Ferreira & Vilela, 2004; Harris & Raviv, 2017), agency conflicts (e.g., Dittmar et al., 2003; Gao et al., 2013), growth opportunity (e.g., Opler et al., 1999), cash flow risk (e.g., Bates et al., 2009; Opler et al., 1999), asset liquidity (e.g., Ozkan & Ozkan, 2004), tax consequences (e.g., Foley et al., 2007) and organisational structure (e.g., Subramaniam et al., 2011) as some of the key determinants of cash holdings. However, we provide a fundamental explanation for corporate cash holdings.

Regarding why and which firms pay dividends, there are several competing explanations. These include explanations based on agency costs (e.g., Denis & Osobov, 2008; Goyal et al., 2020), dividends clientele (e.g., Baker & Wurgler, 2004a), dividend substitutes (e.g., Grullon & Michaely, 2002; Skinner, 2008), firm life cycle (e.g., DeAngelo et al., 2006) and free cash flow (e.g., Jensen, 1986; Lang & Litzenberger, 1989). We identify a fundamental driver of dividend payouts. Specifically, we document that a firm's strategy orientation dictates its decisions on dividend payouts, after controlling for other firm characteristics and industry membership. Our contribution to the two bodies of literature on cash holdings and dividend payouts indirectly contributes to the literature on financial flexibility.

The paper proceeds as follows. Section 2 reviews prior research linking business strategy with cash holding and dividend payout decisions. Section 3 discusses the key characteristics of different strategy types and proposes the hypotheses. In Section 4, we develop the research design, and

[4]In two model estimations, our dividend payout sample reduces to 59,559 firm-years because of missing observations.

in Section 5, we discuss the results. In Section 6, we provide robustness checks of our main results and report additional analysis. Section 7 summarises the paper and offers some conclusions.

2 | PRIOR RESEARCH

2.1 | Cash holdings

Although corporate cash holdings and dividend payouts are widely addressed research topics, attempts to directly link a firm's business strategy with its cash holdings and dividend payouts are still in their infancy. Regarding cash holdings, prior studies have focused mainly on the causes and consequences of cash holdings. Studies on UK and US firms suggest that firm size, growth opportunities, cash flow risks, asset liquidity, leverage, credit ratings and bank debts are the main drivers of corporate cash holdings (e.g., Opler et al., 1999; Ozkan & Ozkan, 2004; Palazzo, 2012).

Several studies report that cash holding is positively associated with investment opportunities (Cunha & Pollet, 2020; Ferreira & Vilela, 2004), cash flow risks (Bates et al., 2009) and financial constraints (Cunha & Pollet, 2020; Han & Qiu, 2007). In contrast, cash holding is negatively associated with asset liquidity, leverage and bank debt (Ferreira & Vilela, 2004; Opler et al., 1999). Cross-country differences in cash holding are explained by poor shareholder protection (Dittmar et al., 2003; Pinkowitz et al., 2003), information asymmetry (Dittmar et al., 2003), gross domestic product per capita (Pinkowitz et al., 2003) and firm risk (Pinkowitz et al., 2003). There is also evidence that public firms hold more cash than private firms due to higher agency costs (Gao et al., 2013) and that US corporations operating overseas facing higher repatriation taxes hold higher levels of cash (Foley et al., 2007).

On the relation between corporate governance and cash holdings, while Dittmar and Mahrt-Smith (2007) observe that good governance improves the value of cash holdings, Harford et al. (2008) report that firms with weaker governance structures hold less cash. These firms spend excess cash quickly on acquisitions and capital expenditures and have lower profitability and lower valuations (Harford et al., 2008). Moreover, diversified firms hold less cash than non-diversified firms (Subramaniam et al., 2011).

Cultural dimensions of society and economic crisis appear to influence corporate cash holdings as well. In a cross-country study, Chen et al. (2015) show that corporate cash holdings are negatively associated with individualism and positively associated with uncertainty avoidance. Moreover, Hu et al. (2019) report that CEOs in China who experienced adverse life experiences due to famine hold more cash than others. In sum, the extant literature on corporate cash holdings suggests that firm and country characteristics, as well as cultural dimensions, influence corporate cash holding.

2.2 | Dividend payouts

In a seminal paper, Miller and Modigliani (1961) proposed the 'dividend irrelevance' hypothesis, suggesting that a firm's value remains the same whether it pays dividends or not. Black (1976) questioned the 'dividend irrelevance' hypothesis by arguing that whether a firm pays dividends can have consequences for corporate and individual taxes, corporate creditors, cost of capital and investors' portfolio management. Later, Easterbrook (1984) provided two agency cost-based explanations for dividends: dividends play a monitoring role on managers and encourage managers to take risks.

Large sample-based studies have proposed several explanations for dividends. These include agency costs, dividend life cycle, dividend clientele, overinvestment, signalling, catering and tax

incentives. Denis and Osobov's (2008) agency cost-based life cycle explanation for dividend payments identify that higher levels of retained earnings relative to total equity or total assets, firm size and profitability are the key drivers of dividend payments. In an earlier cross-country study based on 4000 firms from 33 countries, La Porta et al. (2000) conclude that minority shareholders pressure corporate insiders to pay dividends. Goyal et al. (2020) find that privatised firms also have agency cost-based incentives to pay dividends. Further, Michaely and Roberts (2012) report that public firms pay more dividends due to public capital markets scrutiny. Lang and Litzenberger (1989) document evidence supporting the free cash flow/overinvestment hypothesis for dividend announcements over the cash flow signalling hypothesis.

DeAngelo et al. (2006) propose a life-cycle theory of dividends in that firms pay high dividends when the ratio of retained earnings to equity (or total assets) are high and when this ratio drops, dividend payments drop as well. Fatemi and Bildik (2012), in a sample of 17,000 firms across 33 countries, show that large, profitable firms and firms with low growth opportunities have a greater propensity to pay dividends. On the other hand, Brawn and Šević (2018) document that firm age, firm size (market value) and industry sector are the major determinants of dividends. Moreover, Rozeff (1982) finds that equity held by insiders, revenue growth, firms' beta coefficient and the number of common stockholders are positively associated with dividend payouts.

In proposing the clientele theory of dividends, Baker and Wurgler (2004a) argue that the propensity to pay dividends fluctuates with catering incentives. Specifically, managers cater to investors by paying dividends when investors put a stock price premium on payers, and by not paying when investors prefer nonpayers (Baker & Wurgler, 2004b). Further, Allen et al. (2000) provide a tax clientele explanation for dividends; the tax difference between institutions and retail investors drives dividend payments. On the other hand, Grullon and Michaely (2002) advance a substitution hypothesis for dividends in that young firms have a higher propensity to pay dividends through share repurchases. Skinner (2008) provides evidence supporting the substitution hypothesis; analysing a US sample over the period 1980–2005, he reports that stock repurchases have been the dominant form of payout since the early 1980s.

There is evidence that a firm's competitive environment also plays some role in dividend payout decisions. Specifically, Hoberg et al. (2014) document that competitive threats in the product market force firms to decrease dividend payouts and increase cash holdings. Moreover, holding large amounts of cash can create a competitive advantage for firms in gaining market share when product markets are very competitive (Fresard, 2010). In another study, He (2012) documents that Japanese firms in more competitive industries pay more dividends and are more likely to increase their dividends. In sum, there is emerging evidence of the link of a firm's business strategy to its dividend payment and cash holding policies. We extend this strand of the literature by providing direct evidence that business strategy influences a firm's cash holdings and dividend payouts.

3 | THEORY AND HYPOTHESES

3.1 | Business strategy

Chandler defines strategy as 'the determination of the basic long-term goals and objectives of the enterprise and the adoption of resources necessary for carrying out these goals' (Chandler, 1962, p. 13). On the other hand, Mintzberg (1987) argues that an organisational strategy alludes to a firm's plans, patterns, positions and perspectives. Although there are diverse views on what constitutes a strategy, researchers agree on distinguishing between strategy formulation and implementation as two distinct phases of a strategy (Snow & Hambrick, 1980). This distinction is important because it allows researchers to observe and measure business strategy

using firm-level quantitative data. Because strategy formulation is difficult to observe from outside the firm, this study is based on strategy implementation rather than strategy formulation.

Miles and Snow (1978) discuss three viable business strategies based on product innovation and market orientation: prospectors, analysers and defenders. Miles and Snow (1978) and Simons (1987) note that prospector and defender strategies are the most dominant types. Miles and Snow (1978, 2003) and Hambrick (1983) note that prospector firms have a more substantial commitment to product development and innovation and frequently alter their products and markets. Prospectors thrive in business environments that are somewhat unpredictable and succeed by exploring the market continuously for new opportunities (Jennings & Seaman, 1994). Furthermore, prospectors often emphasise innovation over efficiency (Higgins et al., 2015; Segev, 1989). In contrast, defenders stress the efficiency of operations (Karhade et al., 2009) and operate with low levels of product development or focus on a strong defence of their existing marketplaces (Miles & Snow, 1978). Hambrick (1983) describes defenders as firms that compete mainly on price, delivery or quality. Further, defenders make significant investments in process engineering (Karhade et al., 2009; Porter, 1980); they have mechanical structures (Segev, 1989) and they are run primarily under the influence of production and accounting executives (Miller & Friesen, 1982). These firms thrive in environments that change slowly. Miles et al. (1978) provide a detailed discussion of the firm characteristics associated with different business strategies.

The Miles and Snow (1978) typology enables the study of strategy using archival data (Bentley et al., 2013; Bentley-Goode et al., 2017; Chen et al., 2017; Ittner et al., 1997). Having examined the different methods for categorising business strategy within this typology, Snow and Hambrick (1980) proposed examining strategy using financial statement-based indicators.

Bentley et al. (2013) review the Miles and Snow (1978) typology and other typologies that were subsequently proposed (e.g., March, 1991; Porter, 1980; Treacy & Wiersema, 1995) and note the commonalities. This study adopts Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) typology. The adaptation involves calculating the composite strategy score at each firm-year level based on the six financial statement-based indicators (Ittner et al., 1997) as explained in the Appendix A. Then we rank all the composite strategy scores and classify the observations into three categories: defenders (scores: 6–12), analysers (13–23) and prospectors (24–30) (Miles & Snow, 1978, 2003).

Employing financial statement-based indicators for measuring business-level strategy has other merits. First, unlike other approaches, this approach controls perceptual, and to a lesser extent, interpretive bias (Snow & Hambrick, 1980). Second, this approach is relatively well-suited for identifying implemented or realised strategies (Snow & Hambrick, 1980). Third, strategy researchers commonly use this approach (e.g., Miller & Friesen, 1978; Venkatraman & Grant, 1986).

3.2 | Hypotheses

Following a survey of chief financial officers (CFOs), Graham and Harvey (2001) report that financial flexibility is a key factor influencing corporate financial management. The demand for financial flexibility, among other factors, dictates a firm's decisions on cash holdings and dividend payouts. Among all the strategy types, the demand for financial flexibility is greatest for prospectors. Prospectors need to remain financially flexible to take advantage of new business opportunities and access new markets (Higgins et al., 2015; Jennings & Seaman, 1994). Among all the strategy types, prospectors invest most intensely at the front-end of a product's life cycle, such as R&D and marketing (Hambrick, 1983). Inability to finance these activities from internal resources may prove very costly because the market may charge a higher cost of capital due to uncertainties surrounding the success of R&D projects and market potential of the new products. Besides, among all strategy types, prospectors are likely to suffer most from information

asymmetry between insiders and external investors because information asymmetry arises from growth options (LaFond & Watts, 2008). There is inherent uncertainty surrounding the future success of R&D projects, new products and new markets, which prospectors thrive on. Moreover, managers of prospectors always face the dilemma between the proprietary costs of disclosing R&D success too soon and the market's perception of the potential of any R&D project.

In sum, potentially higher costs of external financing due to information asymmetry, prospectors need to invest substantially in R&D and upfront investments required in accessing new markets would induce these firms to always retain financial flexibility. Retaining financial flexibility would require holding more surplus cash in hand than is necessary. The need to retain surplus cash within the firm would induce managers to pay less dividend and pay only when the firm can afford it. Thus, compared with other firms, the demand for financial flexibility in prospectors will manifest in higher cash holdings and lower levels of dividends.

Among all strategy types, defenders have the least demand for financial flexibility. They have the most stable business environment (Miles & Snow, 1978, 2003). They are not likely to experience unexpected changes in cash flows and investment opportunity sets. They have a stable set of products and customers (Miles & Snow, 1978). Hence, they are likely to enjoy steady sales revenue and cash flows from customers. At the same time, defenders rarely look for new market opportunities (Jennings & Seaman, 1994). They do not engage in extensive R&D and marketing programmes (Hambrick, 1983) and have low product innovation (Segev, 1989). Their slow and steady growth strategy (Miles & Snow, 1978) does not create unexpectedly high demand for cash holdings. Thus, defenders' business operations are unlikely to create strong demand for retaining cash in the business. Taken together, stable business environment, stable set of products and customers (Miles & Snow, 1978), low product innovation (Segev, 1989), low R&D investments and high efficiency in production operations (Karhade et al., 2009) reduce the demand for large cash holdings in defenders. In turn, defenders can pay more dividends than other firms. Because prospectors and defenders are the extreme opposites in the strategy typology, the above arguments can be extended to other strategy types. In sum, the above discussion leads us to the following hypotheses:

H1 Prospectors (defenders) are likely to have larger (smaller) cash holdings than other firms.
H2 Prospectors (defenders) are likely to pay smaller (larger) dividends than other firms.

4 | RESEARCH DESIGN

4.1 | Measuring business strategy

We follow Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) typology for measuring business strategy. We created a composite strategy score for each firm-year using the following steps. First, from the Compustat North America database, we collected data on the six strategy-related variables that make up the overall strategy score on a firm-year basis. As defined in the Appendix A, these variables are the ratio of research and development to sales (*R&D_S5*), the ratio of the number of employees to sales (*EMP_S5*), change in total revenue (*REV_S5*), the ratio of marketing expenses to sales (*SGA_S5*), employee fluctuations (σ (*EMP_S5*)) and capital intensity (*CAP_S5*). Each variable was measured at firm-year level as the rolling prior five-year average to reduce time-based variation. Second, we classified all the observations on each variable into industry categories based on two-digit SIC codes. Third, for each variable except *CAP_S5*, we divided the observations into five quintiles and assigned a score between 1 for those falling in the lowest quintile (representing the traits of a defender) and 5 for those falling in the highest quintile (representing the traits of a prospector). The observations on *CAP_S5* were reverse-scored so

that observations in the lowest (highest) quintile received a score of 5 (1).[5] Finally, we computed a composite firm-year strategy score by adding each firm-year score across the six variables. So, our strategy scores could have a minimum value of 6 and a maximum value of 30.

Using the calculated strategy scores, firm-years were classified into different strategy types based on the following criterion: defenders (6–12), analysers (13–23) and prospectors (24–30). This strategy classification is consistent with Bentley et al. (2013), Bentley-Goode et al. (2017) and Chen et al. (2017). Because analysers exhibit some traits of both defenders and prospectors, we focus on the defenders (*DEFENDER*) and prospectors (*PROSPECTOR*) and use the analysers as the benchmark for the other two categories.

4.2 | Models

We propose Models (1) and (2) below for testing H1. While in Model (1), we measure business strategy as a continuous variable, in Model (2) we measure strategy as a categorical variable. We propose Models (1) and (2) based on the drivers of cash holdings documented in the literature:

$$\begin{aligned} CASH_{it} &= \gamma_0 + \gamma_1 STRATEGY_{it} + \gamma_2 CASH_{it-1} + \gamma_3 SIZE_{it} \\ &+\gamma_4 LEV_{it} + \gamma_5 MB_{it} + \gamma_6 WCAP_{it} + \gamma_7 CFOVOL_{it} \\ &+\gamma_8 LOSSHISTORY_{it} + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \end{aligned} \tag{1}$$

$$\begin{aligned} CASH_{it} &= \gamma_0 + \gamma_1 PROSPECTOR_{it} + \gamma_2 DEFENDER_{it} + \gamma_3 CASH_{it-1} \\ &+\gamma_4 SIZE_{it} + \gamma_5 LEV_{it} + \gamma_6 MB_{it} + \gamma_7 WCAP_{it} \\ &+\gamma_8 CFOVOL_{it} + \gamma_9 LOSSHISTORY_{it} + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \end{aligned} \tag{2}$$

All variables are defined in Table 1. In estimating each model, we employ two alternative measures of cash holdings: *CASH1* (cash and cash equivalent scaled by *SALES*) and *CASH2* (cash and cash equivalent scaled by the beginning-of-period total assets).

We test H2 by employing two different models that capture both the propensity to pay dividends (Models (3) and (4)) and the dividend payout ratios (Models (5) and (6)). As in Models (1) and (2), we operationalise strategy both as a continuous variable (Models (3) and (5)) and a categorical variable (Models (4) and (6)).

$$\Pr[DIDV]_{it} = \alpha_0 + \alpha_1 STRATEGY_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \tag{3}$$

$$\begin{aligned} \Pr[DIVD]_{it} &= \alpha_0 + \alpha_1 PROSPECTOR_{it} + \alpha_2 DEFENDER_{it} \\ &+\Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \end{aligned} \tag{4}$$

$$DIVPAYOUT_{it} = \beta_0 + \beta_1 STRATEGY_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \tag{5}$$

$$\begin{aligned} DIVPAYOUT_{it} &= \beta_0 + \beta_1 PROSPECTOR_{it} + \beta_2 DEFENDER_{it} \\ &+\Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \end{aligned} \tag{6}$$

We capture the propensity to pay dividends (*DIVD*) as a binary variable set equal to one if a firm paid a dividend in the year *t*, and zero otherwise. Following He (2012), we measure the dividend payout ratio (*DIVPAYOUT*) via three alternative proxies: dividends scaled by earnings

[5]This approach is consistent with Bentley et al. (2013). Capital intensity is reverse-scored because defender (prospector) firms are likely to have high (low) capital intensity. In the strategy typology, the scoring technique is designed to award high (low) scores to prospectors (defenders).

TABLE 1 Variable definitions.

Variable(s)	Descriptions
CASH1	*CASH1* = Cash and cash equivalent/*SALE*.
CASH2	*CASH2* = Cash and cash equivalent/Total assets.
DIVD	Propensity to pay dividend. It is a dummy variable, which takes the value of one if a firm pays dividends, and zero otherwise.
DIVEARN	Dividend pay-out ratio. We calculate *DIVEARN* as the ratio of total dividends paid (DVC) divided by accounting earnings before extraordinary item (IB). Following Holmen et al. (2008), if the dividends are paid when accounting earnings are negative, we replace it with one and if *DIVEARN* is greater than one, it will also be replaced with one.
DIVTA	Ratio of dividend to total assets. We calculate *DIVTA* as the ratio of total dividend paid (DVC) divided by total assets (TA) times 100.
DIVMVE	*DIVMVE* is the ratio of total dividends paid (DVC) to the market value of equity (CSHO*PRCC_F) times 100.
STRATEGY	Firm-year level strategy scores are computed following Miles and Snow's (1978) strategy typology. We create a composite strategy score for each firm-year using the following steps. First, from the Compustat North America database we collected data on the six strategy-related variables that make up the overall strategy score on a firm-year basis. These variables, as defined in the Appendix A, are *R&D_S5*, *EMP_S5*, *REV_S5*, *SGA_S5*, σ (*EMP_S5*) and *CAP_S5*. Each of the variables was measured at firm-year level as the rolling prior five-year average to reduce time-based variation. Second, all the observations on each variable were classified into industry categories based on two-digit SIC codes. Third, each of the observations was divided into five quintiles and, except for the case of observations on *CAP_S5*, assigned a score of 1 for those falling in the lowest quintile (representing the traits of a defender) to 5 for those falling in the highest quintile (representing the traits of a prospector). The observations on *CAP_S5* were reverse scored so that observations in the lowest (highest) quintile received a score of 5 (1). Finally, we computed a composite firm-year strategy score, *STRATEGY*, by adding the scores for each firm-year across the six variables. Therefore, our strategy scores could have a maximum value of 30 and a minimum value of 6. Using the *STRATEGY* scores, firm-years were classified into different strategies based on the following criterion: defenders (6–12), analysers (13–23) and prospectors (24–30). Because analysers exhibit some traits of both defenders and prospectors, we focus on the defenders and prospectors and use the analysers as the benchmark for the other two categories.
PROSPECTOR	A dummy variable coded as 1 if the *STRATEGY* score is between 24 and 30 (both inclusive), and 0 otherwise.
DEFENDER	A dummy variable coded as 1 if the *STRATEGY* score is between 6 and 12 (both inclusive), and 0 otherwise.
FLC_INTRO	A dummy variable coded as 1 if the net cash flow from financing activities is positive while the net cash flow from operating and investing activities are both negative, and 0 otherwise.
FLC_GROWTH	A dummy variable coded as 1 if the net cash flow from investing activities is negative while the net cash flow from operating and financing activities are both positive, and 0 otherwise.
FLC_MATURITY	A dummy variable coded as 1 if the net cash flow from operating activities is positive while the net cash flow from investing and financing activities are both negative, and 0 otherwise.
FLC_DECLINE	A dummy variable coded as 1 if the net cash flow from operating activities is negative while the net cash flow from investing is positive, and the cash flow from financing activities is either negative or positive, and 0 otherwise.
FLC_SHAKE	A dummy variable coded as 1 if the firm year does not belong to any of the other life cycle stages.
SIZE	The natural log of the firm's total assets (TA) reported at the end of year *t*.
LEV	Long-term debt (DLTT) to total assets (TA).

(Continues)

TABLE 1 (Continued)

Variable(s)	Descriptions
MVE	Natural logarithm of market value of equity (PRCCD*CSHPRIA).
MB	Market-to-book ratio as a proxy for growth opportunity. We calculate it as the ratio of the market value of total assets to book value of total assets (TA). Market value of total assets is equal to total assets (TA) plus common Shares outstanding (CSHPRIA) times share price (PRCCD) minus total equity (CEQ).
WCAP	The ratio of (current assets – current liabilities) to last year's total assets.
CFOVOL	The standard deviation of operating cash flow (CFO) (CFO/average total assets) over the last 5 years ($t-4$, t).
LOSSHISTORY	The percentage of years a firm reported a loss over the last 5 years ($t-4$, t).
ROA	Profitability. We calculate it as the ratio of income before extraordinary items (IB) plus interest expense (XINT) plus deferred taxes (TXDI) to total assets (TA).
RETA	The ratio of retained earnings (RE) to total assets (TA) (DeAngelo et al., 2006).
TANG	Asset tangibility (net property, plant and equipment divided by TA).

Source: Compustat North America.

before extraordinary items (*DIVEARN*), dividends scaled by total assets (*DIVTA*) and dividends scaled by the market value of equity (*DIVME*). All variables are as defined in Table 1.

4.3 | Control variables

The control variables in the models are motivated by prior research. In the cash holding Models (1) and (2), we incorporate lagged cash ($CASH_{t-1}$), firm size (*SIZE*), leverage (*LEV*), market-to-book ratio (*MB*), working capital (*WCAP*), cash flow volatility (*CFOVOL*) and loss history (*LOSSHISTORY*) as control variables. Prior studies suggest that a firm's cash holding is positively related to its lagged cash, working capital and cash flow volatility (Harford et al., 2008; Opler et al., 1999; Ozkan & Ozkan, 2004; Subramaniam et al., 2011). In contrast, cash holding is negatively related to size (Opler et al., 1999; Subramaniam et al., 2011), leverage (Harford et al., 2008; Subramaniam et al., 2011) and market-to-book ratio (Opler et al., 1999; Subramaniam et al., 2011). We expect a positive coefficient on loss history because a firm with a history of loss reporting in recent years is likely to hold more cash. Because the level of cash holding can vary across time and industries, we control for these effects in our models.

While the demands for cash holding depend on contemporaneous firm characteristics such as investment opportunity set and cash flow characteristics, a firm's ability to pay dividends in the current year is mainly linked to its economic characteristics in the previous year. Thus, we incorporate several lagged variables in the dividend payout Models (3)–(6). These include lagged dependent variable, lagged market value of equity (MVE_{t-1}), lagged leverage (LEV_{t-1}), lagged retained earnings ($RETA_{t-1}$), lagged market-to-book ratio (MB_{t-1}), lagged cash flow volatility ($CFOVOL_{t-1}$), lagged asset tangibility ($TANG_{t-1}$) and lagged cash holding ($CASH_{t-1}$). Our rationales are the following.

Large firms are likely to pay more dividends than others because of investor scrutiny (Denis & Osobov, 2008). We use the market value of equity (*MVE*) as the proxy for firm size (Benavides et al., 2016). Firms with high debt ratios (*LEV*) are less likely to pay dividends because their cash flows are committed to debtholders and paying dividends would force them to seek costly external financing (Naceur et al., 2006). Firms with larger retained earnings (*RETA*) are more likely to pay dividends than others (Denis & Osobov, 2008). Because dividends are paid out of earnings, a firm's capacity to pay dividends is positively influenced by its profitability (Denis &

Osobov, 2008; Naceur et al., 2006). We use return on assets (*ROA*) to proxy firm profitability (Denis & Osobov, 2008). Arguably, firms with large investment opportunities will have strong financing needs. These firms need to retain their earnings as a cheap source of financing rather than distribute them to shareholders. Following prior research, we use the market-to-book ratio (*MB*) as the proxy for the investment opportunity set (Fama & French, 2001; Naceur et al., 2006; Sharma, 2011). Thus, we expect *MB* to be negatively related to dividend payouts. When cash flows are volatile (*CFOVOL*), firms need to preserve their cash and are unlikely to pay dividends. Thus, we expect a negative coefficient on *CFOVOL*. Firms with larger cash holdings at the beginning of the year are more likely to pay dividends than others. Hence, we expect a positive coefficient on lagged cash ($CASH_{t-1}$). Following prior research, we control for the time and industry variances on dividends.

4.4 | Data and sample

We collected data from the Compustat North America database. Because the construction of some of our variables requires five-year averages, we chose a long sample period: 1990–2017.[6] Table 2 reports the sample selection process. Within our sample period, we identified 103,631 firm-year observations with non-missing strategy data. We dropped 13,284 observations related to utilities and financial sectors because these sectors face unique regulatory and operating environments of their own. This exclusion reduced the sample size to 90,347 firm-year observations. Our sample reduced to 71,192 observations after deleting another 19,155 observations due to missing values. Our cash holding analysis is based on this sample of 71,192 observations. We lost another 10,982 observations due to missing values related to dividend payout models. Thus, the dividend payout analysis is based on a reduced sample of 60,246 observations. For both samples, we winsorised both the top and the bottom 1% of the observations for each variable to reduce the effect of outliers on the results. In untabulated analysis, we find that, except for the first year (1992), the observations in each year are roughly around 4% in each sample.

Table 3 provides industry affiliations of the sample firms at firm-year level and descriptive statistics of the variables used in all models. As Panel A shows, based on the two-digit SIC codes, the highest proportion of observations comes from the manufacturing industry: 55.21% in the full sample (n = 71,192), 51.66% in the prospector sub-sample (n = 9610) and 56.80% in the defender sub-sample (n = 12,052). After that, industry affiliation varies to some extent across the three samples. In the full sample, services industry (18.85%) and retail trade (8.65%) and mining (7.61%) are dominant. While retail trade (17.29%), wholesale trade (9.43%) and

TABLE 2 Sample selection and sample distribution by industry.

Panel A: Sample selection	No. of observations
Firm-year observations with non-missing strategy data: 1990–2017	103,631
Less: Regulated industries (SIC 48 and 49) and financial industries (SIC 60–69)	(13,284)
	90,347
Less: Missing observations	(19,155)
Sample for cash holding analysis	71,192
Less: Missing observations related to dividend payout models	(10,946)
Sample for dividend payout analysis	60,246

[6]Although our initial sample began in 1990, we lost data for the first 2 years (1990 and 1991) in constructing some of the variables.

TABLE 3 Descriptive statistics for industry affiliations of the sample firms and the variables used in all models.

Panel A: Industry affiliations (firm-years)

Two-digit SIC code	Two-digit SIC code: Industry affiliation	Full sample (n = 71,192)		Prospectors (n = 9610)		Defenders (n = 12,052)	
		Number	Percent	Number	Percent	Number	Percent
01–09	Agriculture, Forestry and Fishing	318	0.45	152	1.58	7	0.06
10–14	Mining	5416	7.61	267	2.78	908	7.53
15–17	Construction	672	0.94	190	1.98	29	0.24
20–39	Manufacturing	39,308	55.21	4965	51.66	6846	56.80
40–48	Transportation and Communications Services	1689	2.37	761	7.96	11	0.09
50–51	Wholesale Trade	3472	4.87	906	9.43	9	0.08
52–59	Retail Trade	6162	8.65	1654	17.29	27	0.22
70–89	Services	13,419	18.85	689	7.19	3872	32.13
99	Other	829	1.03	10	0.13	343	2.85
Total		71,192	100.00	9610	100.00	12,052	100.00

Panel B: *STRATEGY* scores and its components (means and medians in bold are significantly different between prospectors and defenders at $p < 0.05$)

	Full sample (n = 71,192)					Prospectors (n = 9610)		Defenders (n = 12,052)	
Variable	Mean	Median	Q1	Q3	SD	Mean	Median	Mean	Median
STRATEGY	17.67	18.00	14.00	21.00	4.48	**25.12**	**25.00**	**10.76**	**11.00**
R&D_S5	0.22	0.00	0.00	0.06	12.75	**0.57**	**0.00**	**0.08**	**0.02**
EMP_S5	0.01	0.01	0.00	0.01	0.11	**0.01**	**0.01**	**0.01**	**0.00**
REV5	8.90	5.79	−4.82	17.75	30.69	**15.03**	**7.47**	**5.91**	**4.69**
SGA_S5	1.03	0.24	0.13	0.40	30.96	**1.94**	**0.25**	**0.39**	**0.29**
σ (*EMP_S5*)	11.71	1.31	0.23	6.40	48.44	**24.32**	**4.50**	**6.05**	**0.60**
CAP5	0.27	0.20	0.09	0.39	0.23	**0.24**	**0.19**	**0.29**	**0.22**

Panel C: Variables of cash holding model (means and medians in bold are significantly different between prospectors and defenders at $p < 0.05$)

	Full sample (n = 71,192)					Prospectors (n = 9610)			Defenders (n = 12,052)		
Variable	Mean	Median	Q1	Q3	SD	Mean	Median	SD	Mean	Median	SD
CASH1	0.25	0.09	0.02	0.25	0.48	**0.24**	**0.07**	0.36	**0.27**	**0.11**	0.18
CASH2	0.16	0.09	0.03	0.23	0.18	**0.14**	**0.08**	0.19	**0.18**	**0.11**	0.12
STRATEGY	17.67	18.00	14.00	21.00	4.48	**25.12**	**25.00**	1.15	**10.76**	**11.00**	1.22
SIZE	5.64	5.67	3.95	7.30	2.36	**6.33**	**6.63**	2.21	**5.31**	**5.28**	1.98
LEV	0.32	0.16	0.00	0.52	0.39	**0.24**	**0.03**	0.36	**0.40**	**0.28**	0.40
MB	2.93	1.86	1.10	3.16	22.07	**4.40**	**2.58**	1.27	**1.96**	**1.80**	0.69
WCAP	0.27	0.26	0.10	0.43	0.21	**0.32**	**0.32**	0.23	**0.19**	**0.17**	0.20
CFOVOL	0.08	0.05	0.03	0.09	0.08	**0.08**	**0.05**	0.07	**0.08**	**0.06**	0.04
LOSSHISTORY	0.30	0.20	0.00	0.60	0.32	**0.27**	**0.20**	0.39	**0.34**	**0.20**	0.18

TABLE 3 (Continued)

Panel D: Variables of dividend payment model (means and medians in bold are significantly different at $p < 0.05$)

	Full sample (n = 60,246)					Prospectors (n = 8132)			Defenders (n = 10,198)		
Variable	**Mean**	**Median**	**Q1**	**Q3**	**SD**	**Mean**	**Median**	**SD**	**Mean**	**Median**	**SD**
DIVD	0.38	0.00	0.00	1.00	0.48	**0.19**	**0.00**	0.39	**0.46**	**0.00**	0.49
DIVEARN	0.18	0.00	0.00	0.24	0.31	**0.10**	**0.00**	0.25	**0.25**	0.00	0.36
DIVTA	0.77	0.00	0.00	1.13	1.34	**0.45**	**0.00**	1.14	**0.95**	**0.00**	1.46
DIVMVE	0.78	0.00	0.00	1.21	1.31	**0.38**	**0.00**	0.97	**1.11**	**0.00**	1.56
STRATEGY	17.51	17.00	15.00	20.00	3.78	**25.07**	**25.00**	1.15	**10.96**	**11.00**	1.22
MVE	5.46	5.41	3.66	7.17	2.28	**5.61**	**5.57**	2.16	**4.93**	**4.86**	2.15
LEV	0.12	0.08	0.00	0.22	0.14	**0.09**	**0.02**	0.13	**0.16**	**0.15**	0.14
RETA	0.15	0.16	0.17	0.38	0.97	**0.91**	**0.30**	1.36	**0.02**	**0.17**	0.71
ROA	0.00	0.04	−0.02	0.07	0.12	**−0.07**	**−0.01**	0.17	**0.01**	**0.03**	0.09
MB	1.77	1.43	1.06	2.12	1.00	**2.39**	**1.98**	1.27	1.37	1.18	0.69
CFOVOL	0.07	0.05	0.03	0.09	0.05	**0.10**	**0.08**	0.07	**0.06**	**0.05**	0.04
TANG	0.26	0.19	0.08	0.38	0.22	0.13	**0.09**	0.13	0.43	**0.40**	0.24
CASH	0.25	0.09	0.02	0.25	0.48	**0.29**	**0.24**	0.36	**0.12**	**0.04**	0.64

Note: Bold are significantly different between prospectors and defenders at $p < 0.05$.

transportation and communication services (7.96%) are dominant in the prospector sub-sample, services (32.13%) and mining (7.53%) industries are dominant in the defender sub-sample.

Panel B (Table 3) shows the descriptive statistics of the *STRATEGY* variable and its six components for the full sample and the two sub-samples of prospectors and defenders. The mean (median) score for *STRATEGY* is 17.67 (18.00). This suggests that an average firm in the sample is an analyser. The mean (25.12) and the median (25.00) *STRATEGY* scores of prospectors significantly differ at the 5% level from that of defenders (10.76 and 11.00, respectively). The six strategy components also significantly differ at the 5% level between these sub-samples. The mean and median strategy scores in our full sample, prospectors and defenders are consistent with those in Bentley et al. (2013), Bentley-Goode et al. (2017, 2019), Chen et al. (2017), and Cao et al. (2022). Moreover, the means and medians of the five components of the strategy score in our full sample, prospectors and defenders are broadly consistent with those in Bentley et al. (2013) and Chen et al. (2017).[7]

In Table 3, Panel C reports the descriptive statistics for the cash holding sample. In the two measures of cash holding, the mean (median) of *CASH1* is 0.0.25 (0.09), and that of *CASH2* is 0.16 (0.09). These levels of cash holding are consistent with other US samples (e.g., Harford et al., 2008; Opler et al., 1999; Subramaniam et al., 2011). However, the prospectors and the defenders significantly differ in their cash holding levels ($p < 0.05$). The mean *CASH1* (*CASH2*) of prospectors is 0.07 (0.08) compared to 0.11 (0.11) of defenders. Panel C further suggests that prospectors are larger than defenders in firm *SIZE* (total assets), and have higher market-to-book ratio (*MB*), lower leverage (*LEV*), more working capital (*WCAP*) and higher frequency of loss (*LOSSHISTORY*). Panel D (Table 3) shows that, in our sample, dividends were paid (*DIVD*) in 38% of firm-years. When dividends are scaled by earnings (*DIVEARN*), total assets (*DIVTA*) and the market value of equity (*DIVMVE*), the mean (median) values are 0.18 (0.00), 0.77 (0.00) and 0.78 (0.00), respectively. Panel D further suggests prospectors have lower return on assets (*ROA*) but higher retained earnings (*RETA*) than defenders. These findings are consistent with

[7]Bentley-Goode et al. (2017, 2019) and Cao et al. (2022) did not report descriptive statistics on strategy components.

the notion that prospectors are less profitable but retain more internal funds than defenders (e.g., Bentley et al., 2013; Bentley-Goode et al., 2017).

In untabulated Pearson's bivariate correlation matrix, we find that *STRATEGY* is positively correlated with both *CASH1* (0.2953, $p < 0.01$) and *CASH2* (0.2635, $p < 0.01$). Because prospectors receive higher scores in the *STRATEGY* variable, these positive relations suggest prospectors are likely to hold more cash than others. When we classify firms into prospectors and defenders, prospectors are positively related to *CASH1* (0.2022, $p < 0.01$) and *CASH2* (0.1542, $p < 0.01$) while defenders are negatively related to *CASH1* (−0.1053, $p < 0.01$) and *CASH2* (−0.1151, $p < 0.01$). Among the control variables, firm size (*SIZE*) is negatively, and working capital (*WCAP*), cash flow volatility (*CFOVOL*) and loss history (*LOSSHISTORY*) are positively correlated with cash holdings. All four measures of dividend payouts are negatively related to *STRATEGY* at $p < 0.01$ (*DIVD* = −0.1402, *DIVEARN* = −0.1251, *DIVTA* = −0.0918, *DIVMVE* = −0.1496). When we categorise firms into prospectors and defenders, prospectors are negatively related to payouts at $p < 0.01$ (*DIVD* = −0.0945, *DIVEARN* = −0.0645, *DIVTA* = −0.0625, *DIVMVE* = −0.0787) while defenders are positively related to payouts at $p < 0.01$ (*DIVD* = 0.0472, *DIVEARN* = 0.0684, *DIVTA* = 0.0399, *DIVMVE* = 0.0751). Among the control variables, dividend payouts are positively related to the market value of equity (*MVE*), retained earnings (*RETA*), profitability (*ROA*), market-to-book ratio (*MB*) and asset tangibility (*TANG*) at $p < 0.01$. In contrast, dividend payouts are negatively related to leverage (*LEV*) and cash flow volatility (*CFOVOL*). The small coefficients of correlation (all below 0.5) among the control variables indicate that multicollinearity is unlikely to be a problem in the regression estimates. All variance inflation factors (VIFs) in our models are less than five.

5 | RESULTS AND DISCUSSION

In this section, we report the main empirical results. Table 4 reports the results of estimating Models (1) and (2) using two alternative measures of cash: *CASH1* (columns (1) and (3)) and *CASH2* (columns (2) and (4)). Overall, our models have good explanatory power for corporate cash holdings; the adjusted R^2 ranges from 50.26% to 60.91%. As Table 4 reveals, the coefficients on *STRATEGY* are positive and significant for both *CASH1* (*t*-statistic = 57.87) and *CASH2* (*t*-statistic = 36.22) at the 1% level (two-tailed tests). Further, the coefficients on *PROSPECTOR* are positive and significant for *CASH1* (*t*-statistic = 42.77) and *CASH2* (*t*-statistic = 24.88) at the 1% level. In contrast, the coefficients on *DEFENDER* are negative and significant for *CASH1* (*t*-statistic = −12.52) and *CASH2* (*t*-statistic = −7.26) at the 1% level. These results suggest that prospectors hold more cash than others while defenders hold less cash than others. Thus, these results are consistent with the prediction of H1. In terms of economic significance of strategy for cash holding in Model (1) (column (1)), one standard deviation change in the *STRATEGY* score changes cash by 24% at the mean value of *CASH1*.[8] In Model (2) (column (3)), one standard deviation change in *PROSPECTOR* (*DEFENDER*) is related to a 63.8% increase (15.9% decrease) in *CASH1*. The corresponding values for *CASH2* are *STRATEGY* 12.3%, *PROSPECTOR* 31.1% and *DEFENDER* −7.8%.

Among the control variables, the range of *t*-values of $CASH_{t-1}$ (43.26; 52.43) suggest that current cash holding is positively and significantly related to lagged cash holding at the 1% level in all four estimates. This result is entirely expected in that firms with a large cash balance at the beginning of the year are likely to have a large cash balance at year-end, all else being equal. In all the four estimates, cash holding is negatively related to leverage (*t*-value ranges from −40.34 to −19.28). Firm size (*SIZE*) is negatively significant in three of the four estimates (*t*-value ranges

[8]Economic significance of an independent variable is its coefficient times its standard deviation divided by the mean value of the dependent variable. In the case of the impact of strategy on cash this is (0.0132 × 4.48)/0.25 = 23.7%.

TABLE 4 Business strategy and cash holdings (H1).

		Model (1)	Model (1)	Model (2)	Model (2)
		CASH1	*CASH2*	*CASH1*	*CASH2*
		Coefficient (*t*-value)	Coefficient (*t*-value)	Coefficient (*t*-value)	Coefficient (*t*-value)
Variable(s)	**Expected sign**	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**
STRATEGY	+	0.0132***	0.0044***		
		(57.87)	(36.22)		
PROSPECTOR	+			0.1387***	0.0433***
				(42.77)	(24.88)
DEFENDER	−			−0.0326***	−0.0102***
				(−12.52)	(−7.26)
$CASH_{t-1}$	+	0.0001***	0.0000***	0.0001***	0.0000***
		(43.26)	(51.09)	(45.22)	(52.43)
SIZE	−	−0.0026***	−0.0050***	−0.0003	−0.0042***
		(−4.49)	(−16.24)	(−0.51)	(−13.60)
LEV	−	−0.0411***	−0.0452***	−0.0449***	−0.0465***
		(−19.28)	(−39.33)	(−20.89)	(−40.34)
MB	−	−0.0006***	−0.0002***	−0.0004***	−0.0001***
		(−16.83)	(−10.89)	(−10.82)	(−6.82)
WCAP	+	0.5820***	0.4302***	0.5899***	0.4331***
		(142.08)	(194.80)	(142.85)	(195.42)
CFOVOL	+	0.2606***	0.3448***	0.3104***	0.3640***
		(15.98)	(39.22)	(18.93)	(41.36)
LOSSHISTORY	+	0.0561***	0.0133***	0.0615***	0.0154***
		(30.81)	(13.54)	(33.58)	(15.66)
Intercept	?	−0.2071***	−0.0663***	−0.0062	0.0008
		(−12.24)	(−7.28)	(−0.37)	(0.09)
Year_FE		Yes	Yes	Yes	Yes
Industry_FE		Yes	Yes	Yes	Yes
Adj. R^2		0.5026	0.6091	0.4935	0.6056
N		71,192	71,192	71,192	71,192

Note: This table reports the OLS regression results of testing the relationship between business strategy and cash holdings (hypothesis H1). Results are based on Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) strategy typology. Cash holding takes two alternative measures: *CASH1* (cash and cash equivalent scaled by sales) and *CASH2* (cash and cash equivalent scaled by total assets). All variable definitions appear in Table 1. Heteroscedasticity-robust standard errors clustered at firm-level are shown in parentheses. *, ** and *** represent significance levels of 10%, 5% and 1%, respectively (two-tailed tests).

$$CASH_{it} = \gamma_0 + \gamma_1 STRATEGY_{it} + \gamma_2 CASH_{it-1} + \gamma_3 SIZE_{it} + \gamma_4 LEV_{it} + \gamma_5 MB_{it} + \gamma_6 WCAP_{it} + \gamma_7 CFOVOL_{it} + \gamma_8 LOSSHISOTRY_{it} + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \quad (1);$$

$$CASH_{it} = \gamma_0 + \gamma_1 PROSPECTOR_{it} + \gamma_2 DEFENDER_{it} + \gamma_3 CASH_{it-1} + \gamma_4 SIZE_{it} + \gamma_5 LEV_{it} + \gamma_6 MB_{it} + \gamma_7 WCAP_{it} + \gamma_8 CFOVOL_{it} + \gamma_9 LOSSHISTORY_{it} + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{i,t} \quad (2).$$

from −16.24 to −4.49). Growth-option firms with higher market-to-book (*MB*) ratios hold less cash than other firms (*t*-value ranges from −16.83 to −6.82). On the other hand, firms with larger working capital (*WCAP*, *t*-value ranges from 142.08 to 195.42), higher cash flow volatility (*CFOVOL*, *t*-value ranges from 15.98 to 41.36) and a history of loss in recent years (*LOSSHISTORY*, *t*-value ranges from 13.54 to 33.58) retain more cash than other firms. These results are consistent with the evidence in the literature (Harford et al., 2008; Opler et al., 1999; Ozkan & Ozkan, 2004; Subramaniam et al., 2011).

Table 5 reports the results of estimating the four dividend models. Columns (1) and (2) report logistic regression estimates of Models (3) and (4), respectively. These two models test the propensity to pay dividends. The Pseudo R^2 of Model (3) in column (1) is 81.95%, and that of Model (4) in column (2) is 81.94%. In Model (3), the coefficient on *STRATEGY* (−0.0021) is significantly negative (*t*-statistic = −6.78). In Model (4), the coefficient on *PROSPECTOR* (−0.0095) is significantly negative (*t*-statistic = −2.23) and that on *DEFENDER* (0.0067) is significantly positive (*t*-statistic = 2.06); both *t*-statistics are significant at the 5% level. All these results are consistent with H2. That is, as the strategy score increases, the propensity to pay dividend decreases. Alternatively, prospectors (defenders) have a lower (higher) propensity to pay dividend than other firms. In terms of economic significance, a one standard deviation increase in *STRATEGY* score is associated with a 2.09% reduction in the propensity to pay dividend (*DIVD*). Similarly, a one standard deviation increase in the strategy score of a *PROSPECTOR* is related to a 2.86% reduction in *DIVD*. A one standard deviation decrease in the strategy score of a *DEFENDER* is related to a 2.15% increase in *DIVD*.

In Table 5, the results on the control variables of Models (3) and (4) are consistent with the literature. As expected, the history of paying dividends in the previous year ($DIVD_{t-1}$), the market value of equity (*MVE*), retained earnings (*RETA*) and firm profitability (*ROA*) increase the chance of paying dividends in the current year (e.g., Denis & Osobov, 2008; Naceur et al., 2006). On the other hand, a higher level of leverage (*LEV*) and cash flow volatility (*CFOVOL*) reduce the chance of paying dividends in the current year (e.g., Denis & Osobov, 2008; Naceur et al., 2006).

In Table 5, columns (3)–(8) report the OLS estimates of the dividend payout models. The results in Table 5 are consistent with H2. Among the six estimates, the adjusted R^2 ranges from 50.14% in Model (6) when payout is measured by the dividend-earnings ratio (*DIVEARN*) to 79.48% in Model (5) when dividend is scaled by contemporaneous total assets. In the three estimates of Model (5), the *t*-statistic of *STRATEGY* is negative and statistically significant at the 1% level when using *DIVEARN* (−9.67), *DIVTA* (−9.86), *DIVMVE* (−10.34) as the dependent variable; these results are in columns (3), (5) and (7), respectively. Among the three estimates of Model (6), the variable *PROSPECTOR* is not significant against the dependent variable *DIVEARN* (column (4)). However, the *t*-statistic of *PROSPECTOR* is negative and significant at the 1% level for *DIVTA* (−2.63) in column (6) and significant at the 10% level against *DIVMVE* (−1.77) in column (8). In contrast, in columns (4), (6) and (8), the variable *DEFENDER* is positive and statistically significant at the 1% level with the *t*-statistic of 5.18, 4.17 and 4.88, respectively. In sum, the results reported in columns (3)–(8) are broadly consistent with the notion that prospectors (defenders) are less (more) likely to pay dividends than others.

Unlike our consistent results, the results in table 4 of Cao et al. (2022) contradict the results in their tables 2 and 3, which suggest that dividend payouts are increasing in firm performance (*ROA*). In contrast, table 4 in Cao et al. (2022) suggests that strategy has a negative effect in high-performing firms based on *ROA* and no effect in low-performing firms. Given that defenders exhibit higher *ROA* than prospectors (see Bentley et al., 2013, Bentley-Goode et al., 2019; Chen et al., 2017) and prospectors are less likely to pay dividends than defenders, the results in table 4 of Cao et al. (2022) seem surprising. The results in the Cao et al. (2022) *ROA* sub-sample suggest that even high-performing defenders are unlikely to pay dividends, which contradicts their own prediction.

TABLE 5 Business strategy and dividend payouts (H2).

	DIVD		*DIVEARN*	*DIVTA*		*DIVMVE*		
	Model (3)	**Model (4)**	**Model (5)**	**Model (6)**	**Model (5)**	**Model (6)**	**Model (5)**	**Model (6)**
	Coeff. (*t*-value)	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**
Variables	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**	**Column (5)**	**Column (6)**	**Column (7)**	**Column (8)**
STRATEGY	−0.0021****		−0.0032***		−0.0093***		−0.0111***	
	(−6.78)		(−9.67)		(−9.86)		(−10.34)	
PROSPECTOR		−0.0095**		−0.0035		−0.0339***		−0.0260*
		(−2.23)		(−0.78)		(−2.63)		(−1.77)
DEFENDER		0.0067**		0.0181***		0.0410***		0.0548***
		(2.06)		(5.18)		(4.17)		(4.88)
$DIVD_{t-1}$	0.8459***	0.8471***						
	(382.43)	(384.03)						
$DIVEARN_{t-1}$			0.6381***	0.6405***				
			(192.23)	(193.37)				
$DIVTA_{t-1}$					0.8425***	0.8440***		
					(373.71)	(375.17)		
$DIVMVE_{t-1}$							0.7748***	0.7766***
							(294.33)	(295.71)
MVE_{t-1}	0.0143***	0.0135***	0.0138***	0.0127***	0.0293***	0.0261***	0.0422***	0.0384***
	(22.54)	(21.72)	(21.00)	(19.68)	(15.78)	(14.36)	(19.95)	(18.49)
LEV_{t-1}	−0.0119***	−0.0119***	−0.0204***	−0.0207***	−0.0630***	−0.0631***	−0.0687***	−0.0695***
	(−4.32)	(−4.34)	(−6.96)	(−7.06)	(−7.59)	(−7.59)	(−7.28)	(−7.35)
$RETA_{t-1}$	0.0051***	0.0043***	0.0089***	0.0076***	0.0068	0.0033	0.0247***	0.0202***
	(3.67)	(3.11)	(5.89)	(5.04)	(1.60)	(0.78)	(5.10)	(4.19)
ROA	0.1513***	0.1561***	0.2026***	0.2125***	0.4409***	0.4615***	0.5513***	0.5795***
	(15.41)	(15.89)	(19.15)	(20.12)	(14.90)	(15.59)	(16.34)	(17.18)

(Continues)

TABLE 5 (Continued)

	DIVD		*DIVEARN*	*DIVTA*		*DIVMVE*		
	Model (3)	**Model (4)**	**Model (5)**	**Model (6)**	**Model (5)**	**Model (6)**	**Model (5)**	**Model (6)**
	Coeff. (*t*-value)	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**
Variables	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**	**Column (5)**	**Column (6)**	**Column (7)**	**Column (8)**
$MB_{t\text{-}1}$	0.0060***	0.0065***	0.0126***	0.0135***	0.0218***	0.0191***	0.0155***	0.0183***
	(5.18)	(5.64)	(10.22)	(10.96)	(6.21)	(5.48)	(3.89)	(4.59)
$CFOVOL_{t\text{-}1}$	−0.0582***	−0.0607***	−0.0473**	−0.0543**	−0.3335***	−0.3464***	−0.2401**	−0.2606***
	(−2.73)	(−2.84)	(−2.08)	(−2.38)	(−5.19)	(−5.38)	(−2.29)	(−3.55)
$TANG_{t\text{-}1}$	0.0143*	−0.0024	−0.0029	0.0135*	0.0934***	0.0454**	0.0600***	−0.0024
	(1.88)	(−0.33)	(−0.36)	(1.71)	(4.07)	(2.03)	(2.29)	(−0.10)
$CASHI_{t\text{-}1}$	−0.0019	0.0046	0.0171***	0.0118***	0.0761***	0.0633***	0.0634***	0.0464***
	(−0.47)	(1.11)	(3.84)	(2.66)	(6.05)	(5.04)	(4.41)	(3.24)
Intercept	0.0699***	0.0332	0.1299***	0.0739***	0.2282***	0.0677	0.1856**	−0.0069
	(3.23)	(1.58)	(5.63)	(3.31)	(3.51)	(1.07)	(2.50)	(−0.10)
Year_FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry_FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2/Adj. R^2	0.8195	0.8194	0.5020	0.5014	0.7948	0.7945	0.7053	0.7049
N	60,246	60,246	59,559	59,559	60,246	60,246	60,246	60,246

Note: This table reports the results of testing hypothesis H2. Columns (1) and (2) report the logistic regression results of testing the relation between business strategy and the propensity to pay dividends. Columns (3)–(8) report the OLS regression results of testing the relation between business strategy and dividend payouts. Results are based on Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) strategy typology. The dependent variable is measured in four ways: *DIVD* (set equal to one if a firm paid dividends in a year, and zero otherwise; a proxy for propensity to pay dividends), *DIVEARN* (total dividends paid scaled by accounting earnings), *DIVTA* (total dividends paid scaled by total assets), and *DIVMVE* (total dividends paid scaled by market value of equity). All variable definitions appear in Table 1. Heteroscedasticity-robust standard errors clustered at firm-level are shown in parentheses. *, ** and *** represent significance levels of 10%, 5% and 1%, respectively (two-tailed tests).

$\Pr[DIDV]_{it} = \alpha_0 + \alpha_1 STRTEGY_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it}$ (3);
$\Pr[DIVD]_{it} = \alpha_0 + \alpha_1 PROSPECTOR_{it} + \alpha_2 DEFENDER_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it}$ (4); $DIVPAYOUT_{it} = \beta_0 + \beta_1 STRATEGY_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it}$ (5);
$DIVPAYOUT_{it} = \beta_0 + \beta_1 PROSPECTOR_{it} + \beta_2 DEFENDER_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it}$ (6).

In terms of the economic significance of our results in Table 5, a one standard deviation increase in the strategy score of a *PROSPECTOR* is associated with a 4.03% decline in the *DIVEARN* ratio and an 8.67% decline in the *DIVTA* ratio, and a 7.87% decline in the *DIVMVE* ratio. In contrast, the corresponding values for *DEFENDER* are a 12.27% increase in *DIVEARN*, a 6.50% increase in *DIVTA*, and an 8.57% increase in *DIVMVE*. Clearly, prospector and defender strategies have opposite effects in dividend payouts.

In Table 5, among the control variables, contrary to our expectation, we find that the market-to-book ratio (*MB*) has a positive coefficient in all estimates. Moreover, we have somewhat inconsistent results on lagged asset tangibility and, to a lesser extent, on lagged cash. However, the results on the other control variables are robust and broadly consistent with the literature. We find that lagged payout ratios, lagged market value of equity, lagged retained earnings and profitability are positively associated with the dividend payout ratio. In contrast, leverage and cash flow volatility are negatively associated with the dividend payout ratio.

Overall, the results reported in Tables 4 and 5 are consistent with the expectation that prospectors have greater demand for financial flexibility compared to other firms by relying more on internal funds. In particular, further analysis suggests that the prospectors' (9.01%) cost of external financing is statistically significantly higher than that of defenders' (8.64%) (p-value < 0.001).

6 | ROBUSTNESS CHECKS AND ADDITIONAL ANALYSIS

In this section, we discuss the results of a battery of robustness checks and additional analysis.

6.1 | GMM estimates

First, we address endogeneity concerns as endogeneity would lead to inconsistent and biased estimates due to omitted variables, simultaneity and the correlation between the explanatory variables and the error term (Li, 2016). Li (2016) demonstrates that GMM has the greatest correction effect on bias. Accordingly, we re-estimated our models using the dynamic GMM as developed by Blundell and Bond (1998) and applied by others (e.g., Al-Najjar & Belghitar, 2011; Bui et al., 2021; El Ghoul et al., 2011).

The four GMM estimations of the cash holdings Models (1) and (2) are reported in Table 6. As Table 6 shows, the variable *STRATEGY* is positive and significant (t-statistic = 4.79, 2.22) at the 5% or better levels in the two estimates of Model (1). In the two estimates of Model (2), the variable *PROSPECTOR* is positive and statistically significant (t-statistic = 7.27, in *CASH1*, 3.60 in *CASH2*) at the 1% level while the variable *DEFENDER* is negative and statistically significant (t-statistic = −3.02 in *CASH1*, −2.68 in *CASH2*) at the 1% level. In sum, all these results are consistent with H1. In Table 6, the results on the control variables are broadly in line with the evidence in the literature.

In the GMM diagnostics, we find that each of the four Z-statistics for the Arellano and Bond test (AR(2)) is >0.05. These results suggest no autocorrelation of error terms in our models. Similarly, the results for the Hansen's tests for over-identification suggest that we cannot reject the hypotheses. That is, the instruments we used are valid.

Table 7 reports the GMM estimates of the eight dividend payout models. In all these estimates, the variables of interest are consistent with the expectation. Specifically, in the estimates of Models (3) and (5), the continuous variable *STRATEGY* is negative and statistically significant in columns (1), (3), (5) and (7) with the t-statistic of −12.22, −16.54, −15.67 and −18.75, respectively. In the alternative categorical measure of strategy (Models (4) and (6)), the variable *PROSPECTOR* is negative and statistically significant in columns (2), (4), (6) and (8) with the t-statistic of −3.60, −1.95, −3.33 and −3.01, respectively. In contrast, the variable *DEFENDER*

TABLE 6 Business strategy and cash holdings (GMM Estimates, H1).

		Model (1)	Model (1)	Model (2)	Model (2)
		CASH1	*CASH2*	*CASH1*	*CASH2*
Variable(s)	**Expected sign**	**Coefficient (*t*-value)**	**Coefficient (*t*-value)**	**Coefficient (*t*-value)**	**Coefficient (*t*-value)**
STRATEGY	+	0.0135***	0.0030**		
		(4.79)	(2.22)		
PROSPECTOR	+			0.0736***	0.0167***
				(7.27)	(3.60)
DEFENDER	−			−0.0788***	−0.0355***
				(−3.02)	(−2.68)
$CASH_{t-1}$	+	0.0001***	0.0000***	0.0001***	0.0000***
		(5.90)	(8.02)	(6.10)	(8.19)
SIZE	−	−0.0026	−0.0019	−0.0087	−0.0039
		(−0.12)	(−0.16)	(−0.40)	(−0.34)
LEV	−	−0.0414	−0.0779***	−0.0723*	−0.0852***
		(−0.91)	(−3.27)	(−1.67)	(−3.76)
GROWTH	−	−0.0009***	−0.0002***	−0.0008***	−0.0002***
		(−11.98)	(−5.75)	(−13.29)	(−7.01)
WCAP	+	0.5545***	0.4428***	0.5697***	0.4474***
		(10.71)	(16.00)	(10.76)	(15.50)
CFOVOL	+	0.8546***	0.6645***	1.0387***	0.6822***
		(2.84)	(4.82)	(2.97)	(4.34)
LOSSHISOTRY	+	0.0391**	0.0165**	0.0499***	0.0183**
		(2.33)	(1.98)	(2.88)	(2.21)
Intercept	?	3.2835	1.8462	2.6966	1.7167
		(0.85)	(0.91)	(0.70)	(0.84)
Year_FE		Yes	Yes	Yes	Yes
Industry_FE		Yes	Yes	Yes	Yes
AR (1)		−19.46***	−25.84***	−19.32***	−26.16***
AR (2)		−9.22	−10.10	−9.26	−10.17
Sargan test (df)		213.65	218.44	218.19	225.77
Hansen statistics		27.67	19.27	26.65	17.96
Instruments		330	330	330	330
Prob > *F*		<0.001	<0.001	<0.001	<0.001
N		71,192	71,192	71,192	71,192

Note: This table reports the GMM estimates of the relationship between business strategy and cash holdings (hypothesis H1). Results are based on Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) strategy typology. Cash holding takes two alternative measures: *CASH1* (cash and cash equivalent scaled by sales) and *CASH2* (cash and cash equivalent scaled by total assets). All variable definitions appear in Table 1. Heteroscedasticity-robust standard errors clustered at firm-level are shown in parentheses. *, ** and *** represent significance levels of 10%, 5% and 1%, respectively (two-tailed tests).

$$CASH_{it} = \gamma_0 + \gamma_5 STRATEGY_{it} + \gamma_2 CASH_{it-1} + \gamma_3 SIZE_{it} + \gamma_4 LEV_{it} + \gamma_5 GROWTH_{it} + \gamma_6 WCAP_{it} + \gamma_7 CFOVOL_{it} + \gamma_8 PROFTABILITY_{it} + \phi_{it} \quad (1);$$

$$CASH_{it} = \gamma_0 + \gamma_1 PROSPECTOR_{it} + \gamma_2 DEFENDER_{it} + \gamma_3 CASH_{it-1} + \gamma_4 SIZE_{it} + \gamma_5 LEV_{it} + \gamma_6 GROWTH_{it} + \gamma_7 WCAP_{it} + \gamma_8 CFOVOL_{it} + \gamma_9 PROFTABILITY_{it} + \phi_{it} \quad (2).$$

is positive and statistically significant in columns (2), (4), (6) and (8) with the *t*-statistic of 3.22, 7.06, 4.82 and 6.51, respectively. Thus, all the results reported for the variables *STRATEGY*, *PROSPECTOR* and *DEFENDER* are consistent with H2. The results for the control variables are broadly consistent with the literature. Moreover, the Hansen's test and the Arellano and Bond test (AR(2)) suggest that our instruments are valid and there is no autocorrelation of error terms in our models.

6.2 | Firm performance and dividend payouts

The positive association between earnings and dividends is well documented (e.g., Arnott & Asness, 2003; Ham et al., 2020; Skinner & Soltes, 2011). Hence, we explore the extent to which business strategy affects dividend payment directly and indirectly through firm performance. Following Bentley-Goode et al. (2017), we undertake such mediation analysis and use return on assets (*ROA*) as the proxy for firm performance. Table 8 reports the results.

As Panel A of Table 8 shows, strategy is a negative determinant of *ROA* ($p < 0.001$) and *ROA* is a positive determinant of *DIVD* ($p < 0.001$). As Table 8 shows, business strategy both directly and indirectly affects dividend payments via *ROA*. The direct effect is 0.015 ($p < 0.001$) and is 74.88% of the total effect. The indirect effect is 0.005 ($p < 0.001$) and is 25.12% of the total effect. Panels B (*DIVEARN*), C (*DIVTA*) and D (*DIVME*) show similar patterns. In each case, business strategy is a negative determinant of *ROA* and *ROA* is a positive determinant of the payout ratio. However, among the three measures of dividend payout, strategy has the highest direct effect on *DIVEARN* (96.10%) and the highest indirect effect on *DIVTA* (41.02%). In sum, using *ROA* as the mediating variable, we find that strategy both directly and indirectly affects dividend payouts.

6.3 | Firm life cycle and dividend payouts

Business firms as evolving entities go through different life cycle stages (Dickinson, 2011). It is likely that business strategies proxy for firm life cycle stages, producing a spurious relation between the former and dividend payouts. Here, following Dickinson's (2011) approach of measuring firm life cycle, we test whether the relation between business strategy and dividend payouts is moderated by different stages of firm life cycle. We modify Models (3) and (5) to incorporate five firm life cycle stages (i.e., *INTRO*, *GROWTH*, *MATURITY*, *DECLINE* and *SHAKE*) with strategy scores (*STRATEGY*). Table 9 reports the results of this analysis.

As Table 9 shows, in all measures of dividends, the variable *STRATEGY*FLC_MATURITY* is positive and significant at 10% or better levels (coefficient, *t*-value of *DIDV* = 0.0148, 2.77; *DIVEARN* = 0.0019, 2.01; *DIVTA* = 0.0056, 1.83; *DIVME* = 0.0055, 1.67). That is, compared to all other firms, in mature firms, the propensity to pay dividends and dividend payout ratios are increasing in strategy scores. Further, firms in decline and shake-out stages are unlikely to pay dividends; the variable of interest is not statistically significant at any conventional level. On the other hand, compared to mature firms, the dividend payout ratios are positive and significant at 10% or better levels for firms in the introduction stage (coefficient, *t*-value of *DIVEARN* = 0.0025, 1.75; *DIVTA* = 0.0076, 2.00; *DIVME* = 0.0157, 3.58). Moreover, compared to mature firms, the propensity to pay dividends is decreasing in strategy scores for growth firms; the coefficient of −0.0169 on *STRATEGY*FLC_GROWTH* is significant at the 1% level (*t*-value = −2.76). That is, defender growth firms are likely to pay dividends more frequently than other firms. Overall, we conclude that the association we observe between business strategy and dividend is not due to firm life cycle.

In their study, Cao et al. (2022) conclude that investors face a trade-off between dividend incomes and capital gains when investing in the equity markets given that business strategy

TABLE 7 Business strategy and dividend payouts (GMM Estimates, H2).

	DIVD		*DIVEARN*		*DIVTA*		*DIVMVE*	
	Model (3)	**Model (4)**	**Model (5)**	**Model (6)**	**Model (5)**	**Model (6)**	**Model (5)**	**Model (6)**
	Coeff. (*t*-value)	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**
Variables	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**	**Column (5)**	**Column (6)**	**Column (7)**	**Column (8)**
STRATEGY	−0.0042***		−0.0057***		−0.0167***		−0.0218***	
	(−12.22)		(−16.54)		(−15.67)		(−18.75)	
PROSPECTOR		−0.0174***		−0.0094**		−0.0497***		−0.0490***
		(−3.60)		(−1.95)		(−3.33)		(−3.01)
DEFENDER		0.0118***		0.0257***		0.0547***		0.0806***
		(3.22)		(7.06)		(4.82)		(6.51)
$DIVD_{t-1}$	0.6325***	0.6348***						
	(260.79)	(261.84)						
$DIVEARN_{t-1}$			0.2658***	0.2687***				
			(76.13)	(77.08)				
$DIVTA_{t-1}$					0.6133***	0.6157***		
					(2241.76)	(243.05)		
$DIVMVE_{t-1}$							0.4883***	0.4914***
							(170.02)	(171.25)
MVE_{t-1}	0.0314***	0.0297***	0.0265***	0.0243***	0.0665***	0.0598***	0.0886***	0.0799***
	(45.44)	(43.45)	(39.81)	(37.02)	(32.10)	(29.24)	(39.21)	(35.81)
LEV_{t-1}	−0.0145***	−0.0134***	−0.0290***	−0.0277***	−0.1035***	−0.0988***	−0.1046***	−0.0990***
	(−4.59)	(−4.24)	(−9.31)	(−8.86)	(−11.17)	(−10.07)	(−9.90)	(−9.33)
$RETA_{t-1}$	−0.0000	0.0018	0.0051***	0.0025*	0.0176***	0.0251***	0.0079	0.0024
	(−0.01)	(1.24)	(3.47)	(1.69)	(3.87)	(5.55)	(1.60)	(0.48)
ROA_{t-1}	0.1480***	0.1566***	0.1985***	0.2128***	0.4497***	0.4855***	0.5251***	0.5746***
	(13.45)	(14.22)	(18.02)	(19.33)	(13.26)	(14.30)	(14.21)	(15.53)

TABLE 7 (Continued)

	DIVD		*DIVEARN*		*DIVTA*		*DIVMVE*	
	Model (3)	**Model (4)**	**Model (5)**	**Model (6)**	**Model (5)**	**Model (6)**	**Model (5)**	**Model (6)**
	Coeff. (*t*-value)	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**
Variables	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**	**Column (5)**	**Column (6)**	**Column (7)**	**Column (8)**
MB_{t-1}	0.0141***	0.0149***	0.0228***	0.0241**	0.0251***	0.0211***	0.0359***	0.0404***
	(10.60)	(11.22)	(17.25)	(18.20)	(6.05)	(5.11)	(8.00)	(8.98)
$CFOVOL_{t-1}$	−0.1908***	−0.2040***	−0.0292***	−0.0535	−0.7113***	−0.0772***	−0.4347***	−0.5232***
	(−5.27)	(−5.62)	(−0.82)	(−1.49)	(−6.37)	(−6.90)	(−3.58)	(−4.29)
$TANG_{t-1}$	−0.0178***	0.0098	−0.0127	−0.0233***	−0.1809***	−0.0696***	−0.1726***	−0.0281
	(−2.05)	(1.12)	(−1.49)	(−2.68)	(−6.75)	(−2.58)	(−5.91)	(−0.95)
$CASHI_{t-1}$	−0.1205**	0.0115	−0.0102	0.0016	0.0926**	0.1290***	0.0014	0.0488
	(−5.23)	(0.93)	(−0.85)	(0.13)	(2.48)	(3.38)	(0.03)	(1.17)
Intercept	0.0028	0.0424**	0.1623***	0.0651***	0.3362***	0.0515	0.3479***	−0.0244
	(0.23)	(2.36)	(8.89)	(3.65)	(5.92)	(0.93)	(5.62)	(−0.40)
Year_FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry_FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR (1)	−101.11***	−101.08***	−104.69***	−104.81***	−109.18***	−109.23***	−107.11***	−107.22***
AR (2)	10.17	10.14	3.31	3.31	19.17	19.17	9.85	9.88
Sargan test (df)	19.61	21.67	39.68	44.74	46.07	48.69	34.70	38.49
Hansen statistics	36.10	36.60	24.52	24.55	35.61	40.12	39.13	32.12
Instruments	321	322	321	322	321	322	321	322

(Continues)

TABLE 7 (Continued)

	DIVD		*DIVEARN*		*DIVTA*		*DIVMVE*	
	Model (3)	**Model (4)**	**Model (5)**	**Model (6)**	**Model (5)**	**Model (6)**	**Model (5)**	**Model (6)**
	Coeff. (*t*-value)	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**
Variables	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**	**Column (5)**	**Column (6)**	**Column (7)**	**Column (8)**
Prob > *F*	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
N	60,246	60,246	59,559	59,559	60,246	60,246	60,246	60,246

Note: This table reports the GMM results of testing the relationship between business strategy and dividend payouts (hypothesis H2). Results are based on Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) strategy typology. Dividend payouts take four alternative measures: *DIVD* (a binary variable set equal to 1 if a firm paid dividends in a year; a proxy for propensity to pay dividends), *DIVEARN* (total dividends paid scaled by accounting earnings), *DIVTA* (total dividends paid scaled by total assets), and *DIVMVE* (total dividends paid scaled by market value of equity). All variable definitions appear in Table 1. Heteroscedasticity-robust standard errors clustered at firm-level are shown in parentheses. *, ** and *** represent significance levels of 10%, 5% and 1%, respectively (two-tailed tests).

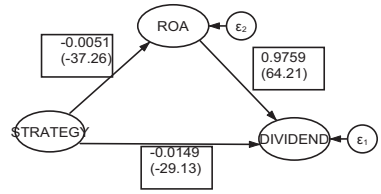
$$\Pr[DIDV]_{it} = \alpha_0 + \alpha_1 STRTEGY_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \quad (3);$$

$$\Pr[DIVD]_{it} = \alpha_0 + \alpha_1 PROSPECTOR_{it} + \alpha_2 DEFENDER_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \quad (4);$$

$$DIVPAYOUT_{it} = \beta_0 + \beta_1 STRATEGY_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \quad (5);$$

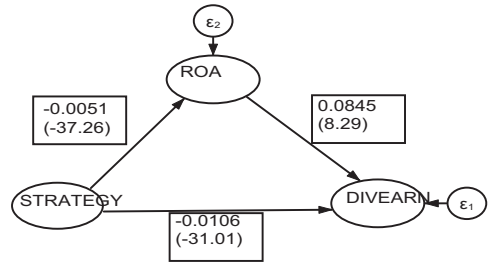
$$DIVPAYOUT_{it} = \beta_0 + \beta_1 PROSPECTOR_{it} + \beta_2 DEFENDER_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \quad (6).$$

TABLE 8 Mediation analysis for firm performance models.



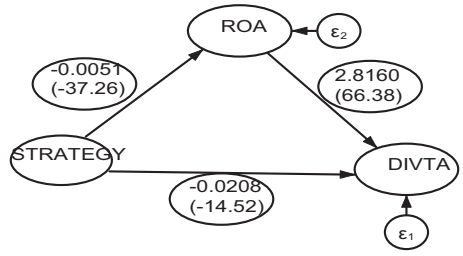
Panel A: Mediation model for *ROA*, *STRATEGY* and *DIV_D*

Effect of *STRATEGY* on *DIV_D*	Effect coefficient	*t*-statistics	Effect percentage
Direct effect	0.015	−29.13	74.88%
Indirect effect	0.005	−32.23	25.12%
Total effect	0.020	−38.04	100%



Panel B: Mediation model for *ROA*, *STRATEGY* and *DIVEARN*

Effect of *STRATEGY* on *DIVEARN*	Effect coefficient	*t*-statistics	Effect percentage
Direct effect	0.011	−31.01	96.10%
Indirect effect	0.000	−8.09	3.90%
Total effect	0.011	−32.64	100%

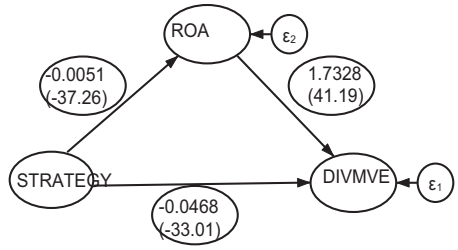


Panel C: Mediation model for *ROA*, *STRATEGY* and *DIVTA*

Effect of *STRATEGY* on *DIVTA*	Effect coefficient	*t*-statistics	Effect percentage
Direct effect	0.021	−14.52	58.98%
Indirect effect	0.014	−32.49	41.02%
Total effect	0.011	−24.03	100%

(Continues)

TABLE 8 (Continued)



Panel D: Mediation model for *ROA*, *STRATEGY* and *DIVMVE*

Effect of *STRATEGY* on *DIVMVE*	Effect coefficient	*z*-statistics	Effect percentage
Direct effect	0.047	−33.01	84.0%
Indirect effect	0.009	−27.63	16.0%
Total effect	0.056	−39.18	100%

is relatively stable over the life of the firm and prospectors rarely pay dividends. In contrast, our business life-cycle analysis suggests that mature prospectors indeed pay dividends. Further untabulated analysis suggests that prospectors (defenders) in our sample paid dividends on average once in every 5 (2) years.

6.4 | Dividends, free cash flows and financial constraints

In this section, we attempt to identify two conditions that are likely to affect the relation between business strategy and dividend payouts. These are free cash flows and financial constraints. Firms with substantial free cash flows (FCF) can be under pressure to pay dividends (Lang & Litzenberger, 1989). We argue that a firm has substantial FCF if it generates excessive cash flows from operations but lacks investment opportunities. Following Koo et al. (2017), we modify Models (3) and (5) by incorporating a measure of substantial FCF. We measure substantial FCF (*H_FCF_PROB*) as an indicator variable set equal to 1 if (a) the operating cash flow in a firm-year is higher than the 75th percentile of the industry-adjusted operating cash flow and (b) Tobin's Q is lower than the 25th percentile of the industry-adjusted Tobin's Q based on four-digit SIC code.

Panel A of Table 10 reports the results of testing the impact of substantial FCF on the association between dividend payouts and strategy; the variable of interest is *STRATEGY* × *H_FCF_PROB*. In all four estimates, we find that the coefficient of *STRATEGY* × *H_FCF_PROB* is positive and statistically significant (*t*-statistic = 4.12, 3.56, 4.08 and 3.91, respectively). These results suggest that the presence of substantial FCF reduces the difference in dividend payouts between prospectors and defenders.

In Panel B of Table 10, we report the results of testing the impact of financial constraints on the association between strategy and dividend payouts. We conjecture that firms are less likely to pay dividends when facing severe financial constraints. We measure the severity of financial constraints (*FIN_CONS*) as an indicator variable set equal to 1 if the KZ index (Kaplan & Zingales, 1997) for a firm-year is greater than the 75th percentile of the annual sample of the KZ index scores. The variable of interest is *STRATEGY* * *FIN_CONS*. In all four estimates, we find that the coefficients of *STRATEGY* * *FIN_CONS* are negative and statistically significant (*t*-statistic = −2.86, −3.02, −2.91, −3.07, respectively). These results suggest that the presence of severe financial constraints enlarges the difference in dividend payouts between prospectors and defenders.

TABLE 9 Business strategy, life cycle and dividend payouts.

	DIVD		*DIVEARN*		*DIVTA*		*DIVMVE*	
	Model (3)		**Model (5)**		**Model (5)**		**Model (5)**	
	Coeff. (*t*-value)	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**
Variables	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**	**Column (5)**	**Column (6)**	**Column (7)**	**Column (8)**
STRATEGY	−0.0436***	−0.0284***	−0.0078***	−0.0085***	−0.0153***	−0.0208***	−0.0243***	−0.0297***
	(−10.44)	(−6.37)	(−12.36)	(−10.63)	(−9.59)	(−7.03)	(−11.11)	(−9.91)
FLC_MATURITY	0.0835		0.0206		0.2447***		0.2848***	
	(0.89)		(1.22)		(4.54)		(4.77)	
STRATEGY FLC_MATURITY*	0.0148***		0.0019**		0.0056*		0.0055*	
	(2.77)		(2.01)		(1.83)		(1.67)	
FLC_INTRO		−0.2691		−0.0647**		−0.4314***		−0.4961***
		(−1.45)		(−2.40)		(−6.26)		(−5.95)
FLC_GROWTH		−0.1236		−0.0430**		−0.3202***		−0.3128***
		(−1.14)		(−2.26)		(−5.17)		(−4.65)
FLC_DECLINE		−0.0476		−0.0018		−0.2293*		−0.3469***
		(−0.18)		(−0.04)		(−1.86)		(−2.60)
FLC_SHAKE		0.0191		0.0779**		−0.0490		−0.0216
		(0.12)		(2.45)		(−0.46)		(−0.19)
STRATEGY FLC_INTRO*		−0.0069		0.0025*		0.0076**		0.0157***
		(−0.67)		(1.75)		(2.00)		(3.58)
STRATEGY FLC_GROWTH*		−0.0169***		−0.0013		−0.0039		0.0030
		(−2.76)		(−1.20)		(−1.14)		(0.83)
STRATEGY FLC_DECLINE*		−0.0168		0.0000		0.0019		0.0121*
		(−1.17)		(0.08)		(0.33)		(1.90)
STRATEGY FLC_SHAKE*		−0.0061		−0.0026		0.0013		0.0031
		(−0.67)		(−1.48)		(0.21)		(0.50)

(Continues)

TABLE 9 (Continued)

	DIVD		*DIVEARN*		*DIVTA*		*DIVMVE*	
	Model (3)		**Model (5)**		**Model (5)**		**Model (5)**	
	Coeff. (*t*-value)	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**
Variables	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**	**Column (5)**	**Column (6)**	**Column (7)**	**Column (8)**
$DIVD_{t-1}$	1.7382***	1.7342***						
	(85.04)	(84.63)						
$DIVEARN_{t-1}$			0.0011**	0.0006				
			(1.98)	(1.38)				
$DIVTA_{t-1}$					0.5422***	0.5364***		
					(71.87)	(71.34)		
$DIVMVE_{t-1}$							0.4867***	0.4821***
							(65.31)	(64.86)
MVE_{t-1}	0.1881***	0.1956***	0.0182***	0.0219***	0.0803***	0.0904***	0.0241***	0.0309***
	(26.24)	(26.75)	(17.75)	(19.08)	(19.97)	(22.03)	(5.76)	(7.28)
LEV_{t-1}	−0.2368***	−0.2165***	−0.0482***	−0.0239*	−0.2828***	−0.2648***	−0.1162**	−0.0990**
	(−2.93)	(−2.68)	(3.36)	(−1.69)	(−6.22)	(−5.85)	(−2.39)	(−2.04)
$RETA_{t-1}$	0.0846***	0.0832***	0.0161***	0.0088***	0.0191**	0.0236***	0.0170**	0.0195**
	(4.40)	(4.30)	(7.28)	(3.80)	(2.42)	(2.98)	(2.20)	(2.49)
ROA_{t-1}	−0.1497	−0.1426	0.0292*	0.0237	−0.0396	−0.0036	0.1706***	0.1901***
	(−1.23)	(−1.17)	(1.76)	(1.45)	(−0.72)	(−0.07)	(3.07)	(3.40)
MB_{t-1}	−0.0412***	−0.0428***	−0.0056***	−0.0002	0.0229***	0.0221***	0.0354***	0.0336***
	(−3.34)	(−3.46)	(−3.07)	(−0.13)	(3.22)	(3.13)	(5.61)	(5.33)
$CFOVOL_{t-1}$	0.3734	−0.4337*	−0.3503***	−0.2669***	−0.3415***	−0.3594***	−0.4461***	−0.4135***
	(1.51)	(1.75)	(−9.73)	(−7.45)	(2.71)	(2.86)	(−3.51)	(−3.26)
$TANG_{t-1}$	0.0452	0.0899	0.1189***	0.0010	−0.0458	0.0028	−0.0998**	−0.0638
	(0.56)	(1.11)	(12.96)	(0.08)	(−0.98)	(0.06)	(−2.04)	(−1.30)

TABLE 9 (Continued)

	DIVD		*DIVEARN*		*DIVTA*		*DIVMVE*	
	Model (3)		**Model (5)**		**Model (5)**		**Model (5)**	
	Coeff. (*t*-value)	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**	**Coeff. (*t*-value)**
Variables	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**	**Column (5)**	**Column (6)**	**Column (7)**	**Column (8)**
$CASHI_{t\text{-}1}$	0.0001***	0.0000***	0.0001***	0.0000***	0.0002***	0.0001***	0.0003***	0.0002***
	(3.31)	(2.47)	(7.35)	(8.42)	(6.90)	(5.49)	(11.18)	(10.04)
Intercept	−0.7854***	−0.7554***	0.18843***	0.4244***	0.3985***	0.6104***	1.0146***	1.2544***
	(−3.82)	(−3.65)	(14.46)	(10.37)	(3.13)	(4.64)	(7.93)	(9.46)
Year_FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry_FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2/Adj. R^2	0.4990	0.5010	0.1848	0.1922	0.5130	0.5179	0.4328	0.4417
N	57,598	57,598	57,598	57,598	57,598	57,598	57,598	57,598

Note: This table reports the results of testing hypothesis H2. Columns (1) and (2) report the logistic regression results of testing the relation between business strategy and the propensity to pay dividends. Columns (3)–(8) report the OLS regression results of testing the relation between business strategy and dividend payouts. Results are based on Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) strategy typology. The dependent variable is measured in four ways: *DIVD* (set equal to one if a firm paid dividends in a year, and zero otherwise; a proxy for propensity to pay dividends), *DIVEARN* (total dividends paid scaled by accounting earnings), *DIVTA* (total dividends paid scaled by total assets), and *DIVMVE* (total dividends paid scaled by market value of equity). All variable definitions appear in Table 1. Heteroscedasticity-robust standard errors clustered at firm-level are shown in parentheses. *, ** and *** represent significance levels of 10%, 5% and 1%, respectively (two-tailed tests).

TABLE 10 Dividends, free cash flows and financial constraints.

Panel A: The effect of strategy on dividends in the environment of substantial free cash flows (*H_FCF_PROB*)

	Model (3)	Model (5)	Model (5)	Model (5)
	DIVD	*DIVEARN*	*DIVTA*	*DIVMVE*
Variable(s)	Coefficient (*t*-value)	Coefficient (*t*-value)	Coefficient (*t*-value)	Coefficient (*t*-value)
STRATEGY	−0.0024****	−0.0059***	−0.0039***	−0.0046***
	(−16.23)	(17.12)	(−13.27)	(−18.75)
H_FCF_PROB	−0.0018	−0.0018***	−0.0012***	−0.0015***
	(0.24)	(2.82)	(3.04)	(2.97)
STRATEGY× *H_FCF_PROB*	0.0042***	0.0072***	0.0042***	0.0049***
	(4.12)	(3.56)	(4.08)	(3.91)
Intercept	0.0142	0.1174***	0.1314***	0.2478***
	(0.23)	(7.23)	(2.29)	(4.69)
Controls	Yes	Yes	Yes	Yes
Year_FE	Yes	Yes	Yes	Yes
Industry_FE	Yes	Yes	Yes	Yes
Pseudo R^2/Adj. R^2	0.8629	0.4922	0.8122	0.7421
N	60,246	59,559	60,246	60,246

Panel B: The effect of strategy on dividends in the environment of severe financial constraints based on the *KZ INDEX* (*FIN_CONS*) (Kaplan & Zingales, 1997)

	Model (3)	Model (5)	Model (5)	Model (5)
	DIVD	*DIVEARN*	*DIVTA*	*DIVMVE*
Variable(s)	Coefficient (*t*-value)	Coefficient (*t*-value)	Coefficient (*t*-value)	Coefficient (*t*-value)
STRATEGY	−0.0017****	−0.0023***	−0.0014***	−0.0021***
	(−6.13)	(−9.27)	(−8.29)	(−10.17)
FIN_CONS	−0.0009	−0.0010*	0.0006	−0.0007
	(−0.98)	(−1.69)	(1.52)	(−1.59)
STRATEGY× *FIN_CONS*	−0.0019***	−0.0025***	−0.0023***	−0.0027***
	(−2.86)	(−3.02)	(−2.91)	(−3.07)
Intercept	0.0157	0.1921***	0.1431***	0.1809***
	(1.62)	(5.21)	(3.12)	(4.96)
Controls	Yes	Yes	Yes	Yes
Year_FE	Yes	Yes	Yes	Yes
Industry_FE	Yes	Yes	Yes	Yes
Pseudo R^2/Adj. R^2	0.8121	0.5001	0.8103	0.7117
N	60,246	59,559	60,246	60,246

Note: In both panels, the results are based on Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) strategy typology. In both panels, Model (3) is estimated using logistic regression. All other models are estimated using OLS regression. Dividend payouts take four alternative measures: *DIVD* (a binary variable set equal to 1 if a firm paid dividends in a year; a proxy for propensity to pay dividends), *DIVEARN* (total dividends paid scaled by accounting earnings), *DIVTA* (total dividends paid scaled by total assets), and *DIVMVE* (total dividends paid scaled by market value of equity). *H_FCF_PROB* is an indicator variable used to capture substantial free cash flows. It is set equal to 1 if in a year: (1) a firm's cash flow from operation is greater than the 75th percentile of industry-adjusted cash flows from operations and (2) its Tobin's Q is lower than the 25th percentile of industry-adjusted Tobin's Q based on four-digit SIC. *FIN_CONS* is an indicator variable set equal to 1 for severe financial constraints. A firm is considered to have severe financial constraints in a year if the firm's *KZ INDEX* >75th percentile of the sample *KZ INDEX* in that year (Kaplan & Zingales, 1997). All variable definitions appear in Table 1. Heteroscedasticity-robust standard errors clustered at firm-level are shown in parentheses. *, ** and *** represent significance levels of 10%, 5% and 1%, respectively (two-tailed tests).

TABLE 11 Analysis based on analyser sample.

	Model (1)		Model (3)	Model (5)		
	CASH1	*CASH2*	*DIVD*	*DIVEARN*	*DIVTA*	*DIVMVE*
	Coeff. (*t*-value)	Coeff. (*t*-value)	Coeff. (*t*-value)	Coeff. (*t*-value)	Coeff. (*t*-value)	Coeff. (*t*-value)
Variables	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**	**Column (5)**	**Column (6)**
STRATEGY	0.0063***	0.0016***	−0.0304***	−0.0079***	−0.0199***	−0.0335***
	(17.45)	(8.61)	(−8.31)	(−13.88)	(−9.63)	(−15.72)
$CASH_{t-1}$	0.4308***	0.3492***	−0.2904***	−0.0404***	−0.0579**	−0.0914***
	(72.02)	(73.40)	(−6.69)	(−6.72)	(−2.42)	(−4.09)
$DIVD_{t-1}$			1.8023***			
			(97.29)			
$DIVEARN_{t-1}$				0.3679***		
				(55.81)		
$DIVTA_{t-1}$					0.5791***	
					(84.84)	
$DIVMVE_{t-1}$						0.4962
						(72.24)
SIZE	0.0132***	0.0055***				
	(21.98)	(16.95)				
MVE_{t-1}			0.1066***	0.0187***	0.0470***	0.0601***
			(18.80)	(20.54)	(13.60)	(16.66)
LEV	−0.0253***	−0.0295***				
	(−10.19)	(−22.08)				
LEV_{t-1}			−0.1850***	−0.0582***	−0.1760***	−0.2357***
			(−2.50)	(−4.95)	(−4.30)	(−5.40)
$RETA_{t-1}$			0.0658***	0.0215***	0.0025	0.0317***
			(4.37)	(12.28)	(0.41)	(5.25)
ROA			1.4041***	−0.3140***	1.0056***	0.0758*
			(13.34)	(−22.91)	(21.76)	(1.66)
MB	0.0096***	0.0171***				
	(8.30)	(27.69)				
MB_{t-1}			0.0288**	0.0055***	0.0269***	0.0224***
			(2.56)	(3.43)	(3.97)	(3.73)
WCAP	0.4807***	0.3750***				
	(71.89)	(98.44)				
CFOVOL	0.1638***	0.2223***				
	(6.67)	(16.48)				
$CFOVOL_{t-1}$			−0.2240	−0.1415***	0.0589	−0.3091***
			(−0.98)	(−4.72)	(0.51)	(−2.71)
$TANG_{t-1}$			0.1493**	−0.0098	0.1219***	0.0157
			(2.05)	(−0.86)	(2.89)	(0.36)
LOSSHISTORY	0.0456***	0.0147***				
	(19.19)	(11.89)				

TABLE 11 (Continued)

	Model (1)		Model (3)	Model (5)		
	CASH1	*CASH2*	*DIVD*	*DIVEARN*	*DIVTA*	*DIVMVE*
	Coeff. (*t*-value)	Coeff. (*t*-value)	Coeff. (*t*-value)	Coeff. (*t*-value)	Coeff. (*t*-value)	Coeff. (*t*-value)
Variables	**Column (1)**	**Column (2)**	**Column (3)**	**Column (4)**	**Column (5)**	**Column (6)**
Intercept	−0.2577***	−0.1301***	−0.6924***	0.2511***	0.5925***	1.2124***
	(−12.56)	(−12.04)	(−4.02)	(7.63)	(5.87)	(10.67)
Year_FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry_FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2/Pseudo R^2	0.6138	0.6882	0.4810	0.2922	0.5078	0.4322
N	49,530	49,530	49,530	49,530	49,530	49,530

Note: This table reports the results of testing hypothesis H2. Columns (1) and (2) report the logistic regression results of testing the relation between business strategy and the propensity to pay dividends. Columns (3)–(6) report the OLS regression results of testing the relation between business strategy and dividend payouts. Results are based on Bentley et al.'s (2013) adaptation of the Miles and Snow (1978, 2003) strategy typology. The dependent variable is measured in four ways: *DIVD* (set equal to one if a firm paid dividends in a year, and zero otherwise; a proxy for propensity to pay dividends), *DIVEARN* (total dividends paid scaled by accounting earnings), *DIVTA* (total dividends paid scaled by total assets), and *DIVMVE* (total dividends paid scaled by market value of equity). All variable definitions appear in Table 1. Heteroscedasticity-robust standard errors clustered at firm-level are shown in parentheses. *, ** and *** represent significance levels of 10%, 5% and 1%, respectively (two-tailed tests)

$$CASH_{it} = \gamma_0 + \gamma_1 STRATEGY_{it} + \gamma_2 CASH_{it-1} + \gamma_3 SIZE_{it} + \gamma_4 LEV_{it} + \gamma_5 MB_{it} + \gamma_6 WCAP_{it} + \gamma_7 CFOVOL_{it} + \gamma_8 LOSSHISTORY_{it} + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \quad (1);$$

$$\Pr[DIDV]_{it} = \alpha_0 + \alpha_1 STRTEGY_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \quad (3);$$

$$DIVPAYOUT_{it} = \beta_0 + \beta_1 STRATEGY_{it} + \Sigma\alpha Controls + \Sigma\alpha Year + \Sigma\alpha Industry + \phi_{it} \quad (5).$$

6.4.1 | Business strategy and firm age

We tested whether business strategy proxies for firm age in cash holding and dividend payment decisions. We implemented this test following Higgins et al. (2015). In untabulated results, we found that the level of cash holding of older prospectors is not significantly different from that of younger prospectors. Older prospectors' propensity to pay dividends and dividend payouts were not significantly different from younger ones either. We observed similar pattern for defenders.

6.4.2 | Cash holding and dividend payouts of analysers

Analysers (strategy scores 13–23) share some of the traits of both prospectors and defenders. Hence, they are likely to be the majority of firms in any industry sample. Thus, we examine whether the cash holding and dividend payout decisions of the analyser sub-sample (n = 49,530 firm-years) are significantly different from those of prospectors and defenders. Table 11 reports the results of estimating Models (1), (3) and (5) using strategy as a composite score. In both measures of cash holding (*CASH1* and *CASH2*), the coefficients on *STRATEGY* (0.0063, 0.0016) are significantly positive at the 1% level (t-statistic = 17.45, 8.61, respectively). On the other hand, in all the four estimates of Models (3) and (5), the coefficients on *STRATEGY* (−0.0304, −0.0079, −0.0199, −0.0335) are all significantly negative at the 1% level (t-statistic = −8.31, −13.88, −9.63, −15.72, respectively). These results suggest that cash holding and dividend payout decisions of

analysers, which are close to prospectors in terms of the strategy score, are similar to those of prospectors. By inference, analysers that are close to defenders in terms of strategy scores will behave like defenders. Overall, our results for analysers are consistent with those of prospectors and defenders. The results we obtain for analysers enhance our confidence in the main results.

7 | CONCLUSION

Cash holdings and dividend payouts are two essential components of financial flexibility. On the other hand, organisation theory in the management literature suggests that a firm's business strategy permeates all its major decisions. Although a large body of literature exists on cash holdings and dividend payouts, the effects of business strategy on these two decisions are unclear. Thus, our knowledge of what drives cash holding and dividend payout decisions remains incomplete. In this study, we investigate how business strategy is fundamentally related to cash holdings and dividend payouts.

Following the management literature, we predict that differences in business environments, operating decisions and investing decisions create differential demands for cash holdings and incentives for dividend payouts between prospectors and defenders. Using a large US sample over the period 1992–2017, we find evidence consistent with our predictions. That is, prospectors (defenders) are likely to hold larger (smaller) amounts of cash than other firms. Moreover, prospectors (defenders) pay smaller (larger) amounts of dividends than others. Our results are robust to a battery of robustness checks including GMM estimates, mediation analysis, firm age and firm life cycle. In additional analysis, we find that the propensity to pay dividends increases for prospectors when faced with substantial free cash flows and declines for defenders when faced with severe financial constraints. Moreover, we find results that are consistent with our main findings when we test our models in a sub-sample of analysers. Our results are consistent across two measures of strategy, two estimation techniques, two measures of cash holding, four measures of dividend payouts and three alternative samples.

In sum, we contribute to the business strategy literature in management and the literature on cash holdings and dividend payouts in finance. We show that a firm's business strategy is a fundamental driver of its cash holdings and dividend payouts. The evidence we provide has implications for investors and analysts in terms of firm valuation and asset allocation.

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DATA AVAILABILITY STATEMENT

The data are available from the public sources cited in the text.

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APPENDIX A

A.1 | COMPONENT VARIABLES FOR STRATEGY SCORES

Variable	Description	Measure
Ratio of research and development to sales (*R&D_S5*)	Tendency to search for new products and services	Ratio of R&D expenditure to sales computed over a rolling prior five-year average.
Ratio of employees to sales (*EMP_S5*)	Effective utilisation of resources	Ratio of the number of employees to sales computed over a rolling prior five-year average.
Change in total revenue (*REV_S5*)	Historical growth or investment opportunities	One-year percentage change in total sales computed over a rolling prior five-year average.
Marketing to sales (*SGA_S5*)	Focus on exploiting new products and services	Ratio of selling, general and administrative expenses to sales computed over a rolling prior five-year average.
Employee fluctuation (σ (*EMP_S5*))	Organisational stability	Standard deviation of the ratio of employees to sales.
Capital intensity (*CAP_S5*)	Technological efficiency	Capital intensity is measured as net property, plant and equipment to total assets and computed over a rolling five-year average.