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Economic policy uncertainty and cash dividend policy: evidence from China

Chuanzhen Li¹, Liang Zhao²✉ & Yiwen Zhang¹

This paper investigates the impact of economic policy uncertainty (EPU) on the dividend policy of listed companies, alongside its underlying mechanisms. Based on a panel data compilation from 4421 Chinese listed companies spanning 2007 to 2021, the research demonstrates that EPU significantly increases the cash dividends of listed companies. Our findings resolve endogeneity issues and are robust to different variable definitions. The influence is more significant among smaller, non-state-owned companies, as well as those with lower equity concentration and lower financial constraints. We further find that EPU heightens investors' demand for dividends, increases agency costs, and reduces business growth opportunities to improve companies' dividend distribution tendency. Moreover, we find that increasing dividend payout when EPU increases is aligned with shareholders' wealth maximization objective.

¹School of Finance, Zhejiang Gongshang University, 310018 Hangzhou, China. ²School of Economics, Anhui University, 230039 Hefei, China.
✉email: phdfinance@163.com

Introduction

The Chinese government has taken a number of actions in recent years to address issues, including economic structural adjustments, slowing economic growth, and international financial instability (Ali et al., 2023; Pan et al., 2024), including monetary policy, fiscal policy, and industrial policy, aimed at smoothing economic cyclical fluctuations and maintaining stable and rapid economic development. However, economic policies have inherent uncertainties when faced with various macroeconomic objectives (Gong et al., 2023; Xiang et al., 2023). Existing research has found that EPU has macroeconomic implications, such as suppressing employment and causing macroeconomic volatility (Baker et al., 2016; Jens, 2017; Nagar et al., 2019). At the microeconomic level, studies have focused on various aspects, including the risk premium associated with corporate equity (Brogaard and Detzel, 2015), investments at the firm level (Dai et al., 2023), efficiency of corporate investments (Kong et al., 2022), cash holdings of corporations (Demir and Ersan, 2017), corporate transparency (Bird et al., 2017), bank liquidity hoarding (Berger et al., 2022), M&A activity at the corporate and macro levels (Bonaime et al., 2018), and quality of financial reporting, among others. Dividend policy has always been a hot topic in economic studies. Maintaining an appropriate level of cash dividends signifies responsible corporate management (Jiang et al., 2017). It is also an essential requirement for maintaining the long-term stability and development of capital markets (Chen et al., 2017; Yu et al., 2021). The subject of whether EPU affects publicly listed companies' dividend policies emerges. This analysis explores the issue from the standpoint of companies that pay cash dividends.

Following the development of the three main traditional dividend policy theories—"bird in hand theory" (Gordon, 1959), "dividend irrelevance theory" (Miller and Modigliani, 1961), and the "tax preference theory". Modern theories of dividend policy started to surface in the 1970s, including signaling theory (Ross, 1977), agency cost theory (Jensen, 1986), behavioral finance theory (Deshmukh et al., 2013), and the corporate lifecycle theory (DeAngelo et al., 2006). These theories have successively explained the motives behind companies paying dividends and their impact on firm value. Thus, do listed companies consider the impact of current macroeconomic policy fluctuations when formulating dividend policies? Moreover, dividend payouts are an important means for investors to receive returns (Tao et al., 2022). Besides, it serves as a signaling mechanism. A company's decision to pay out dividends is an indication of management's optimism in the company's future (Sun et al., 2023). Accordingly, it is essential to examine the effects of EPU.

As EPU escalates, listed companies face two choices regarding the distribution of cash dividends. First, EPU amplifies internal operational risks for companies and tightens external financing constraints (Akey and Lewellen, 2016; Akron et al., 2022). Companies tend to reduce cash dividend payments to mitigate the performance volatility risks stemming from EPU and reduce reliance on external financing. Second, during periods of rising EPU, growth opportunities at the corporate level may decrease, implying reduced capital requirements for the company (Datta et al., 2019). This situation might result in a reduced reliance on internal financing for the company and a heightened propensity to distribute cash dividends (Attig et al., 2021). From an investor's perspective, investors may demand more cash dividends to meet their cash needs when facing uncertainty (Liu et al., 2017). In response, listed companies may distribute more cash dividends to satisfy investor demands to prevent investors from "voting with their feet" (Sepúlveda Velásquez et al., 2023; Bilyay-Erdogan et al., 2023).

Using data from 2007 to 2021 and the China EPU Index measured by Huang and Luk (2020), we examine the relationship

between EPU and cash dividend distribution in our study. Our empirical research finds that EPU significantly increases the cash dividends of listed companies. The result exhibits resilience following extensive robustness testing and endogeneity analysis employing instrumental variables in accordance with prior research methodologies (Gulen and Ion, 2016; Attig et al., 2021). Smaller businesses mostly show a substantial positive correlation between EPU and cash dividend policy, according to heterogeneity analysis. Meanwhile, this impact is more pronounced in non-state-owned companies, companies with lower equity concentration, and those with lower financing constraints. We analyze the mechanisms from growth opportunities, agency costs, and investors' dividend demand. We find that EPU reduces the growth opportunities for companies while increasing agency costs and investors' dividend demands, thereby promoting the implementation of a positive cash dividend policy. Furthermore, according to our analysis, a positive cash dividend policy can contribute to firm value growth, implying that the detrimental effects of EPU on firm value can be mitigated by cash dividend payments.

Our investigation extends the existing research by presenting the following contributions. Firstly, this paper expands on the body of knowledge regarding the impact of EPU on corporate policy. Previous studies have highlighted that EPU has a significant and widespread detrimental impact on the economy (Julio and Yook, 2012; Baker et al., 2016). Currently, there is considerable research on how EPU affects corporate policies in various aspects. For instance, EPU has a variety of effects on business practices, including a decrease in merger and acquisition activities (Bonaime et al., 2018), increasing cash holdings (Demir and Ersan, 2017; Duong et al., 2020), and decreasing investment behaviors (Stokey, 2016; Kim and Kung, 2017). From the viewpoint of dividend policies in publicly listed companies, this study shows that EPU has a positive impact on cash dividend policies, increasing these companies' inclination to pay out cash dividends as well as scale.

Secondly, this article enriches the relevant research on factors influencing corporate dividend policies. Existing literature has mostly examined factors influencing corporate dividend policies, focusing on aspects such as corporate governance structure and management characteristics (Lie, 2005; Leary and Michaely, 2011; Brockman et al., 2014; David and Ginglinger, 2016; Herdhayinta et al., 2021), while the connection between macroeconomic factors and corporate dividend policies has received comparatively less attention in prior research. Our study focuses on investigating the impact of EPU arising from frequent government policy adjustments on dividend policies.

Finally, we enrich the literature on the marginal value of a positive firm's dividend strategies. Existing research indicates that EPU has inhibited corporate investment (Kim and Kung, 2017) and decreased the desire for corporate mergers and acquisitions (Bonaime et al., 2018), having a negative effect on the value of the company (El Ghouli et al., 2021; Javadi et al., 2021; Yousefi and Yung, 2022; Wang et al., 2023). This study shows that companies tend to adopt an active cash dividend policy during periods of elevated EPU. A positive cash dividend policy helps to increase firm value; the idea behind it is to offset the negative impact that EPU exerts on a company's worth. Specifically, increasing dividend payout during periods of EPU elevation is aligned with shareholders' wealth maximization objective.

The remaining sections of this article are arranged as follows: Section "Literature review and hypothesis development" consists of the literature review and hypotheses development. Section "Data and model setting" covers data selection and empirical analysis models. Section "Empirical results and analysis" presents

empirical results and analysis. Section “Heterogeneity analysis, mechanism, and further research” discusses heterogeneity analysis, and section “Conclusions” concludes the article with policy recommendations.

Literature review and hypothesis development

EPU and its implications. After the global financial crisis, countries increased their market intervention efforts to prevent another recession. They frequently implemented various stimulative economic policies, which was particularly evident in China as it underwent an economic slowdown, structural transformation and upgrading, and continued market-oriented reforms. These economic intervention policies have created more significant uncertainty for businesses (Ashraf and Shen, 2019). Consequently, companies have had to closely monitor policy changes and adjust their development strategies and operational decisions accordingly.

Previous scholars have extensively studied how EPU influences firms’ investment and financing behavior from different perspectives. Regarding investment, most studies have primarily centered on the constraining effect of EPU on investment behavior (Julio and Yook, 2012; Kang et al., 2014; Stokey, 2016; Jens, 2017). Firstly, the option of deferring investment decisions becomes more valuable when EPU rises. Since most investment projects involve irreversibility and high sunk costs, the expected return on delayed investment rises with increasing EPU. This implies that in periods of rising EPU, companies tend to reduce their current investments (Gulen and Ion, 2016). Moreover, EPU diminishes firms’ investment efficiency (Kong et al., 2022; Akron et al., 2022), and the suppressive impact on fixed asset investment is intensified (Kim and Kung, 2017). Secondly, elevated EPU may adversely affect collateral’s market value, which reduces the accessibility of financing for companies and ultimately leads to a decline in investment levels (Liao and Mehdiyan, 2016; Chen et al., 2018a). In this context, investment primarily refers to long-term asset investments focusing on fixed assets, and it does not involve issues related to the term structure of investments.

Regarding financing, current research mainly emphasizes the influence of EPU on three aspects of businesses: financing constraints, financing costs, and debt levels. Firstly, rising EPU exacerbates the financing constraints faced by businesses (Ashraf and Shen, 2019; Tabash et al., 2022). Secondly, rising EPU increases the financing costs for firms (Francis et al., 2014; Li and Qiu, 2021). This is because increased uncertainty intensifies the information asymmetry between firms and creditors (Stolbov and Shchepeleva, 2020). As a self-protection measure, creditors raise interest rates or increase loan approval difficulty. Thirdly, an increase in EPU suppresses the supply of loans (Li and Qiu, 2021), reducing businesses’ debt levels (Arouri et al., 2016). Due to budget constraints, collateral resources, and size discrimination, the debt ratios may exhibit a phenomenon where state-owned companies experience an increase in debt ratios. In contrast, non-state-owned companies see a decrease. Additionally, rising EPU causes financial intermediaries to be more cautious in lending, resulting in higher adjustment costs for companies and forcing them to slow down the pace of restructuring their capital structures (Li and Qiu, 2021).

In addition to a company’s investment and financing policies, the dividend policy is crucial for investors, particularly small and medium-sized investors, to obtain returns. The appropriate level of cash dividends not only signifies management’s commitment to shareholders but also plays a critical role in ensuring the capital market’s sustainable and continual development.

Factors influencing corporate dividend policy. Dividend distribution is a core aspect of financial management for listed companies and a significant source of immediate income for investors (Faccio et al., 2001; Floyd et al., 2015; Atanasov and Mandell, 2018). Existing research primarily emphasizes the examination of factors shaping firms’ dividend behavior across three distinct levels: institutional background, industry environment, and the characteristics of the company itself, and has achieved significant academic accomplishments.

Considering the ownership type, government-controlled companies often bear more policy-related burdens. They must retain a larger cash flow scale to fulfill policy objectives. Therefore, companies characterized by a higher degree of government control or state ownership tend to make smaller cash payments (Abdelsalam et al., 2008). The level of mixed ownership exhibits a strong positive correlation with cash dividend payout. In other words, greater diversification among shareholder categories and in the extent of shareholding leads to a larger scale of cash dividend distribution and an increased readiness to distribute dividends. The degree of ownership concentration also affects the extent to which a company pays cash dividends. Dividend distribution functions as a method of disbursing corporate earnings based on the shareholding proportion of all shareholders; this approach reduces the control of majority shareholders over cash flows and prevents them from undermining and plundering the interests of minority shareholders. Companies characterized by higher ownership concentration, driven by the motive to maximize their interests, may reduce the scale of cash dividend distribution (Porta et al., 2000; Gugler and Yurtoglu, 2003).

Hypothesis development. Prior research has explored how EPU affects a variety of organizational strategies. Nguyen and Phan (2017) investigate how company mergers and acquisitions are affected by policy uncertainty, identifying a substantial adverse correlation between policy uncertainty and the prevalence of these activities among firms. Similarly, Javadi et al. (2021) illustrate that American companies increase their cash reserves as a precautionary measure in response to heightened policy uncertainty. This research highlights a clear correlation between the inclination to hoard more cash and policy uncertainty. Investment decisions are an important part of corporate policy. The study of Julio and Yook (2012) indicates that political uncertainty results in firms’ reduction of investment. Examining the impact of EPU on company cash dividend policies enriches our comprehension of business and market behaviors amidst macroeconomic volatility. It can provide valuable insights for investors and corporate shareholders.

In our study, the influence of EPU on the cash dividend strategies of publicly listed companies is characterized as follows: First, EPU increases the company’s operating risks and information asymmetry (Akey and Lewellen, 2016; Chi and Li, 2017), worsens the company’s external operating environment (Liao and Mehdiyan, 2016; Kaviani et al., 2020), reduces growth opportunities, and reduces growth potential (Prüser and Schlösser, 2020; Ali et al. 2023). Second, EPU will increase the company’s agency costs (Attig et al., 2021). Companies can help reduce management’s excessive consumption by implementing active cash dividend distribution policies, thereby mitigating such agency costs (Bilyay-Erdogan et al., 2023). Finally, from an investor’s perspective, heightened EPU escalates the risk associated with securing future investment returns (Julio and Yook, 2012; Stokey, 2016). Investors are more likely to choose cash dividends with relatively lower risks (Attig et al. 2021), thus increasing the demand for cash dividends. Therefore, companies tend to choose

active cash dividend policies to compensate investors, which results in a higher payout ratio. Drawing from the analysis above, we put forward the subsequent hypotheses:

H1: *EPU has a positive impact on the cash dividend policy.*

In the subsequent analysis, we explore whether the effects of EPU on companies' cash dividend policies exhibit heterogeneity due to differences in company size. We expect that EPU will stimulate smaller companies to pay out more cash dividends. The main reasons are as follows: Firstly, small companies in the market usually lack brand recognition and a reputation foundation, coupled with the absence of the scale and resource advantages of large companies (Zhu et al., 2020). During periods of economic policy uncertainty, small enterprises can showcase their stable profitability and good operational conditions to investors through the distribution of cash dividends, thereby gaining trust and support from investors (Sepúlveda Velásquez et al., 2023). Secondly, smaller enterprises typically have limited financing channels and relatively higher financing costs. In a period of rising EPU, small enterprises may face greater financing pressures (Kaviani et al., 2020). By paying cash dividends, small enterprises can optimize their capital structure, reduce debt burdens, enhance debt-paying ability, and lay the groundwork for future financing activities (Leary and Michaely, 2011). Thirdly, small enterprises are often more vulnerable and fragile, lacking the extensive reserves and diversified operations of large firms. In times of heightened EPU, small companies may be inclined to adopt conservative financial strategies (Julio and Yook, 2012) to reduce potential risks (El Ghouli et al., 2021). Distributing cash dividends is a way to return funds to shareholders, reducing financial pressure quickly (Luo et al., 2017; Attig et al., 2021). Based on the preceding analysis, the following hypothesis is proposed:

H2: *Small companies will pay more cash dividends than large companies during periods of EPU.*

The influence of EPU in shaping companies' cash dividend policies may exhibit heterogeneity due to differences in the nature of ownership (William Bradford, 2013). In times of heightened EPU, it is projected that non-state-owned firms may lean towards a more generous distribution of cash dividends, unlike state-owned firms. The reasons are as follows: Firstly, shareholders within non-state-owned enterprises typically prioritize short-term returns and value maximization. During periods of EPU, companies may face greater investment risks and uncertainty (Jens, 2017; Chen et al., 2018b). Distributing cash dividends can serve as a way to reward shareholders, ensure immediate returns, reduce investment risks, and enhance shareholder loyalty and trust. Secondly, agency issues, particularly conflicts between management and shareholders, tend to be more acute in non-state-owned enterprises. Agency problems may become more prominent during EPU episodes. Distributing cash dividends may serve as a strategy to mitigate agency conflicts (Jensen, 1986), incentivizing management to pay more attention to shareholder interests and reducing opportunistic behavior by management. Thirdly, investors may place greater emphasis on the stability and reliability of companies during periods of EPU. In order to maintain performance stability, non-state-owned enterprises may focus more on investor relations management and establish good relationships with investors through the disbursement of cash dividends. In contrast, state-owned enterprises, with the government as their primary investor, typically enjoy certain policy support and financing advantages, diminishing the effects of EPU on their operations. Drawing from the preceding analysis, we propose the following hypotheses:

H3: *Non-state-owned companies will pay more cash dividends than state-owned companies during periods of EPU.*

Furthermore, we explored the potential variation in how EPU affects firms' cash dividend policies across various levels of equity concentration. We expect that EPU will lead to higher cash dividend payouts in companies with lower equity concentration, mainly for the following reasons: Firstly, distributing cash dividends helps balance shareholder interests (Porta et al., 2000). In companies with low equity concentration, each shareholder holds a relatively small stake, which requires more attention to balancing the interests of different shareholders. Distributing cash dividends can be seen as a fair way to allocate benefits to all shareholders, contributing to maintaining shareholder relationships and enhancing trust in the company (Dittmar et al., 2003). Secondly, paying cash dividends serves to mitigate agency costs (Jensen, 1986). In companies characterized by low equity concentration, higher agency costs may exist due to weaker shareholder control over the company. Agency problems refer to the possibility that managers may pursue personal interest maximization, disregarding the interests of shareholders. To mitigate agency problems, shareholders often take incentive measures, one of which is distributing cash dividends (Brockman and Unlu, 2009). By paying cash dividends, companies can signal to shareholders that management is actively working to maximize shareholder interests, thereby enhancing trust. Thirdly, paying cash dividends is a conservative financial strategy. Considering that EPU increases the difficulty and risk of future investment decisions for companies (Gulen and Ion, 2016; Jens, 2017), companies with low equity concentration may become more cautious in such an environment as they need to consider the interests and expectations of many shareholders. Distributing cash dividends can serve as a conservative financial strategy (Kang et al., 2014), returning excess funds directly to shareholders instead of engaging in risky investments (Porta et al., 2000). In summary, the combined effect of these factors makes companies with lower equity concentration more likely to pay cash dividends during periods of EPU. Following the analysis presented above, the following hypotheses are proposed:

H4: *Companies with low equity concentration will pay more cash dividends than companies with high equity concentration during periods of EPU.*

Finally, does the impact of EPU on firms' cash dividend payouts exhibit heterogeneity due to different levels of firms' financing constraints? EPU may lead to a tighter external financing environment for companies (Çolak et al., 2017), thereby significantly affecting firms already facing high financing constraints (Datta et al., 2019). However, companies with low financing constraints typically have robust financial conditions and ample internal cash flows, giving them the confidence and ability to decide whether to pay cash dividends. Firstly, investors may reduce their confidence in companies during periods of EPU (Temple et al., 2001). Companies with low financing constraints tend to pay cash dividends to signal good financial health and stable operations to investors, thereby maintaining relationships with shareholders and stabilizing stock prices. Secondly, companies facing fewer financial restrictions maintain lower leverage ratios. During periods of EPU, companies can strategically modify their capital structure by paying cash dividends and preparing for future expansion or investment. Thirdly, EPU increases corporate operational risks (Bloom, 2007). Therefore, companies with low financing constraints may view cash dividend distribution as a risk management strategy to reduce operational risks and ensure cash flow stability (Kang et al., 2014). Thus, the presence of EPU contributes positively to the cash dividend strategies of companies with low financing constraints. Drawing from the preceding analysis, we propose the subsequent hypotheses:

H5: *Companies with low financing constraints will pay more cash dividends than companies with high financing constraints during periods of EPU.*

Data and model setting

Data. Our research employs a dataset encompassing A-share companies listed on the Shanghai and Shenzhen stock exchanges between 2007¹ and 2021 as its sample base. Following previous research (Xu et al., 2021; Titman et al., 2022), the following criteria are used to filter the original sample: (1) Exclude companies with simultaneous issuance of H-shares or B-shares representing foreign shares. (2) Remove data from financial and insurance companies. (3) Exclude samples with abnormal financial conditions, such as companies marked with ST or ST-plus. (4) Delete data for companies in their listing year. (5) Remove observations with negative net assets or missing data. Furthermore, to mitigate the influence of biases caused by extreme outliers, a winsorization method was applied to all continuous variables by setting their values at the 1st and 99th percentiles.

The total sample of 4421 listed firms contains 38,601 company-year observations for the empirical study. The EPU data required for the study are derived from the China Economic Policy Uncertainty Monthly Index constructed by Huang and Luk (2020). Cash dividend distribution data is obtained from the CSMAR database, while other financial variables are acquired from the Wind database.

Model setting. To examine how EPU influences corporate dividend policies, this research formulates the following benchmark regression model:

$$\text{Cashdiv}_{i,t} = \alpha + \beta \text{EPU}_t + \gamma X_{i,t} + \mu_i + \varepsilon_{i,t} \quad (1)$$

In the given context, the subscript i represents the company, while t denotes the year. *Cashdiv* signifies the situation of companies distributing cash dividends, including their tendency and scale of cash dividend distribution. EPU stands for China's EPU. $X_{i,t}$ denotes a series of control variables; μ denotes the individual fixed effects of companies, capturing the unchanging individual heterogeneity characteristics. $\varepsilon_{i,t}$ represents the random disturbance term. Suppose the estimated coefficient β is significantly >0 ; it suggests that as EPU rises, companies tend to increase the scale of cash dividend distribution.

Due to the perfect collinearity between EPU and time-fixed effects (Nguyen and Phan, 2017), the baseline regression does not control for time-fixed effects. However, omitting year dummy variables as controls may overlook important unobservable factors. Therefore, this study includes macro-level control variables such as GDP growth rate (GDPGR), M2 growth rate (M2g), macroeconomic sentiment index (MESI), and consumer price index (CPI) to mitigate the omitted variable problem as much as possible.

Definition of variables

Dependent variables. Referring to existing research (Attig et al., 2021), we constructed the cash dividend payment variable as our explained variable, which measures the tendency and scale of cash dividend distribution. Dividend distribution tendency (Payer) is expressed as a dummy variable, Payer = 1 indicating listed company i pays cash dividends in year t , and vice versa. Cash dividend per share (Perdiv) is used to measure the absolute payment scale of cash dividends of listed companies, which is equal to the cash dividend per share distributed for the current year. Suppose no cash dividend is paid in the current year, Perdiv = 0. The dividend payout ratio (Payratio) measures the payment strength of cash dividends of listed companies, which is

equivalent to the ratio of cash dividends per share paid in the current year to earnings per share.

Explaining variable. The explaining variable EPU delineates the unpredictability surrounding China's economic directives. This paper draws on the research (Huang and Luk, 2020), which was based on the methodology introduced by Baker et al. (2016). This measure conducts an evaluation of China's leading ten newspapers, namely *Jinri Evening News*, *Guangzhou Daily*, *People's Daily Overseas Edition*, *Xinjing Daily*, *Shanghai Morning Post*, *Wenhui Daily*, *Beijing Youth Daily*, *Liberation Daily*, *Southern Metropolis Daily*, and *Yangcheng Evening News*. It identifies articles about the uncertainty of China's economic policies published monthly in these newspapers. In order to calculate this index, the procedure involves the quantification of articles focusing on this economic uncertainty, divided by the aggregate number of pieces each journal circulates monthly, followed by a normalization process. The index has undergone rigorous robustness tests to ensure its effectiveness in measuring China's EPU.

In this research, the EPU index is calculated by taking the arithmetic average of the monthly index values for each year and divided by 100, and a higher index value indicates a higher EPU.

Control variables. Following prior literature, our analysis adopts a selection of significant control variables at the firm level (Attig et al., 2021; Javadi et al., 2021; Akron et al., 2022; Sepúlveda Velásquez et al., 2023). In particular, we consider leverage ratio (Lev), profitability level (ROA), years of listing (Age), firm size (Size), earnings per share (EPS), ownership percentage of the largest shareholder (Share1), board size (Board), proportion of independent directors (Indir), CEO duality (Dual). In addition, some significant macroeconomic variables are considered: GDP growth rate (GDPGR), M2 growth rate (M2g), Macroeconomic Business Cycle Index (MESI), and Consumer Price Index (CPI). Table 1 contains detailed measurement methods.

Summary statistics. Table 2 provides an overview of the statistical characteristics pertaining to the principal variables engaged in the regression evaluation. Cash dividend payout tendency (Payer) averaged out at 0.7028, signifying the distribution of cash dividends to shareholders by 70.28% of the corporations during the sample period. Earnings per share (Perdiv) has a mean of 0.1273 and a standard deviation of 0.1861. This indicates that the scale at which dividends are distributed by a majority of publicly traded entities in China remains considerably modest, accompanied by notable discrepancies across various firms. The mean dividend payout ratio (Payratio) was 0.2452, and the median was 0.1957. On average, each listed company only distributed 24.52% of its net profit as cash dividends to investors. More than half of the listed companies had a dividend payout ratio of $<20\%$, illustrating a minimal scale of dividend dispersal among corporations listed in China. The average leverage ratio (Lev) was 43.07%, consistent with the sample period's situation of Chinese corporate leverage. The maximum value reached 100.32%, suggesting that the individual company was facing a situation of insolvency. The mean earnings per share (EPS) was 0.4178, showing significant differences in profitability (ROA) among different companies. This study introduces macro-level control variables into the model. The mean GDP growth rate (GDPGR) was 7.57%, with significant differences in GDP growth rates across different years. The mean M2 growth rate (M2g) was 12.41%, and the mean macroeconomic equilibrium sentiment index (MESI) was 0.976. The mean CPI was 0.024, and there were significant variations in CPI across different years.

Table 1 Definition of variables.

Variable	Method of measurement
Payer	Cash dividend payout tendency, the distribution of cash dividends by the company in the current year is denoted by a binary variable. If the company distributes cash dividends in the current year, the value is 1; if not, the value is 0.
Perdiv	Per share cash dividend, cash dividends per share distributed in the current year.
Payratio	Dividend payout ratio, dividing cash dividends per share by earnings per share.
EPU	Uncertainty of China's economic policies, the arithmetic mean of the EPU index calculated annually, obtained by averaging the monthly data over 12 months and then dividing by 100.
Size	Asset scale, equal to the logarithm of the asset scale.
Lev	Liability ratio, equals liquid assets divided by total assets.
Eps	Earnings per share, equals annual net profit to year-end total shares outstanding.
ROA	Return on the asset, defined as the ratio of net profit to total assets.
Share1	Percentage of ownership by the largest shareholder, the percentage of ownership by the largest shareholder divided by 100.
Age	Years of listing, the number of years from the current year to the IPO year plus 1.
Board	Board size, the natural logarithm of the count of formal members serving on the board of directors.
Indir	Proportion of independent directors, the ratio of independent directors at the end of the year to the total number of formal board members.
Dual	CEO duality, referring to the combination of the roles of CEO and chairman of the board, if the board chairman also serves as the general manager, Dual is assigned a value of 1; otherwise, Dual is assigned a value of 0.
GDPGR	GDP growth rate, the formula for assessing the rate of actual GDP growth involves the subtraction of last period's actual GDP from this period's, divided by the actual GDP of the preceding period.
M2g	M2 growth rate, the measure is calculated by subtracting the money supply of the preceding period from that of the current period, and then dividing the result by the money supply of the previous period.
MESI	Macroeconomic Business Cycle Index reflects the production and operational status of the enterprise and economic performance, and it predicts future trends in economic development.
CPI	Consumer Price Index measures the economic indicator of price changes for a basket of goods and services.

Table 2 Results of descriptive statistics.

Variable	Mean	SD	Min	Median	Max	N
EPU	1.3940	0.1497	0.9160	1.3659	1.6574	38,601
Payer	0.7028	0.4570	0.0000	1.0000	1.0000	38,601
Perdiv	0.1273	0.1861	0.0000	0.0600	1.0000	38,601
Payratio	0.2452	0.2765	0.0000	0.1957	1.5656	38,601
Size	22.0382	1.3273	18.8975	21.8619	26.0706	38,601
Lev	0.4307	0.2162	0.0505	0.4198	1.0032	38,601
Eps	0.4178	0.6474	-1.5147	0.3022	3.2487	38,601
ROA	0.0372	0.0704	-0.3346	0.0387	0.2205	38,601
Share1	0.3465	0.1496	0.0872	0.3246	0.7482	38,601
Age	10.5732	7.3769	0.0000	9.0000	28.0000	38,601
Board	2.1326	0.2000	1.6094	2.1972	2.7081	38,601
Indir	0.3741	0.0533	0.3000	0.3333	0.5714	38,601
Dual	0.2736	0.4458	0.0000	0.0000	1.0000	38,601
GDPGR	0.0757	0.0379	-0.0145	0.0751	0.1421	38,601
M2g	0.1241	0.0436	0.0827	0.1204	0.2650	38,601
MESI	0.9760	0.0233	0.9142	0.9790	1.0204	38,601
CPI	0.0240	0.0140	-0.0068	0.0214	0.0590	38,601

Empirical results and analysis

Baseline regression. In this paper, Model (1) is used for the main regression analysis, and the specific empirical results and standard errors adjusted for heteroscedasticity are detailed in Table 3. Columns (1)–(3) detail the outcomes of the univariate regressions, whereas the last three columns introduce enterprise-level and macro-level control variables. In all cases, the EPU Index coefficients are significant and positive at the 1% level. These results suggest that an increase in EPU correlates with a marked augmentation in both the probability of corporations delivering cash dividends and the magnitude of these distributions. Therefore, hypothesis H1 is supported. As discussed earlier, EPU may exert multiple adverse impacts on the economic environment (Baker et al., 2016; Wang et al., 2023) and reduce the chances for the company's growth (Kim and Kung, 2017; Yousefi and Yung, 2022). At the same time, it may increase agency costs for firms. In order to reward shareholders and reduce investment risks,

companies tend to adopt an active cash dividend policy when EPU increases.

The coefficient for firm size (Size) is positive in columns (4)–(6). This suggests that the firm's size significantly influences the distribution of cash dividends. The coefficient for leverage ratio (Lev) is consistently negative in columns (4)–(6), indicating that higher leverage levels significantly discourage firms from issuing cash dividends. The perspective of macro-level control variables all significantly influence the propensity of publicly traded firms to distribute cash dividends. The regression findings related to the other control variables match our initial predictions; therefore, these aspects have not been explored in depth in the present analysis.

Endogeneity analysis. The association between cash dividend policy and EPU could be concurrently influenced by

Table 3 The effect of EPU on corporate cash dividend distribution.

Variables	(1) Payer	(2) Perdiv	(3) Payratio	(4) Payer	(5) Perdiv	(6) Payratio
EPU	0.0843*** (6.97)	0.0177*** (4.79)	0.0411*** (5.50)	0.1048*** (6.97)	0.0228*** (5.16)	0.0477*** (5.10)
Size				0.0953*** (14.80)	0.0187*** (8.66)	0.0100*** (3.00)
Lev				-0.0041* (-1.77)	-0.0011* (-1.91)	-0.0024** (-2.19)
Eps				0.0001 (1.14)	0.0000 (1.03)	0.0000 (1.55)
ROA				0.0000** (2.05)	0.0000** (2.21)	0.0000** (2.29)
Share1				0.5796*** (11.66)	0.1929*** (10.51)	0.2762*** (10.45)
Age				-0.0346*** (-18.14)	-0.0019*** (-3.00)	-0.0097*** (-7.92)
Board				0.0332 (1.27)	0.0198** (2.05)	0.0004 (0.02)
Indir				-0.1585** (-2.11)	-0.0020 (-0.08)	-0.0892* (-1.95)
Dual				0.0285*** (3.24)	0.0085*** (2.87)	0.0085 (1.61)
GDPGR				-0.4840*** (-9.88)	0.0237 (1.27)	-0.1857*** (-5.45)
M2g				-1.8382*** (-15.20)	0.0661 (1.59)	-0.6012*** (-7.79)
MESI				0.0059 (0.03)	0.5340*** (9.26)	0.1682 (1.39)
CPI				-3.0395*** (-8.35)	-0.6918*** (-5.86)	-1.2861*** (-4.88)
Constant	0.5852*** (34.68)	0.1026*** (19.92)	0.1880*** (18.08)	-1.0648*** (-4.93)	-0.9209*** (-12.09)	-0.0483 (-0.35)
Observations	38,601	38,601	38,601	38,601	38,601	38,601
Company FE	Yes	Yes	Yes	Yes	Yes	Yes
r2_a	0.00	0.00	0.00	0.05	0.02	0.01
F	48.53	22.95	30.29	54.91	24.30	18.73

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level. The same applies to the following tables.

unobservable variables, which could potentially result in endogeneity issues characterized by omitted variable bias. Therefore, referring to the existing literature related to EPU (Datta et al., 2019; Javadi et al., 2021; Berger et al., 2022), we implement an Instrumental Variable (IV) regression approach to solve endogeneity concerns. For our analysis, we identify an instrumental variable that is significantly correlated with EPU yet unlikely to directly affect the cash dividend policy other than through its linkage with EPU. The United States is one of China’s most important trading partners. A polarized political atmosphere in the US may lead to changes and fluctuations in US trade policies, which will create uncertainty for China’s exporting companies and the overall economy. Therefore, referring to the existing research (Attig et al., 2021), we introduce a plausibly exogenous measure of polarization (Polar) defined as the product of political fractionalization and government opposition. We characterize political fractionalization as the likelihood of two deputies selected randomly from the legislature representing distinct political affiliations. Government opposition is expressed as the complementary value to the government’s share of seats in parliament (government support), calculated as 1 minus the government’s proportion of seats. We expect this measure to exhibit a significantly positive correlation with the EPU indices in China, thus meeting the criteria of relevance. Moreover, it seems unlikely that the level of political polarization (Polar) would affect the dividend strategies of companies in China through any pathways other than its influence on EPU, thus adhering to the exclusion restriction criterion.

Polar ranges between 0 and 1, with higher values indicating greater legislative division. We conduct a change regression employing a two-stage least squares methodology. The findings from both the first and second-stage regressions are detailed in Table 4. The variable Polar, serving as our instrument, is associated with a statistically significant positive effect. Kleibergen–Paap rk LM Underidentification test statistics reject the null hypothesis that the model is underidentified, suggesting that the model is effectively identified. Kleibergen–Paap Wald rk F statistic rejects the null that the model is weakly identified. As for the second stage, in alignment with our principal discovery in Table 3, the coefficient pertaining to the instrumented variable EPU_Instru is positively significant in statistical terms. Therefore, the analysis presented above mitigates

concerns regarding the possibility that our previous findings are influenced by endogeneity.

Robustness tests

Replacing the indicator for company cash dividend policy. In the previous analysis, this study mainly used the proxies for cash dividend policy, including the propensity to pay cash dividends (Payer), cash dividend per share (Perdiv), and dividend payout ratio (Payratio). These indicators have been widely used in relevant research. However, to mitigate selection bias in selecting indicators, following previous literature (Bilyay-Erdogan et al., 2023), the study verifies the results using two additional dependent variables: dividend sales ratio (Divsale) and dividend yield (Divy). Dividend yield (Divy) measures investment return. It is a simplified form of investment return, equal to the ratio of cash dividends per share paid in the year to the year-end stock price. Dividend sales ratio (Divsale) measures the relative payout scale of cash dividends by dividing the cash dividends per share paid in the year by the per-share sales revenue. The regression results reveal a positive and significantly high coefficient for EPU at the 1% significance level, which is displayed in columns (1) and (2) of Table 5. This indicates that EPU induces listed firms to increase cash dividends. Such findings demonstrate consistency and reliability across the analyses.

Replacing the indicator for EPU. Different measurement methodologies for the EPU index have been employed in this section to ensure the reliability and validity of the empirical findings. Firstly, considering that the response time of companies to EPU, such as cash dividend payouts, is relatively short, the data for the last month of the year, specifically December, was used as a proxy indicator for the year (EPUZ2). As evidenced in columns (3) and (4), the findings maintain their robustness. Secondly, in the baseline analysis, the EPU index used in this study is based on the data compiled by Huang and Luk (2020). In this section, the EPU index is replaced by the Economic Policy Uncertainty Index (EPUDavis) developed by Davis et al. (2019) based on the People’s Daily and Guangming Daily. The regression results using EPUDavis are presented in columns (5) and (6) of Table 5, where they remain unchanged. Consequently, this research’s outcomes demonstrate resilience to the specific methodology selected for quantifying EPU.

Table 4 Endogenous analysis: instrumental variable.

Variables	(1) First-stage EPU	(2) Second-stage Payer	(3) Second-stage Perdiv	(4) Second-stage Payratio
Polar	10.3904*** (470.54)			
EPU_Instru		0.1136*** (4.87)	0.0157** (2.16)	0.0492*** (2.95)
Size	0.0068*** (7.40)	0.0927*** (14.84)	0.0060*** (3.46)	0.0248*** (7.37)
Lev	-0.0494*** (-11.82)	-0.4027*** (-16.81)	-0.1074*** (-14.89)	-0.2758*** (-18.76)
Eps	-0.0015 (-1.01)	0.1605*** (19.84)	0.1739*** (31.77)	-0.0079* (-1.84)
ROA	-0.0221 (-1.61)	0.6095*** (9.93)	-0.5217*** (-18.55)	0.1445*** (5.15)
Share1	0.01226* (1.94)	0.3336*** (7.46)	0.0877*** (6.09)	0.2294*** (9.02)
Age	0.0291*** (74.96)	-0.0298*** (-15.59)	-0.0007 (-1.34)	-0.0092*** (-6.97)
Board	0.0047 (0.79)	0.0090 (0.35)	0.0099 (1.27)	-0.0075 (-0.45)
Indir	0.0298* (1.67)	-0.1666** (-2.22)	-0.0214 (-0.86)	-0.0923* (-1.84)
Dual	0.0041** (2.52)	0.0199*** (2.59)	0.0036 (1.47)	0.0065 (1.25)
GDPGR	-2.2138*** (-563.40)	-0.4594*** (-9.38)	-0.0028 (-0.16)	-0.1514*** (-4.30)
M2g	0.3467*** (18.61)	-1.7267*** (-14.22)	0.0070 (0.19)	-0.4789*** (-5.89)
MESI	-1.6806*** (-48.04)	-0.3743** (-2.17)	0.2429*** (4.61)	0.1941 (1.52)
CPI	8.3155*** (106.33)	-2.3282*** (-5.65)	-0.3418*** (-2.75)	-1.1617*** (-3.72)
Observations	38,164	38,164	38,164	38,164
Company FE	Yes	Yes	Yes	Yes
KP Wald F statistic	3.6e + 05			
LM statistics	2646.65***			

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level.

Table 5 Robustness tests.

Variables	(1) Divsale	(2) Divy	(3) Perdiv	(4) Payratio	(5) Perdiv	(6) Payratio
EPU	0.0044*** (4.18)	0.0019*** (6.25)				
EPUZ2			0.0197*** (4.04)	0.0350*** (3.00)		
EPUDavis					0.0077*** (3.84)	0.0107** (2.00)
Size	0.0015*** (3.28)	0.0011*** (7.11)	0.0060*** (3.47)	0.0249*** (7.39)	0.0062*** (3.57)	0.0252*** (7.45)
Lev	-0.0438*** (-19.82)	-0.0060*** (-10.92)	-0.1075*** (-14.88)	-0.2773*** (-18.82)	-0.1085*** (-14.99)	-0.2789*** (-18.89)
Eps	0.0093*** (13.69)	0.0045*** (17.00)	0.1739*** (31.77)	-0.0079* (-1.83)	0.1738*** (31.76)	-0.0080* (-1.85)
ROA	0.0201*** (4.10)	-0.0022 (-1.54)	-0.5214*** (-18.54)	0.1452*** (5.17)	-0.5201*** (-18.49)	0.1470*** (5.22)
Share1	0.0214*** (6.05)	0.0084*** (7.27)	0.0880*** (6.12)	0.2316*** (9.09)	0.0888*** (6.18)	0.2330*** (9.14)
Age	-0.0008*** (-5.86)	0.0000 (0.29)	-0.0010* (-1.87)	-0.0090*** (-6.98)	-0.0016*** (-2.65)	-0.0094*** (-6.44)
Board	-0.0013 (-0.66)	0.0007 (1.17)	0.0100 (1.28)	-0.0067 (-0.41)	0.0099 (1.26)	-0.0068 (-0.41)
Indir	-0.0136** (-2.21)	0.0005 (0.28)	-0.0213 (-0.85)	-0.0908* (-1.81)	-0.0214 (-0.86)	-0.0906* (-1.80)
Dual	0.0014** (2.13)	0.0000 (0.18)	0.0037 (1.48)	0.0067 (1.29)	0.0038 (1.55)	0.0070 (1.35)
GDPGR	-0.0237*** (-6.34)	-0.0097*** (-8.74)	-0.0122 (-0.76)	-0.1821*** (-5.41)	-0.0043 (-0.27)	-0.1716*** (-5.04)
M2g	-0.0177** (-1.97)	-0.0181*** (-7.58)	-0.0108 (-0.30)	-0.4742*** (-5.88)	-0.0329 (-0.90)	-0.4869*** (-5.78)
MESI	0.0692*** (5.49)	0.0421*** (12.12)	0.2544*** (5.06)	0.1247 (1.03)	0.0723 (1.40)	-0.1574 (-1.23)
CPI	-0.1349*** (-4.99)	-0.0181** (-2.33)	-0.3900*** (-3.52)	-0.9755*** (-3.55)	-0.1488 (-1.54)	-0.5437*** (-2.35)
Constant	-0.0483*** (-3.04)	-0.0598*** (-12.25)	-0.3805*** (-5.46)	-0.3229** (-2.06)	-0.1473** (-2.35)	0.0587 (0.42)
Observations	38,567	38,377	38,601	38,601	38,601	38,601
Company FE	Control	Control	Control	Control	Control	Control
Adj. R ²	0.12	0.14	0.32	0.03	0.32	0.03
F	92.59	134.00	137.41	53.86	135.46	53.59

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level.

Controlling for some specific periods. In the analysis of this study, we have controlled macro variables in order to mitigate the potential impact of time-related factors. Nevertheless, it is still possible that ignoring the time factor could affect the results. This study's sample period spans over 14 years, from 2007 to 2021. During this period, significant events occurred, such as 2008's worldwide financial crisis, the sharp rise and fall of the Chinese stock market in 2015, and the COVID-19 pandemic in 2020, which had profound impacts on China's economic landscape. To control the impact of abnormal events that occurred in the above years on the regression results, we introduced dummy variables (crisis, disaster, disease) for the corresponding event years. We included these year dummy variables in the model to continue the regression. Table 6 reveals the results, where the coefficient of EPU is significantly positive and different from zero at the 1% significance level. If

we take into account some special periods, the regression results remain stable.

Considering the impact of a semi-mandatory dividend policy. The dividend strategies of companies listed in China are characterized by modest cash disbursements and a notable absence of consistency in their payout policies (Firth et al., 2016). In order to protect the interests of minority shareholders, the China Securities Regulatory Commission (CSRC) has implemented many semi-mandatory dividend policies beginning in 2001. These strategies correlate the financing credentials of publicly traded firms with their distributions of cash dividends² (Deng et al., 2015). Under these policies, companies are required to meet certain dividend requirements before conducting public offerings or rights issues. Therefore, companies with potential refinancing needs or future refinancing plans

Table 6 Controlling for some specific periods.

Variables	(1) Payer	(2) Perdiv	(3) Payratio
EPU	0.1141*** (6.96)	0.0183*** (3.91)	0.0493*** (4.48)
Size	0.0923*** (14.81)	0.0061*** (3.50)	0.0250*** (7.44)
Lev	-0.3992*** (-16.71)	-0.1077*** (-14.90)	-0.2766*** (-18.78)
Eps	0.1593*** (19.74)	0.1738*** (31.75)	-0.0081* (-1.89)
ROA	0.6100*** (9.93)	-0.5221*** (-18.57)	0.1451*** (5.17)
Share1	0.3168*** (7.09)	0.0870*** (6.04)	0.2251*** (8.85)
Age	-0.0260*** (-14.10)	-0.0010* (-1.91)	-0.0087*** (-6.71)
Board	0.0057 (0.23)	0.0097 (1.24)	-0.0087 (-0.52)
Indir	-0.1710** (-2.28)	-0.0217 (-0.87)	-0.0930* (-1.85)
Dual	0.0191** (2.49)	0.0036 (1.46)	0.0064 (1.24)
GDPGR	-0.4149*** (-3.19)	0.0641 (1.47)	-0.0034 (-0.03)
M2g	-1.7348*** (-11.68)	-0.0403 (-0.95)	-0.5885*** (-5.70)
MESI	-1.8293*** (-6.03)	0.1276 (1.49)	-0.4815** (-2.26)
CPI	0.1125 (0.27)	-0.2395** (-1.98)	-0.3271 (-1.09)
Crisis	-0.0672*** (-5.72)	-0.0042 (-1.24)	-0.0092 (-1.08)
Disaster	-0.0913*** (-8.13)	-0.0037 (-1.25)	-0.0360*** (-4.36)
Disease	-0.0141 (-0.85)	0.0092* (1.69)	0.0165 (1.32)
Constant	0.8431*** (2.68)	-0.1915** (-2.16)	0.3607* (1.69)
Observations	38,601	38,601	38,601
Company FE	Yes	Yes	Yes
r2_a	0.18	0.32	0.04
F	160.05	114.40	45.16

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level.

Table 7 Consider the impact of a semi-mandatory dividend policy.

Variables	(1) Payer	(2) Perdiv	(3) Payratio	(4) Payer	(5) Perdiv	(6) Payratio
EPU	0.0771*** (5.47)	0.0158*** (4.08)	0.0362*** (3.91)	0.0741*** (5.26)	0.0145*** (3.77)	0.0351*** (3.80)
Dumfi	-0.0287*** (-4.79)	-0.0078*** (-4.54)	-0.0104*** (-2.60)			
Dumseo				0.0058 (1.00)	0.0100*** (4.63)	0.0037 (0.95)
Size	0.0927*** (14.83)	0.0060*** (3.44)	0.0248*** (7.37)	0.0932*** (14.85)	0.0066*** (3.77)	0.0250*** (7.42)
Lev	-0.4017*** (-16.76)	-0.1065*** (-14.79)	-0.2754*** (-18.72)	-0.4045*** (-16.87)	-0.1068*** (-14.83)	-0.2764*** (-18.77)
Eps	0.1603*** (19.83)	0.1738*** (31.79)	-0.0080* (-1.86)	0.1597*** (19.61)	0.1726*** (31.33)	-0.0084* (-1.93)
ROA	0.6112*** (9.94)	-0.5213*** (-18.56)	0.1451*** (5.17)	0.6126*** (9.95)	-0.5170*** (-18.36)	0.1463*** (5.20)
Share1	0.3361*** (7.52)	0.0877*** (6.10)	0.2303*** (9.05)	0.3350*** (7.50)	0.0850*** (5.89)	0.2295*** (9.00)
Age	-0.0286*** (-16.30)	-0.0008 (-1.49)	-0.0088*** (-7.21)	-0.0283*** (-16.16)	-0.0006 (-1.21)	-0.0087*** (-7.13)
Board	0.0089 (0.35)	0.0097 (1.23)	-0.0075 (-0.45)	0.0100 (0.40)	0.0100 (1.28)	-0.0071 (-0.43)
Indir	-0.1656** (-2.20)	-0.0218 (-0.87)	-0.0920* (-1.83)	-0.1642** (-2.19)	-0.0213 (-0.86)	-0.0915* (-1.82)
Dual	0.0201*** (2.61)	0.0036 (1.45)	0.0065 (1.26)	0.0203*** (2.63)	0.0036 (1.47)	0.0066 (1.27)
GDPGR	-0.4532*** (-9.46)	0.0055 (0.33)	-0.1490*** (-4.36)	-0.4850*** (-10.21)	-0.0031 (-0.19)	-0.1606*** (-4.72)
M2g	-1.6861*** (-14.80)	0.0009 (0.03)	-0.4646*** (-5.99)	-1.6594*** (-14.64)	0.0087 (0.25)	-0.4548*** (-5.88)
MESI	-0.5565*** (-3.37)	0.2356*** (4.81)	0.1291 (1.08)	-0.5359*** (-3.24)	0.2465*** (5.02)	0.1376 (1.15)
CPI	-1.7321*** (-4.94)	-0.3077*** (-2.94)	-0.9486*** (-3.63)	-1.8265*** (-5.22)	-0.3308*** (-3.16)	-0.9824*** (-3.75)
Constant	-0.3092 (-1.50)	-0.2914*** (-4.65)	-0.2052 (-1.49)	-0.3432* (-1.66)	-0.3161*** (-5.01)	-0.2205 (-1.59)
Observations	38,601	38,601	38,601	38,601	38,601	38,601
Company FE	Yes	Yes	Yes	Yes	Yes	Yes
r2_a	0.17	0.32	0.04	0.17	0.32	0.04
F	178.73	131.08	50.54	176.81	134.65	50.50

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level.

have a stronger inclination and larger scale in distributing cash dividends. To control the effect of a semi-mandatory dividend policy on a company’s dividend behavior, we introduced relevant variables related to refinancing demands in Model (1). Drawing from existing literature to measure refinancing demands, we construct a dummy variable for potential refinancing demands (Dumfi) and a dummy variable for the issuance of additional shares or rights offerings in the subsequent year (Dumseo). If the revenue growth rate exceeds the mean growth rate of all listed companies for that year, Dumfi is set to 1; and 0 otherwise. Simultaneously, Dumseo is set to 1 if there is any refinancing activity, such as share issuance or rights offerings, in the following year and 0 otherwise. The results of the regression analysis are shown in Table 7. The

coefficients of EPU across columns (1)–(6) remain largely unchanged, suggesting that incorporating refinancing-related variables does not alter the previously drawn conclusions.

Two-way cluster based on firm and year levels. Following the previous research (Attig et al., 2021; Javadi et al., 2021), In Table 8, we adopt two-way clustering at both the firm and year level. In this approach, the application of two-way clustering techniques enhances the robustness of our analysis by mitigating potential biases arising from heteroscedasticity and serial correlation. As shown in Table 8, our findings show that the EPU variable is positively associated at a statistically significant level, with a significance threshold of at least 10%. This discovery highlights the critical role of EPU in shaping firms’ dividend

Table 8 Two-way cluster.

Variables	(1) Payer	(2) Perdiv	(3) Payratio
EPU	0.0744* (1.90)	0.0151** (2.29)	0.0353*** (2.93)
Size	0.0929*** (10.25)	0.0060** (2.32)	0.0248*** (5.25)
Lev	-0.4048*** (-9.34)	-0.1074*** (-7.51)	-0.2766*** (-13.25)
Eps	0.1604*** (15.89)	0.1739*** (30.39)	-0.0079 (-1.14)
ROA	0.6099*** (6.48)	-0.5217*** (-15.43)	0.1446** (2.90)
Share1	0.3366*** (5.48)	0.0878*** (5.29)	0.2305*** (8.29)
Age	-0.0284*** (-6.76)	-0.0007 (-0.89)	-0.0087*** (-5.83)
Board	0.0100 (0.42)	0.0100 (1.37)	-0.0071 (-0.48)
Indir	-0.1642* (-1.87)	-0.0214 (-0.96)	-0.0915* (-1.77)
Dual	0.0203** (2.75)	0.0036 (1.66)	0.0066 (1.12)
GDPGR	-0.4851*** (-3.42)	-0.0032 (-0.29)	-0.1606*** (-6.45)
M2g	-1.6598*** (-6.31)	0.0081 (0.15)	-0.4550*** (-5.33)
MESI	-0.5395 (-0.68)	0.2403*** (3.77)	0.1353 (0.54)
CPI	-1.8283 (-1.40)	-0.3339* (-1.96)	-0.9836** (-2.32)
Constant	-0.3299 (-0.45)	-0.2986*** (-3.04)	-0.2133 (-0.94)
Observations	38,164	38,164	38,164
R-squared	0.552	0.744	0.391
Company FE	Yes	Yes	Yes
r2_a	0.50	0.71	0.32
F	149.46	e(F)	e(F)

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at company and year levels.

Table 9 Heterogeneity analysis of the company size.

Variables	Small (1) Payer	Large (2) Payer	Small (3) Perdiv	Large (4) Perdiv	Small (5) Payratio	Large (6) Payratio
EPU	0.0842*** (4.55)	0.0280 (1.24)	0.0246*** (5.37)	-0.0022 (-0.31)	0.0394*** (3.04)	0.0209 (1.55)
Size	0.0772*** (7.91)	0.1216*** (9.47)	-0.0003 (-0.11)	0.0191*** (4.45)	0.0151*** (2.70)	0.0516*** (7.16)
Lev	-0.3307*** (-11.19)	-0.5339*** (-10.72)	-0.0830*** (-10.15)	-0.1418*** (-8.76)	-0.2277*** (-12.92)	-0.3739*** (-12.09)
Eps	0.2013*** (13.71)	0.1143*** (11.05)	0.1737*** (20.45)	0.1749*** (24.87)	-0.0052 (-0.72)	-0.0114** (-2.06)
ROA	0.3045*** (4.42)	1.0914*** (9.75)	-0.5027*** (-14.69)	-0.6267*** (-11.66)	0.1524*** (4.42)	0.0996* (1.77)
Share1	0.4522*** (6.36)	0.1628** (2.35)	0.0559*** (3.12)	0.0711*** (2.64)	0.2883*** (6.49)	0.1123*** (2.99)
Age	-0.0303*** (-12.16)	-0.0281*** (-10.47)	-0.0030*** (-4.52)	0.0002 (0.26)	-0.0123*** (-6.68)	-0.0075*** (-4.32)
Board	0.0268 (0.71)	-0.0127 (-0.36)	0.0066 (0.76)	0.0241* (1.82)	-0.0248 (-1.03)	0.0215 (0.94)
Indir	-0.2611** (-2.31)	-0.1045 (-1.00)	-0.0222 (-0.84)	0.0094 (0.25)	-0.2159*** (-2.98)	0.0482 (0.70)
Dual	0.0230** (2.20)	0.0081 (0.70)	0.0060** (2.21)	-0.0006 (-0.14)	0.0100 (1.37)	0.0051 (0.63)
GDPGR	-0.4441*** (-6.33)	-0.4738*** (-7.03)	-0.0032 (-0.14)	-0.0178 (-0.73)	-0.1538*** (-3.03)	-0.1720*** (-3.60)
M2g	-1.7240*** (-11.30)	-1.3417*** (-7.70)	0.0632 (1.44)	-0.1110* (-1.94)	-0.4855*** (-4.39)	-0.3976*** (-3.44)
MESI	-0.9047*** (-3.81)	-0.1061 (-0.44)	0.2928*** (4.53)	0.0850 (1.09)	0.0892 (0.50)	0.0658 (0.38)
CPI	-1.4681*** (-2.97)	-1.8076*** (-3.49)	-0.3851*** (-2.78)	-0.2474 (-1.54)	-0.9822** (-2.56)	-0.8734** (-2.32)
Constant	0.2624 (0.86)	-1.2045*** (-3.31)	-0.2105** (-2.53)	-0.4355*** (-3.51)	0.0985 (0.46)	-0.7791*** (-3.51)
Observations	20,627	17,974	20,627	17,974	20,627	17,974
Company FE	Yes	Yes	Yes	Yes	Yes	Yes
r2_a	0.16	0.16	0.26	0.35	0.04	0.03
F	88.72	103.70	75.62	78.89	34.40	20.39

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level.

decisions and overall financial strategies. The result further confirms the conclusion we reached in the previous analysis that EPU promotes listed companies to adopt active cash dividend policies.

Heterogeneity analysis, mechanism, and further research

Heterogeneity analysis. The above research has identified a notable positive correlation between EPU and companies' cash dividend payouts. Does the influence of EPU on cash dividends differ based on various firm characteristics? Therefore, this article considers grouping samples according to company size, company ownership, equity concentration, and company financing constraints. The specific results of the analysis are presented below.

Heterogeneity analysis of company sizes. Firstly, we examine the heterogeneity effect of EPU across company sizes. We have divided up our sample based on the average size of the companies. The outcomes are shown in Table 9. We find that smaller

companies tend to escalate their distribution of positive cash dividends during periods of EPU, which is statistically significant at the 1% level, confirming hypothesis H2. According to the research, smaller businesses may make an effort to appease investors by increasing their cash dividend payments during EPU periods. Moreover, they aim to increase the company's share value and try to prevent investors from 'voting with their feet' by using cash dividends to buffer the adverse effects of EPU (Jiang et al., 2017). In contrast, larger companies have more stable operations and tend to remain calm in the face of EPU, thereby choosing not to pay additional cash dividends to shareholders.

Heterogeneity analysis of the ownership type. Our analysis focuses on exploring the differing impacts of EPU on cash dividend disbursements across firms with different ownership types. The actual controllers of the listed companies determine whether an enterprise is state-owned or not. The findings are presented in columns (1), (3), and (5) of Table 10. The results show that EPU

Table 10 Heterogeneity analysis of the ownership type.

Variables	Non-SOE (1) Payer	SOE (2) Payer	Non-SOE (3) Perdiv	SOE (4) Perdiv	Non-SOE (5) Payratio	SOE (6) Payratio
EPU	0.1044*** (5.40)	0.0047 (0.23)	0.0189*** (3.26)	-0.0010 (-0.21)	0.0629*** (4.73)	-0.0066 (-0.51)
Size	0.0933*** (11.73)	0.1204*** (10.38)	0.0042* (1.81)	0.0142*** (4.73)	0.0202*** (4.27)	0.0405*** (7.37)
Lev	-0.3863*** (-13.64)	-0.4085*** (-8.64)	-0.1097*** (-11.96)	-0.0939*** (-8.01)	-0.2767*** (-14.68)	-0.2684*** (-10.49)
Eps	0.1449*** (14.32)	0.1578*** (11.63)	0.1702*** (24.34)	0.1759*** (19.65)	-0.0208*** (-3.71)	-0.0024 (-0.38)
ROA	0.6590*** (9.44)	0.5765*** (4.52)	-0.4846*** (-14.78)	-0.6053*** (-11.00)	0.2079*** (6.09)	0.0912* (1.82)
Share1	0.3415*** (5.63)	0.1639** (2.20)	0.0959*** (4.62)	0.0358* (1.65)	0.2851*** (7.71)	0.0915** (2.30)
Age	-0.0364*** (-15.70)	-0.0146*** (-5.24)	-0.0011 (-1.43)	-0.0001 (-0.09)	-0.0098*** (-5.74)	-0.0060*** (-3.43)
Board	0.0177 (0.54)	0.0291 (0.70)	0.0128 (1.19)	0.0037 (0.32)	-0.0151 (-0.68)	-0.0046 (-0.19)
Indir	-0.2061** (-2.00)	-0.0828 (-0.72)	-0.0109 (-0.30)	-0.0275 (-0.78)	-0.1815*** (-2.64)	-0.0009 (-0.01)
Dual	0.0173* (1.95)	0.0234 (1.51)	0.0050* (1.67)	-0.0014 (-0.31)	0.0055 (0.90)	0.0026 (0.26)
GDPGR	-0.4915*** (-8.34)	-0.3857*** (-4.71)	-0.0017 (-0.08)	0.0568** (2.41)	-0.1228*** (-2.82)	-0.1746*** (-3.22)
M2g	-1.8418*** (-12.74)	-0.9060*** (-5.00)	0.1121** (2.27)	-0.0370 (-0.73)	-0.5027*** (-4.81)	-0.2320** (-2.05)
MESI	-0.5548*** (-2.65)	-0.2928 (-1.05)	0.3074*** (4.66)	0.2105*** (2.89)	0.0591 (0.37)	0.3591** (2.02)
CPI	-2.2441*** (-4.98)	-0.7454 (-1.31)	-0.2496* (-1.74)	-0.3674** (-2.54)	-0.9317*** (-2.65)	-0.9540** (-2.48)
Constant	-0.3190 (-1.20)	-1.3590*** (-3.78)	-0.3440*** (-4.07)	-0.4206*** (-4.06)	-0.0399 (-0.21)	-0.7692*** (-3.80)
Observations	24,710	13,891	24,710	13,891	24,710	13,891
Company FE	Yes	Yes	Yes	Yes	Yes	Yes
r2_a	0.19	0.15	0.29	0.38	0.04	0.03
F	138.82	56.12	97.67	53.68	41.95	17.12

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level.

has a noteworthy and positive influence on non-state-owned companies, supporting hypothesis H3. There are several reasons for the differences in the results: Firstly, due to their special status and background, state-owned-companies often have early access to information on policy trends (McClure et al., 2018; Hillmann, 2023). When policies change, they tend to remain calm and unaffected. Secondly, many state-owned companies operate in monopolistic industries and maintain high growth even during periods of elevated uncertainty. They may need to retain more internal resources for investment purposes. Thirdly, state-owned companies generally maintain more consistent and conservative dividend policies than non-state-owned companies (Hillmann, 2023). Finally, when EPU increases, the external financing environment deteriorates. Companies not owned by the state may opt to increase cash dividend distributions to please investors and increase the company's stock value, which may be advantageous for future financing (Sun et al., 2023). These factors contribute to the noted variations in the effect of EPU on cash dividend payments between state-owned and non-state-owned companies.

Heterogeneity analysis of corporate ownership concentration. This paper measures the degree of equity concentration in companies by calculating the total shareholding percentages of the top 5 shareholders. We grouped the sample relying on the companies' mean ownership concentration. As depicted in Table 11, the coefficient of EPU displays a markedly positive value, which is statistically significant, diverging from zero at the 1% level, thereby validating hypothesis H4. This suggests that companies characterized by low equity concentration are more inclined to distribute cash dividends amidst periods of EPU. The main reason for this trend is that in a relatively concentrated ownership structure, controlling shareholders have a solid incentive to extract company profits for their benefit (Banerjee and Homroy, 2018). This is reflected in their tendency to only marginally increase dividend payments after the company becomes profitable, leaving the majority of the profits within the company for future plunder. Even during periods of rising EPU, the rise in cash dividend payouts is particularly notable for companies with low equity concentration, while the impact on companies with high equity concentration is less significant.

Heterogeneity analysis of company financing constraints. We additionally examine the diverse impacts of EPU on companies categorized by their distinct financing constraint levels. Due to

company financing constraints, different companies have varying degrees of reliance on internal funds, resulting in different cash dividend policies. Following the study by Hadlock and Pierce (2010), the research develops the SA index as a tool for quantifying the extent of financial constraints faced by corporations. A larger absolute value of a negative SA index suggests that the company is facing more severe funding constraints. Based on the mean level of financial limitations faced by the companies, we split the sample. Table 12 delineates the findings from the empirical investigation. The findings demonstrate a significant positive influence of EPU on firms exhibiting low financing constraints, confirming our hypothesis H5. EPU amplifies the difficulties companies face in securing external financing (Waisman et al., 2015), which is even more severe for companies that already face high financing constraints. Enterprises with limited financing constraints typically benefit from a broader range of financing options, whether it is bank loans or financing through the capital or debt market, which makes it easier for them to obtain financing. As a result, these types of companies can react more flexibly when faced with EPU. There is no discernible difference between companies with low and high financial restrictions when it comes to the effect of EPU on the dividend payout scale.

Mechanism analysis. Next, how does EPU influence companies to increase their cash dividend distributions? In the subsequent analysis, we primarily examine the mechanism by which EPU influences corporate cash dividends at three distinct levels: investors' dividend demand, agency costs, and company growth opportunities. Following the previous analysis (Bilyay-Erdogan et al., 2023), we employ a two-step regression approach to conduct channel analysis. Firstly, we examine the influence of EPU on mechanism variables. Secondly, the predicted values of the mechanism indicators are employed to assess distributions of dividends. Table 13 displays the results of these observations. In this context, the variable for cash dividend payment (Perdiv) serves as an indicator for actual cash dividend payments.

EPU and investor dividend demand. The dividend premium (PDND) is the natural logarithm difference between the average book value of listed companies that paid cash dividends in the previous year and those that did not (Baker and Wurgler, 2004). The finding that companies paying cash dividends have a lower market-to-book value (MB) ratio than non-distributing

Table 11 Heterogeneity analysis of ownership concentration.

Variables	Low (1) Payer	High (2) Payer	Low (3) Perdiv	High (4) Perdiv	Low (5) Payratio	High (6) Payratio
EPU	0.0922*** (4.58)	0.0099 (0.49)	0.0134*** (3.25)	0.0083 (1.22)	0.0483*** (3.85)	0.0005 (0.03)
Size	0.0979*** (11.25)	0.1004*** (9.25)	0.0089*** (5.04)	0.0035 (0.90)	0.0285*** (6.54)	0.0248*** (3.10)
Lev	-0.3692*** (-11.46)	-0.4381*** (-11.10)	-0.0607*** (-8.39)	-0.1673*** (-11.42)	-0.2225*** (-12.02)	-0.3556*** (-13.03)
Eps	0.2021*** (16.81)	0.1074*** (10.01)	0.1351*** (18.93)	0.2009*** (23.41)	-0.0125** (-2.13)	-0.0069 (-1.08)
ROA	0.3079*** (4.49)	1.0603*** (9.62)	-0.3952*** (-12.62)	-0.6016*** (-10.24)	0.1467*** (4.97)	0.1070* (1.65)
Share1	0.4551*** (5.43)	0.1336** (2.04)	0.0583*** (3.08)	0.0588* (1.90)	0.2810*** (6.08)	0.1178** (2.54)
Age	-0.0332*** (-12.96)	-0.0198*** (-7.74)	-0.0015*** (-2.66)	0.0015 (1.58)	-0.0128*** (-7.62)	-0.0017 (-0.84)
Board	0.0282 (0.84)	-0.0115 (-0.29)	0.0138* (1.81)	0.0074 (0.50)	0.0086 (0.39)	-0.0224 (-0.86)
Indir	-0.0935 (-0.90)	-0.2210** (-2.13)	-0.0000 (-0.00)	0.0067 (0.15)	-0.0573 (-0.88)	-0.0751 (-0.94)
Dual	0.0106 (1.00)	0.0289*** (2.61)	0.0028 (1.07)	0.0044 (0.95)	0.0100 (1.52)	0.0048 (0.55)
GDPGR	-0.6482*** (-9.14)	-0.3243*** (-4.98)	-0.0216 (-1.16)	0.0315 (1.14)	-0.2250*** (-4.86)	-0.1033** (-1.97)
M2g	-2.1449*** (-13.19)	-1.0107*** (-6.24)	-0.0907** (-2.37)	0.1165* (1.89)	-0.7859*** (-7.54)	-0.0626 (-0.53)
MESI	-0.7654*** (-3.12)	-0.1359 (-0.58)	0.0623 (1.10)	0.3778*** (4.47)	-0.1991 (-1.19)	0.5059*** (2.82)
CPI	-2.4084*** (-4.55)	-1.0385** (-2.17)	-0.2722** (-2.27)	-0.3236* (-1.86)	-1.2063*** (-3.25)	-0.6343* (-1.65)
Constant	-0.1730 (-0.59)	-0.8560*** (-2.65)	-0.1988*** (-3.05)	-0.3666*** (-2.87)	0.0346 (0.18)	-0.5409** (-2.18)
Observations	19,198	19,403	19,198	19,403	19,198	19,403
Company FE	Yes	Yes	Yes	Yes	Yes	Yes
r2_a	0.16	0.14	0.27	0.33	0.03	0.02
F	98.65	78.35	49.69	81.24	28.03	17.93

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level.

Table 12 Heterogeneity analysis of financing constraints (SA indicator).

Variables	Low (1) Payer	High (2) Payer	Low (3) Perdiv	High (4) Perdiv	Low (5) Payratio	High (6) Payratio
EPU	0.0596*** (3.34)	0.0260 (0.98)	0.0193*** (3.74)	0.0024 (0.38)	0.0212* (1.72)	0.0281* (1.70)
Size	0.0907*** (10.84)	0.1178*** (10.99)	0.0076** (2.49)	0.0141*** (4.78)	0.0238*** (4.68)	0.0389*** (6.87)
Lev	-0.3562*** (-10.41)	-0.4312*** (-11.42)	-0.1315*** (-10.69)	-0.0825*** (-7.47)	-0.3207*** (-13.77)	-0.2456*** (-11.71)
Eps	0.1589*** (14.95)	0.1554*** (13.15)	0.1816*** (24.91)	0.1604*** (21.11)	-0.0045 (-0.77)	-0.0157** (-2.47)
ROA	0.4250*** (5.74)	0.5073*** (5.94)	-0.5348*** (-14.57)	-0.5280*** (-13.16)	0.0592* (1.71)	0.1649*** (4.03)
Share1	0.1681** (2.40)	0.2596*** (3.79)	0.0492* (1.84)	0.0826*** (3.98)	0.1704*** (3.80)	0.1804*** (4.84)
Age	-0.0289*** (-10.40)	-0.0310*** (-12.44)	-0.0014 (-1.51)	-0.0008 (-1.04)	-0.0077*** (-3.88)	-0.0099*** (-5.81)
Board	0.0129 (0.37)	0.0021 (0.05)	0.0090 (0.78)	0.0236** (2.10)	-0.0125 (-0.51)	-0.0051 (-0.21)
Indir	-0.1865* (-1.82)	-0.0741 (-0.68)	-0.0200 (-0.58)	0.0393 (1.17)	-0.1636** (-2.29)	0.0093 (0.12)
Dual	0.0256** (2.20)	0.0147 (1.36)	0.0039 (1.10)	0.0026 (0.77)	0.0106 (1.26)	0.0109 (1.45)
GDPGR	-0.3840*** (-4.50)	-0.5928*** (-9.25)	0.0303 (0.91)	-0.0428** (-2.14)	-0.1882*** (-3.01)	-0.1971*** (-4.44)
M2g	-1.1811*** (-7.45)	-1.9522*** (-10.54)	0.0939* (1.85)	-0.1224** (-2.33)	-0.3075*** (-2.73)	-0.6720*** (-5.77)
MESI	-0.4912** (-1.96)	-0.3582 (-1.45)	0.3043*** (3.82)	0.1366** (2.04)	0.1833 (0.95)	0.1523 (0.93)
CPI	-1.2441** (-2.42)	-2.0747*** (-4.01)	-0.3527** (-2.16)	-0.3041** (-2.16)	-0.18501** (-2.11)	-1.1197*** (-3.06)
Constant	-0.3862 (-1.33)	-0.8525** (-2.56)	-0.3874*** (-3.73)	-0.3984*** (-4.23)	-0.1801 (-0.86)	-0.5159*** (-2.60)
Observations	18,448	20,153	18,448	20,153	18,448	20,153
Company FE	Yes	Yes	Yes	Yes	Yes	Yes
r2_a	0.13	0.15	0.33	0.28	0.03	0.02
F	69.44	95.61	84.39	57.78	20.08	24.61

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level.

companies, resulting in a negative direction of PDND, highlights the phenomena of dividend discounts that permeate China's stock market (Sun and Tong, 2000). A significant positive relationship is expected between the EPU and the dividend premium. This implies that when EPU increases, investors' demand for cash dividends also rises, and the relative price difference between the two types of companies decreases. This shows that during periods of heightened EPU, listed companies tend to satisfy investors' demand for cash dividends by increasing their cash dividend payments.

To verify the investor dividend demand mechanism, we follow the method mentioned above to construct the investor dividend demand variable, which is measured using the dividend premium (PDND). Column (1) demonstrates a notable positive impact of EPU on the variable PDND, implying that higher EPU increases investor demand for dividends. Furthermore, column (2) demonstrates a significant positive impact of the predicted PDND value on dividend payouts. These findings offer new insights into how increased EPU leads to higher dividend payouts through heightened investor demand.

EPU and agency costs. The elevation of EPU has been associated with a significant increase in the company's agency costs (Attig et al., 2021), and companies can help reduce agency costs by adopting active cash dividend policies (Easterbrook, 1984; Jensen, 1986; Fluck, 1999), thereby mitigating the adverse effects of EPU. Current research on dividend policy indicates that dividend payments serve a crucial function in alleviating type I agency cost problems (Farre-Mensa et al., 2014) because cash dividend disbursements diminish the company's internal "free cash flow" (Leary and Michaely, 2011), thereby avoiding excessive investment and resource waste by managers. Moreover, investors prefer dividends to retained earnings during periods of high EPU (Zwiebel, 1996; Stewart and Myers, 2000), and companies send a signal of excellent corporate performance to investors by issuing cash dividends (Berzins et al., 2017).

To verify the agency cost mechanism, we construct the agency cost variable referring to the study of Javadi et al. (2021), and we measure it using the management fee ratio (Fee), which is determined as the ratio of administrative expenses to main business income. In Table 13, the columns (3) and (4) present the

Table 13 Mechanism analysis.

Variables	(1) PDND	(2) Cashdiv	(3) Fee	(4) Cashdiv	(5) Growth	(6) Cashdiv
EPU	1.2754*** (11.19)	0.0118*** (3.91)	0.0315*** (13.08)	0.4784*** (3.91)	-0.0126*** (-3.34)	-1.1951*** (-3.91)
PDND						0.0067*** (3.86)
Fee						-0.0670*** (-5.34)
Growth						0.2328*** (14.57)
Size	0.0940** (2.31)	0.0049*** (2.78)	-0.0345*** (-13.63)	0.0225*** (4.96)	0.0006 (0.32)	0.6385** (2.15)
Lev	-0.5000*** (-2.41)	-0.1015*** (-13.79)	0.0191* (1.94)	-0.1165*** (-15.31)	0.0338*** (3.47)	0.131*** (7.31)
Eps	0.0675 (0.85)	0.1731*** (31.58)	0.0103*** (5.38)	0.1689*** (30.00)	0.0493*** (14.30)	0.0008 (-1.43)
ROA	4.4854*** (6.13)	-0.5747*** (-18.21)	-0.2827*** (-13.88)	-0.3865*** (-8.79)	0.9708*** (23.97)	0.0027 (0.33)
Share1	1.4878*** (4.53)	0.0702*** (4.59)	-0.0402*** (-3.49)	0.1070*** (7.16)	0.0212* (1.84)	0.0350 (-1.38)
Age	0.3345*** (26.20)	-0.0047*** (-3.71)	-0.0030*** (-7.82)	0.0007 (1.31)	-0.0000 (-0.07)	0.0002 (0.09)
Board	0.1710 (0.64)	0.0079 (1.01)	-0.0020 (-0.35)	0.0109 (1.39)	-0.0061 (-1.16)	-0.0195 (-1.22)
Indir	-0.0935 (-0.11)	0.0203 (-0.81)	0.0098 (0.64)	-0.0260 (-1.04)	-0.0114 (-0.70)	0.0756** (2.08)
Dual	0.1166 (1.40)	0.0023 (0.90)	0.0013 (0.68)	0.0030 (1.22)	-0.0028* (-1.71)	0.2636*** (5.21)
GDPR	48.4090*** (124.96)	-0.5757*** (-4.00)	-0.0792*** (-11.74)	0.0347* (1.68)	-0.0136 (-1.25)	-0.3393*** (-5.20)
M2G	-203.8347*** (-302.28)	2.4186*** (3.96)	-0.3780*** (-19.30)	0.1889*** (3.57)	0.0565*** (2.63)	38.601
MESI	-112.1552*** (-58.01)	1.5666*** (4.44)	-0.0913*** (-3.33)	0.2839*** (5.41)	0.0195 (0.62)	Yes
CPI	606.1080*** (123.11)	-7.5015*** (-4.00)	-0.7827*** (-14.46)	0.0405 (0.37)	0.0802 (1.08)	Yes
Constant	104.9766*** (50.75)	-1.5392*** (-4.62)	1.0156*** (17.10)	-0.7836*** (-5.30)	-0.0347 (-0.72)	0.32
Observations	38,601	38,601	38,566	38,601	38,598	137.84
Company FE	Yes	Yes	Yes	Yes	Yes	137.84
r2_a	0.78	0.32	0.16	0.32	0.57	
F	22	137.84	91.13	137.84	330.37	

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level.

empirical results. Column 3 demonstrates that the impact of EPU on agency costs is positive. In contrast, column 4 illustrates a positive relationship between predicted values of agency costs and dividend payouts. The empirical results indicate that EPU increases the agency cost for companies, and the elevated agency cost encourages companies to adopt a positive cash dividend policy.

EPU and companies' growth opportunities. EPU exposes companies to increased risk, uncertainty in resource allocation, heightened market volatility, and rising financing costs (Arouri et al., 2016; Blinder and Watson, 2016; Kim and Kung, 2017; Ashraf and Shen, 2019), making it difficult to formulate long-term strategies and investment plans (Nguyen and Phan, 2017), thereby constraining expansion and growth opportunities for companies. When faced with higher growth prospects, companies typically need to allocate funds toward research and development and expand their business scale (Borochin and Yang, 2017). However, when growth opportunities are reduced, the demand for expansion and investment by companies may decrease (Bonfim et al., 2023). This means that companies may accumulate idle cash, which can be used to pay out more cash dividends. Management may choose to increase shareholder satisfaction and loyalty by paying out additional cash dividends to maintain or increase shareholder satisfaction and loyalty (Sarwar et al., 2020).

To validate the growth opportunity mechanism, we draw upon the methods outlined by Ashbaugh-Skaife et al. (2009) to construct a growth opportunity variable, and the assessment is conducted through the growth rate of operating income (Growth). Table 13's columns (5) and (6) provide the empirical results. According to Column (5), there is a significant adverse relationship between EPU and the Growth variable, indicating that higher EPU limits the growth prospects for companies. In contrast, the data in column (6) showcases a comparably significant inverse correlation between the forecasted value of Growth and dividend distributions. This evidence supports the view that the decline in external investment prospects motivates firms to distribute cash dividends.

Further research: effect on firm value. The above analysis confirms that EPU will promote listed companies to pay more cash dividends. We further analyze and recognize that policy fluctuations resulting from EPU negatively affect firm value (Kalcheva and Lins, 2007; Kaviani et al., 2020; Yousefi and Yung, 2022). Can the implementation of an active cash dividend policy contribute to an increase in the firm value? In other words, is increasing dividend payout consistent with shareholders' wealth maximization objective when EPU increases? The following content explores this question in depth. Drawing upon prior research (Ashraf and Shen, 2019; Javadi et al., 2021), we construct the variables book-to-market ratio (MB) and Tobin's Q of the firm (Tobin's Q) to measure corporate value. We follow the method in Javadi et al. (2021) by regressing Tobin's Q of the firm (Tobin's Q) and book-to-market ratio (MB) on EPU, orthogonalized measures of dividend payout, their interaction, and control variables. The variable Perdiv is orthogonalized using a regression of cash on EPU and other control variables present in the regression Model (1), and then the residuals are used for analysis. We employ orthogonalized cash dividend payout in our analysis, demonstrating through our baseline model that it is influenced by EPU. Similarly, we orthogonalize the Payratio variable. Table 14 presents the results in detail.

The results indicate that the coefficient of EPU is notably negative for columns (1) through (6), implying its negative impact on firm value. Furthermore, the coefficient of the

Table 14 Further research.

Variables	(1) MB	(2) MB	(3) MB	(4) Tobin's Q	(5) Tobin's Q	(6) Tobin's Q
EPU	-0.8789*** (-15.21)	-0.7020*** (-12.63)	-0.7723*** (-13.84)	-0.9029*** (-13.06)	-0.6779*** (-10.27)	-0.7509*** (-11.35)
Payer*EPU	0.0040*** (14.32)			0.0058*** (16.65)	0.0208*** (9.19)	
Perdiv_orth*EPU		0.0131*** (6.59)				
Payratio_orth*EPU			0.0097*** (11.03)			0.0139*** (13.76)
Payer	-0.6706*** (-14.49)			-0.9198*** (-15.36)		
Perdiv_orth		-1.4937*** (-4.55)			-2.6890*** (-7.31)	
Payratio_orth			-1.5970*** (-11.90)			-2.2623*** (-14.56)
Size	-0.7056*** (-19.78)	-0.7104*** (-20.01)	-0.7054*** (-19.86)	-1.0746*** (-19.10)	-1.0775*** (-19.28)	-1.0722*** (-19.13)
Lev	-0.7748*** (-6.73)	-0.7417*** (-6.49)	-0.7912*** (-6.93)	0.5180*** (2.96)	0.5416*** (3.12)	0.4860*** (2.79)
Eps	0.3212*** (8.29)	0.2787*** (7.27)	0.3081*** (7.94)	0.5757*** (11.38)	0.5364*** (10.81)	0.5602*** (11.03)
ROA	2.5861*** (7.53)	2.5729*** (7.52)	2.4241*** (7.14)	1.4285*** (3.27)	1.4495*** (3.34)	1.3172*** (3.04)
Share1	-0.4562*** (-2.71)	-0.5043*** (-3.00)	-0.4604*** (-2.74)	-0.9646*** (-3.67)	-1.0013*** (-3.82)	-0.9510*** (-3.62)
Age	0.0962*** (15.30)	0.1035*** (16.65)	0.1022*** (16.28)	0.1003*** (12.71)	0.1109*** (14.26)	0.1099*** (14.05)
Board	-0.0367 (-0.35)	-0.0445 (-0.43)	-0.0443 (-0.43)	-0.0890 (-0.64)	-0.0937 (-0.68)	-0.0995 (-0.72)
Indir	-0.0960 (-0.29)	-0.1145 (-0.35)	-0.1193 (-0.37)	0.2387 (0.61)	0.2273 (0.58)	0.2116 (0.54)
Dual	-0.0477 (-1.51)	-0.0473 (-1.50)	-0.0473 (-1.50)	0.0098 (0.25)	0.0107 (0.27)	0.0112 (0.28)
GDPGR	0.8541*** (4.97)	1.4730*** (9.17)	1.2720*** (7.70)	0.3691* (1.79)	1.1629*** (6.04)	0.9804*** (5.11)
M2g	4.6670*** (11.40)	5.4996*** (13.99)	5.3336*** (13.40)	0.8564* (1.76)	1.9291*** (4.16)	1.7679*** (3.79)
MESI	-14.9271*** (-19.01)	-13.6475*** (-17.83)	-14.0460*** (-18.23)	-26.7034*** (-27.42)	-25.3020*** (-26.79)	-25.7905*** (-26.78)
CPI	14.1575*** (12.45)	13.2227*** (11.68)	13.6606*** (12.09)	20.9064*** (14.52)	20.1948*** (14.16)	20.7492*** (14.39)
Constant	31.8442*** (26.56)	30.1923*** (25.87)	30.6784*** (26.24)	52.2596*** (33.28)	50.3000*** (32.64)	50.8883*** (32.81)
Observations	30,191	30,191	30,191	37,686	37,686	37,686
R-squared	0.230	0.228	0.229	0.212	0.209	0.211
Number of stkcd	3868	3868	3868	4419	4419	4419
Company FE	Yes	Yes	Yes	Yes	Yes	Yes
r2_a	0.23	0.23	0.23	0.21	0.21	0.21
F	230.96	229.22	232.44	234.30	232.68	236.38

Values in parentheses are statistical t-values; *, **, *** indicate levels of significance at 10%, 5%, and 1%, respectively. Standard errors were clustered at the company level.

interaction variable stands out as markedly positive at the 1% significance level, suggesting that issuing cash dividends or increasing the scale of cash dividend payout contributes to increasing firm value. Therefore, listed firms often implement a positive cash dividend strategy when faced with increased EPU. Consistent with existing research (Bilyay-Erdogan et al., 2023), a positive cash dividend policy is essential for reducing agency costs and serves as a strategic signal, conveying confidential insights about earnings quality to investors. This implies that increasing dividend payout is consistent with shareholders' wealth maximization objective when EPU increases.

Conclusions

Dividend policy is a focal point of corporate finance research. This paper introduces a new influencing factor, EPU, to the study of dividend policy. Based on the data from Chinese A-share listed companies spanning 2007 to 2021, this study empirically investigates the influence of EPU on both the inclination and magnitude of dividend payouts. It also studies the mechanisms that underlie these impacts. The paper presents the following research findings:

EPU motivates publicly traded entities to commence cash dividend distributions and expand the magnitude of these disbursements. Smaller, non-state-owned companies with lower equity concentration and financial restrictions are prone to increasing the tendency and scale of dividend payments under EPU impact. We further examine how EPU affects cash dividends and find that firm growth opportunities, agency costs, and investor dividend demand are significant factors in explaining dividend decisions under EPU impact.

Based on the preceding analysis, the following policy recommendations are proposed: Firstly, when crafting economic policies, government departments should thoroughly evaluate the potential consequences and reasonably assess the ability of various market participants to bear them. Ensuring stability and

coherence in economic policies is essential while avoiding frequent or abrupt policy adjustments. Secondly, different types of companies react heterogeneously to EPU impacts. Therefore, policies should be targeted, such as adopting tailored measures for specific types of companies. In addition, regulators should strengthen the management of listed companies and actively explore feasible delisting mechanisms. Finally, from the perspective of individual companies, it is vital to improve profitability while actively sharing profits with investors. Companies should enhance their predictive capabilities for future economic trends, implement effective risk prevention mechanisms, and fortify their resilience to withstand pressures and risks.

This study has the following limitations and issues that require further research. First, the indicators measuring economic policy uncertainty are primarily based on media reports or textual analysis. This approach may be influenced by media biases, subjectivity, and other factors, thereby limiting the accuracy of the indicator results. Future research can combine multiple data sources and methods for comprehensive analysis to more accurately reflect the actual situation of economic policy uncertainty. Second, future research can try to explore other influencing mechanisms within the correlation between EPU and corporate cash dividends. For example, corporate governance structure may play a mediating role between EPU and dividend policy, thereby further enriching the theoretical understanding of how economic policy changes affect corporate cash dividends.

Data availability

Correspondence and requests for materials should be addressed to Chuanzhen Li. The database contains enterprise-level micro-data and macro-level data. We have deposited all our data in an open repository: Chuanzhen, Li, 2024, "Replication Data for:

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Notes

- 1 The year 2007 is the beginning of our sample period. The reason for this is that the new version of the “Enterprise Accounting Standards” was implemented on January 1, 2007, across all listed companies. The revision of this accounting standard has a broad scope, and it may significantly impact the financial data of listed companies.
- 2 On March 28, 2001, the China Securities Regulatory Commission (CSRC) promulgated the “Administrative Measures for the Issuance of New Shares by Listed Companies.” The document stipulates that if the board of directors of a corporation fails to offer a plausible explanation for why dividends have not been paid out for the previous three years, the securities firms acting as lead underwriters should pay special attention to this matter and provide explanations in due diligence reports. On October 9, 2008, the CSRC issued the “Decision on Amending Several Provisions on Cash Dividends by Listed Companies,” which requires publicly listed companies to distribute profits in cash equivalent to no less than 30% of the average distributable profits achieved in the past three years when publicly issuing securities.

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Author contributions

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The authors declare no competing interests.

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This article does not contain any studies with human participants performed by any of the authors.

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Additional information

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Correspondence and requests for materials should be addressed to Liang Zhao.

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