



# Economic policy uncertainty and corporate donation: evidence from private firms in Korea

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Received: 10 May 2021 / Accepted: 24 March 2022

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## Abstract

This study examines the association between economic policy uncertainty (EPU) and private firms' corporate donations. Based on resource constraints and the conservation of resources (COR) theory, we argue that private firms are constantly facing resource constraints and their resource conservation motive becomes apparent when EPU is heightened. Therefore, we expect that corporate donations are negatively related to EPU. Using audited corporate donations from 48,903 private firms in Korea during 2002–2019, we find that private firms' donations are negatively related to EPU. We find that private firms operating in more competitive conditions increase their donations, but this positive association between market competition and donations is moderated by EPU. We find that private firms' donations increased when the progressive party is in power, but this positive relationship is also moderated by EPU. Our results suggest that firms reduce their level of corporate giving to conserve resources as a precautionary saving motive when they face higher EPU. Our paper contributes to the strand of literature on corporate donations and EPU by providing evidence that EPU significantly affects private firms' donations. We also find that firms' strategic motives and political pressure to engage in corporate donations are moderated by EPU.

**Keywords** Economic policy uncertainty · Corporate donations · Private firms · Resource constraints · Market competition · Progressive party

**JEL Classification** M14 · D64 · D80 · G18

**Mathematics Subject Classification** 62H12 Estimation in multivariate analysis · 62H15 Hypothesis testing in multivariate analysis

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## 1 Introduction

Our world is experiencing an unprecedented shock from the coronavirus (COVID-19) outbreak that has taken many lives, accompanied by astonishing economic and political uncertainty from various issues such as the debt ceiling and a contentious presidential election in the United States, the Brexit transition, the Black Lives Matter movement, a nuclear threat from North Korea, and many others. Countries around the world are constantly re-evaluating lockdowns, social distancing, quarantine, and vaccination policies that have brought unprecedented uncertainties to firms' operations (Donthu and Gustaffson 2020; García-Carbonell et al. 2021). Worldwide, companies are currently experiencing an extraordinary period of economic policy uncertainty (EPU hereafter) (Baker et al. 2020). At the same time, society demands that companies bear greater social responsibility (Crane and Matten 2020). Our timely study investigates this issue by examining the relationship between EPU and corporate social responsibility (CSR), specifically corporate donations, or social or charitable giving.

EPU is defined as the likelihood that national economic policies will change in future years, and the potential of these changes to affect economic activities at the firm level (Baker et al. 2016). Corporate donation is defined as corporate giving to social and charitable causes within the local community (Godfrey 2005; Wang and Qian 2011). Recent research examined the effects of EPU on publicly traded firms' investment, mergers and acquisition, information asymmetry, disclosure, cash holding, earnings management, tax avoidance, innovations, and firm value (Baker et al. 2016; Borghesi and Chang 2019; Chen et al. 2019; Jin et al. 2019; Gulen and Ion 2016; Nguyen and Nguyen 2020; Wu et al. 2020; Xu 2020). However, the literature that examines the relationship between EPU and CSR is nascent and focuses only on publicly listed firms (Dai et al. 2020; Zhang et al. 2020). Particularly, literature that focuses on private firms' resources, charitable giving, and response to EPU, which could be quite different from that of publicly traded firms, is absent. Zhang et al. (2020) show that Chinese public firms increase their CSR engagement during high EPU periods, and Dai et al. (2020) document that U.S. publicly held firms increase their CSR activities during high EPU. In publicly traded firms, CSR could be driven by managers' self-interests (agency problems) (Brown et al. 2006; Cespa and Cestone 2007). We focus on private firms' corporate donations where the motive for giving is less likely to be driven by agency problems.

We pose and investigate three research questions. First, how does EPU affect private firms' donations? Second, how does EPU moderate corporate donations for firms that operate in more competitive markets? Third, how does EPU moderate the association between corporate donations and a country's ruling political party?

We use private firms in Korea as our sample for two reasons. First, in Korea, there were 29,343 public and privately held firms in 2019 that disclosed audited financial statements that include corporate charitable giving; 2058 of these firms were public (780 KOSPI and 1278 KOSDAQ listed firms<sup>1</sup>). While evidence for corporate giving

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<sup>1</sup> The Korea Composite Stock Price Index (KOSPI) is the index that tracks the performance of all common stocks listed on the Korean Stock Exchange, which is similar to S&P 500. KOSDAQ (Korean Secu-

by private firms worldwide is sparse due to the absence of data, Korean private firms are required to have their financial statements containing corporate donations audited and disclosed to the public by the Financial Supervisory Service (equivalent to the U.S. Securities and Exchange Commission) (Kim et al. 2011). This rich and reliable (audited) data on corporate charitable giving by private firms in Korea provide is a perfect setting to examine our research questions. Second, previous studies on corporate giving tend to pay more attention to large public firms (e.g., Lev et al. 2010; Oh et al. 2018). This approach excludes small private firms that may engage in non-monetary charitable giving to the community. Small private firms' donations also receive less press coverage and public attention and therefore may involve a different decision-making process than that of public firms. Our focus on private firms provides new insights on the effects of EPU on private firms' donations.

Based on the resource constraints literature (Baker and Nelson 2005; George 2005; Holtz-Eakin et al. 1994a, b; Mosakowski 2002) and the conservation of resources (COR) theory (Hobfoll 1989; Hobfoll et al. 2018), we argue that private firms have significantly less resources than public firms and are more averse to losses. Therefore, they have stronger legitimacy motives to conserve their financial resources for core activities (e.g., production processes) and to minimize corporate donations. The resources conservation motive becomes even stronger for private firms when EPU is heightened because EPU is generally accompanied by a steep economic decline due to cutbacks on consumer and government spending and an upward pressure on the firm's cost of capital (Baker et al. 2016). Therefore, we expect that private firms' donations are negatively related to EPU.

Driven by the value enhancing motive of donation, we also argue that private firms which operate in a more competitive environment tend to make more donations in order to stay competitive. However, we expect that EPU moderates the positive relationship between competitive environment and corporate donations. Consistent with the literature (Campbell 2007; Gao 2011), we also expect that private firms' donations are influenced by political pressure. Thus, we expect corporate donations to be greater when the progressive (liberal) party is in power, which is expected to promote greater CSR and corporate donations. However, since private firms have stronger motives to conserve their resources when EPU is heightened, we also argue that EPU moderates the positive relationship between progressive politics and corporate donations.

Our study contributes to the literature in several ways. First, we examine the consequences of EPU on corporate charitable giving decisions based on the resource constraints literature. Further, we apply COR theory (Hobfoll 1989) from the individual (micro) level into an organizational (meso) level to explain the resources conservation strategy when private firms face EPU. While COR theory explains individuals' coping strategy for stresses and potential losses, our study explains how privately held firms' corporate donations are curtailed to cope with stresses and

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Footnote 1 (continued)

rities Dealers Automated Quotations) was established in 1996 and benchmarked from the U.S. counterpart, NASDAQ.

potential losses due to EPU. Second, we expand the extensive corporate giving literature and the emerging literature on corporate giving behavior by private firms where the motive for corporate donation is less likely to be driven by agency problems. Third, while we find evidence to support the competitive advantages and value enhancing motives of corporate donations for private firms, we also provide evidence that the resource constraints for privately held firms become apparent when EPU is heightened. Fourth, studies on corporate donation mostly investigate large publicly traded firms and business groups (Lev et al. 2010; Jeong and Kim 2019; Kim et al. 2019; Oh et al. 2018). Lev et al. (2010) acknowledge that a focus on public firms' donations misses the full picture with regard to factors that affect corporate donation. Using reliable (audited) data for corporate donations by privately held firms in Korea, our study examines the impact of EPU on private firms' corporate donations. Finally, our study also offers policy implications as private firms curtail their corporate donations when EPU is heightened.

## 2 Literature review and hypotheses development

EPU indicates the likelihood that policies will change in future years, and how these changes could affect economic activities. Baker et al. (2016) demonstrate that EPU significantly affects both the macro and firm-level outcomes. Prior studies find that uncertainty in economics and politics adversely affects consumer spending, government purchases, and stock markets. Recent studies show that EPU affects firms' investment and financing decisions. Chen et al. (2019) find a negative relationship between EPU and firms' investment. Xu (2020) finds that high EPU has a detrimental effect on corporate innovation by driving up firms' cost of capital. Recent studies also demonstrate that banks tend to charge higher interest rates and reduce their loans to corporations when EPU increases (Barraza and Civelli 2020). Li (2019) documents a positive relation between EPU and a firm's cash holding because of precautionary saving motive. Nguyen and Nguyen (2020) show that firms engage in aggressive tax avoidance activities when EPU is heightened as a precautionary saving motive.

Moreover, there is extensive literature that examines the rationale and motivations for firms to engage in corporate donation (Brown et al. 2006; Wang and Qian 2011; Wang et al. 2015). Brown et al. (2006) argue that there are two main motivations for corporate donations: managerial agency problem and value enhancement objective. They argue that managers utilize corporate donations to enhance their own personal reputations and self-interests. Therefore, corporate donations represent the agency costs. They also argue that corporate donations can also bring value enhancement to shareholders.

Private firms have a highly concentrated ownership structure in which the owners who hold a large proportion of equity are also the managers who make decisions. Thus, private firms are less likely to suffer from the agency problems between managers and shareholders, and they face less pressure and scrutiny from the capital market, regulatory agencies, and public opinion (Burgstahler

et al. 2006; George 2005). Consequently, private firms' donations are less likely to be driven by the agency motive.

George (2005) indicates that privately held firms differ in their decision-making processes from their publicly held counterparts since they tend to be undercapitalized (Holtz-Eakin et al. 1994a, b). He argues that due to fewer resources, private firms are more likely to leverage their limited resources to achieve greater efficiencies. Baker and Nelson (2005) argue that since private enterprises have less resources, they are more responsive to changes, quickly re-allocating their limited resources in order to survive (Mosakowski 2002). Existing studies have found that EPU adversely affects firms' resources (Baker et al. 2016). Firms engage in a precautionary saving motive, especially firms with difficulty in raising external financing (Li 2019; Nguyen and Nguyen 2020). Since private firms experience greater barriers to raise external financing, especially during heightened EPU, we argue that increases in EPU are more likely to bring a significant adverse impact on private firms' resources. Therefore, private firms, which constantly face resource constraints, are more likely to face even greater resource constraints when EPU is heightened. Hence, they need to limit their resources to activities that generate greater and more certain payoffs.

Typically, private firms are small, tend to rely heavily on bank loans, and have scarce financial slack. When EPU increases, financial institutions, especially banks, tend to charge higher interest rates and lend significantly less money to businesses (Barraza and Civelli 2020). Hence, private firms experience greater capital constraints during EPU. Moreover, the benefits of corporate giving and charitable donations are uncertain and difficult to evaluate, especially when EPU is heightened.

COR theory is a stress model developed by Hobfoll (1989) to explain the defensive mode (resource conservation) adopted by individuals when facing losses or threat of loss. COR theory posits that people have a built-in bias to "overweight resource loss" and "underweight resource gain" as a theory to understand stress in organizations, with resource loss being more powerful than resource gain in terms of magnitude and speed over time (Hobfoll 1989; Hobfoll et al. 2018). Since Hobfoll's (1989) seminal study, COR theory has been recently applied to explain conservation strategies at the organizational level (Hobfoll et al. 2018; Clercq and Belaustegui-Goitia 2019). The main tenet of COR is that firms' resource loss is expected to be disproportionately more salient than resource gain. Similar to individuals, organizations as a whole adopt conservation of resources behavior when they are facing losses or potential losses.

We use the micro (individual) level of COR and apply it at the organizational (meso) level to explain corporate donation behavior of privately held firms when they are facing higher EPU. In the context of our study, COR theory demonstrates that a firm's resource loss is likely to be greater than the benefits from corporate donations, especially when EPU increases. Hobfoll et al. (2018) state this argument as "organizations who lack resources are more vulnerable to resource loss and less capable of resource gain" (pg. 106). Moreover, due to private firms' limited resources, resource loss is quickly more detrimental to private firms than their publicly held counterparts. EPU affects privately held firms more rapidly and it

increases the likelihood of being caught in a “loss spiral” (Hobfoll 1989), while resource gains from corporate donation tend to be small and take time to develop.

Therefore, based on resource constraints literature and COR theory, we argue that private firms are financially constrained and are more likely to reduce corporate donation by redirecting their limited resources to core activities such as their production processes that carry a greater certainty to improve their financial goals when EPU is heightened. Thus, our first hypothesis is stated as follows:

**Hypothesis 1** *Corporate donation is negatively related to EPU.*

Literature finds that peer pressure from competitors influences firms’ corporate donations (Cao et al. 2019). Firms use corporate donations to maintain public image, consumer loyalty, and community support (Zhang et al. 2010), and to increase employee engagement (Arco-Castro et al. 2020). Firms operate in competitive markets, with advertising and CSR commitments used to gain competitive advantages (Baron et al. 2011). Thus, corporate donation is driven by the value enhancement motive. We argue that private firms which operate in more competitive markets, measured by advertising expenditures and the industry median of corporate donation where firms operate (Baron et al. 2011), are more likely to increase their donations to gain competitive advantages (value enhancement motive).

We also argue that EPU can significantly affect the positive relationship between market competition and corporate donation. When EPU is heightened, private firms are forced to make COR strategic decisions to allocate their limited resources in ways that enhance their competitive advantages and increase their likelihood to survive. We argue that increases in EPU put these private firms, which are already facing fierce competition, in a more difficult position with even greater resource constraints. Private firms that operate in more competitive markets face greater resource constraints and greater stresses (loss spiral) when EPU is heightened and therefore are more likely to revert to a resource conservation mode by immediately diverting their resources away from corporate donation toward their core activities that carry greater certainty. Hence, when EPU is heightened, we expect that private firms that operate in more competitive markets are more likely to decrease their donation levels. Thus, our second hypotheses are stated as follows:

**Hypothesis 2a** *Corporate donation is positively related to market competition.*

**Hypothesis 2b** *The positive relationship between corporate donation and market competition is moderated by EPU.*

Institutional theory of corporate philanthropy argues that corporate charitable giving is influenced by institutionalized norms and government ideological values (Campbell 2007; Gao 2011; North 1991). Consistent with institutional theory, ideological values and beliefs of public officials and congressional representatives of the ruling party can influence firms’ corporate giving and social responsibility (Borghesi 2017). When the political ideology is tilted towards the liberal or

progressive party, the collective social consciousness is more likely to encourage firms to attach greater importance to social responsibility issues such as community and environmental protections and human rights (Davis and Thompson 1994).<sup>2</sup>

For instance, the progressive party that assumed power in Korea in 2017 includes a “social value” metric to evaluate the performance of both the public and private sectors. The “social value” metric score represents thirty-five percent of the total evaluation score of public institutions; public institutions engage in a variety of “social value” enhancing activities to achieve their performance benchmarks.<sup>3</sup> Furthermore, large corporations such as SK Corporation were urged to make a large commitment by establishing The Center for Social Value Enhancement Studies, and a social incentive system was established by the government to provide private firms with funding (approximately \$40,000 dollars per year for each private firm) to create social value enhancements among small and medium enterprises (SMEs).<sup>4</sup> Progressive politics exert significant pressure on both public and private firms to engage in higher corporate donations. Specifically, Korean private firms are more likely to increase their level of corporate donations to maintain a favorable relationship with the progressive central and local governments. Therefore, we expect that private firms’ corporate donations are higher when the progressive political party is in power.

However, EPU can influence the relationship between the ruling progressive party and corporate donation. Under normal conditions, private firms expect that the progressive party is more likely to provide greater support to them than the conservative party. Drawing from the extant literature (Cyert and March 1963; George 2005), we argue that private firms become more complacent and inward-looking, exhibit greater inertia, and are less resilient to EPU when the progressive party rules because of the expectation of government support. EPU is unexpected during progressive rule; hence, when EPU occurs, private firms are more likely to experience

<sup>2</sup> In the U.S., corporations tend to be more socially responsible when the Democratic Party (the liberal or the progressive party) is ruling the country (Baron et al. 2011). Studies also find that firms with headquarters in the Democratic states emphasize CSR performance more than those with headquarters in the Republican states (Di Giuli and Kostovetski 2014; Harjoto 2017; Kim et al. 2020; Rubin 2008).

<sup>3</sup> For instance, in April of 2018, when the Chinese government imposed a ban on the import of waste resources, a trash crisis broke out on Korea’s Jeju Island, where 50% of the total amount of waste plastic was exported to China. KOSPO (Korean South Power Co), a public institution, held a resident briefing in collaboration with the Jeju Provincial Office, and gained consent to use waste vinyl refined oil as a power generation fuel, while easing concerns from residents about environmental pollution. In addition, management doctors (consulting agents) were dispatched to support small and medium-sized businesses to improve their facilities. This initiative was successful in converting 4200t, 56% of waste vinyl, to power generation fuel. Related firms recorded sales of 520 million won and creation of six jobs. The idea of converting wastes including waste vinyl and waste plastic into eco-friendly power generation fuel has been a great lesson for other local governments. It is also remarkable that KOSPO has smoothly promoted related tasks through communication with stakeholders such as local residents, the Jeju Provincial Office, and the Provincial Council (Shindonga-2019 Public Institutions Best Practice, Giving Korea, 2015).

<sup>4</sup> During progressive party rule in 2018, there were 64 policies and 904 detailed tasks for SMEs and small business owners. Regarding the incentive system, there is unprecedented financial support for SME employers and young entrepreneurs by the Ministry of SMEs and Startups (see <https://www.korea.kr/news/pressReleaseView.do?newsId=156282665>).

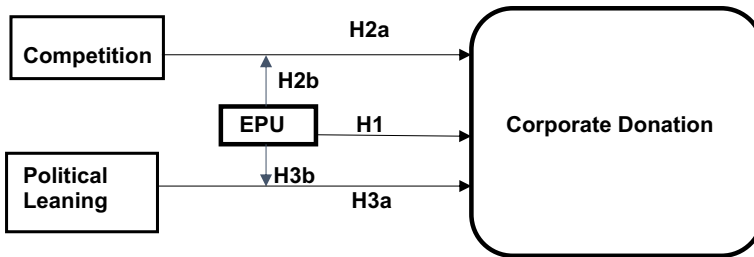


Fig. 1. The impact of EPU on corporate donation and the moderating effect of EPU

greater adverse shocks to resources and a higher likelihood of experiencing a loss spiral. Private firms are more likely to engage in the COR strategy when EPU is heightened during progressive party rule as a reaction to an unanticipated adverse shock. Therefore, we expect that the positive relationship between corporate donation and the progressive party ruling is moderated by EPU. Our third hypotheses are stated as follows:

**Hypothesis 3a** *Corporate donation is higher when the progressive political party is in power.*

**Hypothesis 3b** *EPU moderates the positive relationship between corporate donation and progressive party rule.*

Figure 1 illustrates the three proposed sets of hypotheses. The direct impact of EPU on corporate donation is indicated by H1 and the direct effects of market competition and political leaning (progressive political party rule) on corporate donations are indicated by H2a and H3a, respectively. The moderating effect of EPU on the relationship between market competition and corporate donation is indicated by H2b, while the moderating effect of EPU on the relationship between political leaning and corporate donation is represented by H3b.

### 3 Research methodology

#### 3.1 Sample selection

Korean private firms are relatively small in size (Haw et al. 2014), and mostly have majority shareholders who are founders of the firm and the founders are the CEOs. Kim et al. (2011) report that Korean private firms have less shareholders than public firms and therefore are less likely to suffer from the managerial agency problem. Korean private firms also rely heavily on short-term or long-term debts obtained from regional banks, commercial banks, and other private lenders (Kim et al. 2011;



Haw et al. 2014).<sup>5</sup> Since banks generally are vulnerable to credit risks during EPU (Barraza and Civelli 2020), EPU significantly increases their cost of capital and limits private firms' ability to obtain capital. Thus, EPU creates a capital constraint to these private firms. Therefore, Korean private firms provide a unique setting to examine the impact of EPU on private firms' corporate donation under resource constraints.

We compiled a sample of private Korean firms that never went public along with their financial and corporate donation data for 2002–2019 from the Total Solution 2000 (TS2000) and Korea Investors Services (KIS) Value databases. These databases have been used by existing studies (Oh et al. 2018; Song et al. 2020). We selected our sample companies based on the following criteria: (1) complete financial and corporate donation expense data available in the TS2000 and KIS Value databases, (2) fiscal year end of December 31,<sup>6</sup> and (3) the firms operate in a non-financial industry. Based on this selection criteria, our final sample consists of 317,724 firm-year observations across 48,903 private firms for 2002–2019.

### 3.2 EPU measure

Our independent variable of interest, EPU, is adapted from Baker et al. (2016). Baker et al. (2016) construct the South Korean EPU index based on major South Korean newspapers in the same manner as the EPU index for the U.S. is constructed based on major American newspapers. For South Korea, Baker et al. (2016) use six major newspapers: *Donga Ilbo*, *Kyunghyang*, *Maeil Economic*, *Hankyoreh*, *Hankook Ilbo*, and *Korea Economic Daily*. Baker et al. (2016) count the number of newspaper articles containing the EPU terms uncertain or uncertainty; economic, economy, or commerce; and one or more of the following policy-relevant terms: government, Blue House, congress, authorities, legislation, tax, regulation, Bank of Korea, central bank, deficit, WTO, law/bill, or ministry of finance. Baker et al. (2016) conduct all searches in the native language of the newspapers.

To construct the EPU rating for each newspaper, Baker et al. (2016) scale the raw EPU counts by the number of all articles in the same newspaper and during the same month that contain the EPU terms described above. To construct the overall South Korean EPU index, Baker et al. (2016) first standardize each newspaper's EPU rate to a unit standard deviation. Using these standardized series, Baker et al. (2016) average the EPU rates across newspapers by month and then multiplicatively rescale the resulting series to a mean of 100.

We obtain the Korean version of EPU monthly index from Baker et al. (2016) website at <https://www.policyuncertainty.com/>. Following Nguyen and Nguyen (2020), we take log transformation of the arithmetic average of the monthly Korean

<sup>5</sup> In line with strong bonding between Korean private firms and regional banks, owner-managers of private firms tend to acquire buildings or land using maximum bank credit for capital gains or rental income to support their corporate donations.

<sup>6</sup> Following prior literature that examines Korean private firms (Kim et al. 2011; Haw et al. 2014), we choose firms that have a fiscal year end of December 31 to increase the comparability of the firms' financial statements and the computation of yearly EPU.

**Table 1** Economic policy uncertainty (EPU) index and presidential election information

Year	KOEPU1 12 month average	KOEPU2 First month	USEPU 12 month average	Korean election events	President party
2002	109.40	136.22	105.34	Presidential election	Progressive
2003	165.82	224.40	110.12		
2004	131.55	145.82	93.05	National assembly election	
2005	68.64	107.98	71.75		
2006	90.74	76.67	71.32		
2007	82.57	134.79	80.51	Presidential election	
2008	140.71	135.08	127.83	National assembly election	Conservative
2009	147.08	201.63	143.94		
2010	148.72	170.98	155.48		
2011	167.03	137.05	172.24		
2012	163.27	254.89	167.83	Presidential election, National assembly election	
2013	130.61	192.95	120.12		
2014	81.88	105.64	87.05		
2015	128.25	165.82	108.66		
2016	188.81	181.94	111.45	National assembly election	
2017	160.77	391.80	111.44	Presidential election	Progressive
2018	136.31	95.63	119.88		
2019	257.36	249.44	140.67		

EPU index during the 12 months of the calendar year  $t$ . Table 1 shows yearly EPU values or twelve-month arithmetic average of Korean EPU (KOEPU1), first month Korean EPU (KOEPU2) and twelve-month arithmetic average of U.S. EPU (USEPU). In addition, we show the Korean election events, particularly, the presidential elections and national assembly elections and regime changes in the last column of Table 1.<sup>7</sup>

### 3.3 Corporate donation measures

We measure the dependent variable, the corporate donation of individual firms (CPG1), as the natural logarithm of annual corporate donation expense for each firm following prior studies (Maung et al. 2020). Consistent with recent literature (Kordsachia 2021; Luo et al. 2017; Ren et al. 2021), we also use annual corporate donation expense divided by firms' size (CPG2) as our alternative measure of corporate donation.

<sup>7</sup> Usually, the Korean presidential election is held in December. The period of progressive- or conservative-ruling is classified depending on whether the presidential election is held in that year. For example, if the president is changed from the progressive party to the conservative party in December 2006, 2006 is coded as the progressive party and 2007 is coded as the conservative party.

### 3.4 Control variables

We include several firm-level control variables that are expected to affect corporate giving according to prior literature (Adams and Hardwick 1998; Brammer and Millington 2004). First, the natural log of total revenue as a measure of firm size (SIZE) is expected to be positively associated with corporate donation (CPG1 and CPG2) because bigger firms are facing more public scrutiny and they are more likely to have abundant resources. Therefore, they are more likely to engage in more corporate donation. A firm's total debt to total equity or financial leverage ratio (LEV) is used to proxy for the firms' bankruptcy risk. Highly leveraged firms spend more cash to pay for their interest expenses and therefore have less funds for corporate giving (Adams and Hardwick 1998). Firms' profitability, liquidity, and operating cash flow are expected to affect corporate charities (Wang and Qian 2011). We expect a negative association between firms with negative net income (LOSS) and corporate donation and we expect positive associations between firms with greater current ratio (CRATIO) and operating cash flow (OCF) and corporate donation. Lastly, following Kim et al. (2019), we construct a dummy variable for the Big N auditors when private firms' financial statements are audited by PWC, Deloitte, KPMG, or EY, to control for the quality of external audit and monitoring. Industry dummies, defined by two-digit SIC codes, are also included in the model to control for differences in industry characteristics (Du et al. 2018). Consistent with existing EPU studies (Baker et al. 2016; Gulen and Ion 2016; Nguyen and Nguyen 2020), we do not include time fixed effects in our model because including year dummies will automatically absorb the explanatory power of the EPU variable.

### 3.5 Empirical models

We tested our first hypothesis (Hypothesis 1) using Eq. (1). The dependent variable in Eq. (1) is the corporate giving or donation (CPG1 or CPG2) and our independent variable of interest is natural logarithm value of EPU (LNEPU) in a given year (Baker et al. 2016; Nguyen and Nguyen 2020; Yung and Root 2019). We perform our baseline ordinary least square (OLS) regression analyses based on the following Eq. (1):

$$CPG1_{i,t}(CPG2)_{i,t} = \beta_0 + \beta_1 LNEPU_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 LOSS_{i,t} + \beta_5 CRATIO_{i,t} + \beta_6 OCF_{i,t} + \beta_7 BIGN_{i,t} + \text{Industry Fixed Effects} + \varepsilon_{i,t} \quad (1)$$

Based on Hypothesis 1, we expect that private firms reduce their corporate donation as EPU increases and therefore we expect that the slope coefficient for LNEPU ( $\beta_1$ ) to be negative and significant.

To test Hypotheses 2a and 2b, we conducted a multivariate regression based on the following Eq. (2):

$$\begin{aligned}
CPG1_{i,t} = & \beta_0 + \beta_1 LNEPU_{i,t} + \beta_2 MEDIANCPG1(LNAD)_{i,t} \\
& + \beta_3 TLNEPU \times TMEDIANCPG1(TLNAD)_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} \\
& + \beta_6 LOSS_{i,t} + \beta_7 CRATIO_{i,t} + \beta_8 OCF_{i,t} + \beta_9 BIGN_{i,t} \\
& + \text{Industry Fixed Effects} + \varepsilon_{i,t}
\end{aligned} \tag{2}$$

Cao et al. (2019) indicate that firms do not operate in isolation and their corporate policies may be the outcome of interacting with other firms in the same industry. Following existing literature, we use industry median value of donation and logarithm value of advertising expenses as proxies for market competition (Brammer and Millington 2004; Baron et al. 2011; Harjoto et al. 2015) to test Hypothesis 2a. If private firms operate in a more competitive product market or experience intense peer pressure regarding corporate donation, we expect that private firms will increase their corporate donation to gain their competitive advantages (value enhancing motive). Thus, we expect that the slope coefficient ( $\beta_2$ ) for MEDIANCPG1 (or LNAD) would have a positive sign. Further, to test the moderating effect of LNEPU on the relationship between MEDIANCPG1 (or LNAD) and corporate donation for Hypothesis 2b, we constructed the interaction variable TLNEPU  $\times$  TMEDIANCPG1 (or TLNEPU  $\times$  TLNAD). There are high correlations between interaction variable (e.g., LNEPU  $\times$  LNAD) and moderating variable (LNEPU) and independent variable (LNAD). Following the literature (Aiken and West 1991; Harjoto et al. 2017; Ruppert 2004), we transformed the components of the interaction variable (e.g., TLNEPU and TLNAD) by subtracting its mean value from each value of independent variables, then constructed the interaction variables based on these transformed variables (e.g., TLNEPU  $\times$  TLNAD). We expect that private firms that operate in a competitive market or under intense peer pressure to engage in corporate donation will reduce corporate donations during a high EPU period. Thus, we expect the slope coefficient ( $\beta_3$ ) for TLNEPU  $\times$  TMEDIANCPG1 (or TLNEPU  $\times$  TLNAD) to be negative.

To test Hypotheses 3a and 3b, we conducted a multivariate regression as follows in Eq. (3):

$$\begin{aligned}
CPG1_{i,t} = & \beta_0 + \beta_1 LNEPU_{i,t} + \beta_2 PROG_{i,t} + \beta_3 TLNEPU \times TPROG_{i,t} + \beta_4 SIZE_{i,t} \\
& + \beta_5 LEV_{i,t} + \beta_6 LOSS_{i,t} + \beta_7 CRATIO_{i,t} + \beta_8 OCF_{i,t} + \beta_9 BIGN_{i,t} \\
& + \text{Industry Fixed Effects} + \varepsilon_{i,t}
\end{aligned} \tag{3}$$

In Korea, there are two main political parties, the progressive Minjoo Party of Korea and the conservative People Power Party. PROG is coded one if the president in Korea is from the progressive party or zero otherwise. When the progressive party is in power, its liberal-tilted political and social values create significant pressure on Korean private firms to engage in higher corporate donations. Consistent with Hypothesis 3a, we expect that private firms' corporate donations are higher when the progressive political party is in power. Hence, we expect the slope coefficient ( $\beta_2$ ) to be positive.

**Table 2** Descriptive statistics

Variable	N. of Obs	Mean	Std. Dev	25%	Median	75%
DON (\$)	317,724	39,565	578,261	0.00	0.00	5,217
CPG1	317,724	7.71	7.94	0.00	0.00	15.61
CPG2	317,724	4.87	14.90	0.00	0.00	2.20
EPU	317,724	145.35	45.95	128.25	140.71	163.27
LNNEPU	317,724	4.93	0.32	4.85	4.95	5.10
LNNEPU2	317,724	5.11	0.41	4.90	5.11	5.31
LNNESEPU	317,724	4.75	0.24	4.66	4.71	4.95
IMPEACH	317,724	0.07	0.26	0.00	0.00	0.00
PROG	317,724	0.46	0.50	0.00	0.00	1.00
CASH	317,724	0.07	0.11	0.01	0.03	0.08
SIZE	317,724	16.44	1.71	15.70	16.64	17.44
LEV	317,724	3.27	16.66	0.40	1.43	3.49
CRATIO	317,724	2.55	7.06	0.63	1.09	1.91
LOSS	317,724	0.28	0.45	0.00	0.00	1.00
OCF	317,724	0.04	0.19	-0.02	0.04	0.11
BIGN	317,724	0.13	0.34	0.00	0.00	0.00
LNAD	317,706	11.03	8.02	0.00	14.59	17.22

This table presents the yearly distributions of our full sample of 317,724 Korean private firm-year observations over the period 2002–2019. Variable definition is in Appendix

Consistent with Hypothesis 3b, we expect that private firms in Korea will decrease their corporate donations under a progressive political regime when EPU increases, given resource constraints. We use transformational value of each variable (TLNEPU and TPROG) to reduce multicollinearity problem. Hence, we expected the slope coefficient ( $\beta_3$ ) for the interaction variable TLNEPU  $\times$  TPROG in Eq. (3) to be negative.

All variables are defined in the Appendix. All regressions were estimated using robust standard errors clustered by the firm (Petersen 2009) to alleviate the cross-sectional correlations in the error terms that are inherent in the panel data, and industry fixed effects are included to control systematic differences in corporate donation across industry. We also performed a hierarchical regression analysis according to moderation analysis procedure. To alleviate potential outlier problems, we winsorized all continuous variables below 1% and above 99%.

## 4 Empirical results

### 4.1 Descriptive statistics

Table 2 provides descriptive statistics for the variables used in this study. The mean value of corporate donation expenses (DON) is \$39,565 per year. The mean value of natural log of donation expenses (CPG1) is 7.71 and the mean value of donation

**Table 3** Pearson correlations

	CPG1	CPG2	LNEPU	LNEPU2	SIZE	LOSS	LEV	CRATIO	OCF
CPG2	0.43 (0.00)								
LNEPU	-0.04 (0.00)	-0.03 (0.00)							
LNEPU2	-0.02 (0.00)	-0.02 (0.00)	0.63 (0.00)						
SIZE	0.35 (0.00)	0.12 (0.00)	-0.01 (0.00)	-0.01 (0.00)					
LOSS	-0.04 (0.00)	-0.02 (0.00)	0.01 (0.00)	0.01 (0.00)	-0.04 (0.00)				
LEV	-0.03 (0.00)	0.01 (0.00)	0.02 (0.00)	0.01 (0.00)	-0.16 (0.00)	-0.04 (0.00)			
CRATIO	-0.18 (0.00)	-0.08 (0.00)	0.02 (0.00)	0.00 (0.01)	-0.34 (0.00)	-0.01 (0.00)	0.00 (0.58)		
OCF	0.07 (0.00)	0.06 (0.00)	0.00 (0.05)	0.00 (0.93)	0.21 (0.00)	-0.02 (0.00)	-0.01 (0.00)	-0.23 (0.00)	
BIGN	0.10 (0.00)	0.04 (0.00)	-0.05 (0.00)	-0.03 (0.00)	0.24 (0.00)	-0.03 (0.00)	0.01 (0.00)	-0.03 (0.00)	0.05 (0.00)

This table presents Pearson correlations between key variables for the pooled sample. The two-tailed *p*-values are below the correlation coefficients. Variable definition is in Appendix

expenses to total assets (CPG2) is 4.87.<sup>8</sup> The mean value of EPU in Korea and LNEPU is 145.35 and 4.93, respectively; while the mean value of natural log of U.S. EPU (LNUSEPU) is 4.75. Thus, Korean EPU is slightly higher than EPU in the U.S. Elected presidents are from the progressive party (PROG) 46% during our sample period. All other control variables, such as SIZE, LEV, LOSS, CRATIO, and OCF have similar statistical properties to those in prior studies (i.e., Kim et al. 2019). Finally, approximately 13% of private firms in Korea are audited by the big four (BIG N) accounting firms and the mean natural log of annual advertising expense is 11.03.

## 4.2 Univariate analysis

Table 3 reports the Pearson correlation coefficients for the variables used in the regressions. The LNEPU, the main variable of interest in this study, is significantly negatively correlated with corporate donation measure (CPG1 and CPG2) at the 1% significance level. Therefore, the correlation results suggest that corporate donation is negatively correlated with EPU. Next, we performed baseline OLS regression

<sup>8</sup> The number of firm-year observations that report zero donation is 160,536 and we include these observations to reduce sample selection bias. In Table 8, we conduct robustness analyses by excluding firms with zero corporate donation, which revealed consistent results.

analyses to examine the association between corporate donation (CPG1 and CPG2) and EPU (LNEPU) while controlling for other factors that affect corporate donation.

### 4.3 Baseline OLS regression

Table 4 presents the baseline OLS regression results to test our three hypotheses. Consistent with Hypothesis 1, Column (1) of Table 4 shows that that our first measure of corporate donation (CPG1) is negatively related with EPU (LNEPU) after robust standard errors are clustered at the firm level following Xu (2020) and Nguyen and Nguyen (2020).<sup>9</sup> Furthermore, Column (2) of Table 4 shows that slope coefficient of MEDIANCPG1 is positive, which supports H2a: firms that operate in a more competitive market tend to have higher corporate donations. The slope of TLNEPU  $\times$  TMEDIANCPG1 is negative and significant at the 1% level, which support Hypothesis 2b and indicates that Korean private firms that operate in higher peer pressure for corporate donation reduce their donation when EPU is heightened. Column (3) of Table 4 also shows similar results that firms operating in a more competitive market (LNAD) tend to have higher donations (H2a). The slope coefficient of TLNEPU  $\times$  TLNAD is negative and significant at the 1% level, which also supports Hypothesis 2b and indicates that Korean private firms that operate in competitive markets tend to reduce donations when EPU is heightened. Column (4) of Table 4 also shows that the slope of the progressive party (PROG) is positive, which indicates that firms tend to have higher donations when the progressive party is in power (H3a). The slope of the interaction variable, TLNEPU  $\times$  TPROG, is negative and is statistically significant at the 1% level. This result supports Hypothesis 3b and suggests that the positive association between corporate donation and progressive political regime is moderated by EPU. Overall, our results are consistent with the resource constraints and COR theory.

### 4.4 Hierarchical regression analysis

Table 5 presents the multivariate regression results for Hypothesis 1. We conducted a hierarchical regression analysis as our main regression. Column (1) of Table 5 presents results only with control variables. Column (2) of Table 5 shows that our first measure of corporate donation (CPG1) is negatively related with EPU (LNEPU). The magnitude of the slope coefficient of LNEPU ( $-0.875$ ) in Column (2) indicates, in terms of economic significance, that when EPU increases by 1%, corporate donation decreases by 0.875%, which represents 11.35% of the mean for CPG1 (7.71). F-statistics for the R-squared Change (F-statistics Change) reported in Column (2) of Table 5 is significant at 1% level, which implies that our regression model containing EPU (LNEPU) in Column (2) provides a better fit to the data than a model that contains no EPU in Column (1). Our untabulated result also shows that our second measure of corporate donation (CPG2) is also

<sup>9</sup> To address the omitted variables problem (Xu 2020), we re-estimated our multivariate regressions using a firm-fixed effect model and the untabulated results are qualitatively the same as our main results.

**Table 4** Baseline OLS regression

Variables	(1)	(2)	(3)	(4)
	CPG1	CPG1	CPG1	CPG1
<b>TLNEPU × TMEDIANCPG1</b>		<b>-0.020***</b>		
		<b>[-3.074]</b>		
<b>MEDIANCPG1</b>		<b>0.085***</b>		
		<b>[21.163]</b>		
<b>TLNEPU × TLNAD</b>			<b>-0.014***</b>	
			<b>[-2.891]</b>	
<b>LNAD</b>			<b>0.188***</b>	
			<b>[55.316]</b>	
<b>TLNEPU × TPROG</b>				<b>-1.011***</b>
				<b>[-12.586]</b>
<b>PROG</b>				<b>0.230***</b>
				<b>[7.603]</b>
<b>LNEPU</b>	<b>-0.843***</b>	<b>-0.444***</b>	<b>-0.525***</b>	<b>-0.576***</b>
	<b>[-20.464]</b>	<b>[-11.471]</b>	<b>[-12.846]</b>	<b>[-15.046]</b>
SIZE	1.508***	1.508***	1.236***	1.510***
	[81.716]	[81.829]	[66.965]	[81.845]
LEV	-0.014***	-0.014***	-0.011***	-0.014***
	[-15.909]	[-16.052]	[-13.642]	[-15.800]
LOSS	-1.266***	-1.248***	-1.314***	-1.256***
	[-28.644]	[-28.247]	[-30.586]	[-28.419]
CRATIO	0.031***	0.032***	0.033***	0.031***
	[9.311]	[9.603]	[10.195]	[9.438]
OCF	-0.569***	-0.574***	-0.238***	-0.569***
	[-6.806]	[-6.869]	[-2.897]	[-6.805]
BIGN	0.113	0.057	-0.087	0.090
	[1.083]	[0.542]	[-0.861]	[0.858]
Constant	-10.327***	-13.233***	-8.937***	-11.789***
	[-18.545]	[-23.813]	[-16.189]	[-21.302]
Industry dummy	Yes	Yes	Yes	Yes
Cluster by firm	Yes	Yes	Yes	Yes
Observations	317,724	317,724	317,706	317,724
R-squared	0.144	0.145	0.175	0.144
Average (mean) VIFs	1.09	1.11	1.1	1.14

Bolded coefficients indicate the variables of interest related to the hypotheses

See the Appendix for variables definition. T-statistics, reported in bracket, are adjusted for firm-level clustering. \*\*\*, \*\*, \* indicate, respectively, the significance at the 1%, 5%, and 10% levels

negatively related to LNEPU. These magnitudes of the impact of EPU on corporate donation are economically significant.



**Table 5** Hierarchical regression for economic policy uncertainty (EPU) and corporate donation

Variables	(1) CPG1	(2) CPG1
SIZE	1.510*** [173.370]	1.511*** [173.671]
LEV	-0.015*** [-18.328]	-0.014*** [-18.130]
LOSS	-1.196*** [-37.741]	-1.184*** [-37.359]
CRATIO	0.026*** [13.646]	0.027*** [14.165]
OCF	-0.502*** [-6.860]	-0.498*** [-6.818]
BIGN	0.368*** [9.216]	0.323*** [8.081]
LNEPU		-0.875*** [-21.313]
Constant	-16.825*** [-114.867]	-12.539*** [-50.410]
Observations	317,724	317,724
R-squared	0.126	0.127
R-squared Change		0.001
F-statistics	7622.14	6607.48
F-statistics Change		454.26
Average (mean) VIF	1.11	1.09

See the Appendix for variables definition. \*\*\*, \*\*, \* indicate, respectively, the significance at the 1%, 5%, and 10% levels

The impacts of our control variables are mostly consistent with the literature. We find that larger firms (SIZE) tend to have greater corporate donation (Adams and Hardwick 1998; Brammer and Millington 2006), while firms with greater leverage (LEV) tend to have lower donation (Adams and Hardwick 1998). We also find that firms with greater operating cash flow (OCF) tend to have lower donations—these firms invest in research and development and capital expenditures. Firms with a negative net income (LOSS) tend to have lower donations (Wang and Qian 2011). We also find that firms with greater liquidity (CRATIO) and audited by the Big 4 tend to make more donations.

Overall, our results show that increases in EPU are associated with decreases in private firms' corporate donations. Thus, we found strong empirical evidence to support Hypothesis 1 that corporate donation is negatively related to EPU. Our results are consistent with prior studies that firms conserve their resources by reducing corporate spending as a precautionary saving motive when EPU is heightened (Gulen and Ion 2016; Nguyen and Phan 2017; Nguyen and Nguyen 2020).

**Table 6** Hierarchical regression for product market competition and EPU as a moderator

Variables	(1)	(2)	(3)	(4)
	CPG1	CPG1	CPG1	CPG1
<i>Panel A. Moderating effect of EPU on the industry median of corporate donation</i>				
SIZE	1.510*** [173.370]	1.442*** [164.233]	1.445*** [164.410]	1.445*** [164.340]
LEV	-0.015*** [-18.328]	-0.014*** [-17.851]	-0.014*** [-17.799]	-0.014*** [-17.808]
LOSS	-1.196*** [-37.741]	-1.145*** [-36.243]	-1.143*** [-36.169]	-1.142*** [-36.149]
CRATIO	0.026*** [13.646]	0.032*** [16.645]	0.032*** [16.702]	0.032*** [16.697]
OCF	-0.502*** [-6.860]	-0.394*** [-5.398]	-0.397*** [-5.447]	-0.396*** [-5.436]
BIGN	0.368*** [9.216]	0.221*** [5.535]	0.211*** [5.283]	0.208*** [5.202]
LNEPU			-0.319*** [-7.472]	-0.335*** [-7.806]
MEDIANCPG1		0.116*** [50.200]	0.111*** [46.033]	0.111*** [46.062]
TLNEPU × TMEDIANCPG1				-0.024*** [-3.428]
Constant	-16.825*** [-114.867]	-16.552*** [-113.373]	-15.003*** [-59.153]	-14.927*** [-58.639]
Observations	317,724	317,724	317,724	317,724
R-squared	0.126	0.133	0.133	0.133
R-squared Change		0.007	0.0001	0.0001
F-statistics	7622.14	6945.07	6084.96	5410.34
F-statistics Change		2520.04	55.83	11.75
Mean (average VIFs)	1.11	1.11	1.12	1.11
<i>Panel B. Moderating effect of EPU on the firms' advertising expense</i>				
SIZE	1.510*** [173.370]	1.229*** [138.588]	1.232*** [138.951]	1.233*** [138.982]
LEV	-0.015*** [-18.328]	-0.012*** [-15.420]	-0.012*** [-15.316]	-0.012*** [-15.330]
LOSS	-1.196*** [-37.741]	-1.257*** [-40.472]	-1.248*** [-40.201]	-1.248*** [-40.180]
CRATIO	0.026*** [13.646]	0.028*** [15.225]	0.029*** [15.544]	0.029*** [15.564]
OCF	-0.502*** [-6.860]	-0.138* [-1.925]	-0.139* [-1.936]	-0.140* [-1.952]
BIGN	0.368*** [9.216]	0.079** [2.025]	0.053 [1.359]	0.051 [1.300]

**Table 6** (continued)

Variables	(1)	(2)	(3)	(4)
	CPG1	CPG1	CPG1	CPG1
<b>LNPEU</b>			<b>-0.552***</b>	<b>-0.545***</b>
			<b>[-13.675]</b>	<b>[-13.490]</b>
<b>LNAD</b>		<b>0.197***</b>	<b>0.195***</b>	<b>0.195***</b>
		<b>[115.978]</b>	<b>[114.774]</b>	<b>[114.786]</b>
<b>TLNEPU × TLNAD</b>				<b>-0.015***</b>
				<b>[-3.016]</b>
Constant	-16.825***	-14.350***	-11.669***	-11.714***
	<b>[-114.867]</b>	<b>[-98.932]</b>	<b>[-47.852]</b>	<b>[-47.947]</b>
Observations	317,724	317,706	317,706	317,706
R-squared	0.126	0.161	0.162	0.162
R-squared Change		0.035	0.001	0.0001
F-statistics	7622.14	8730.75	7667.25	6816.52
F-statistics Change		1.30	186.99	9.09
Average (mean) VIFs	1.11	1.12	1.11	1.10

Bolded coefficients indicate the variables of interest related to the hypotheses

See the Appendix for variables definition. \*\*\*, \*\*, \* indicate, respectively, the significance at the 1%, 5%, and 10% levels

Panels A and B of Table 6 present the hierarchical regression results to examine our second hypotheses (H2a and H2b) regarding the impact of market competition on corporate donation and the moderating effect of EPU. Panels A and B show results on the moderating effect of EPU on the relation between industry median of corporate donation (MEDIANCPG1) or advertising expense (LNAD) as a proxy of industry-peer competitive pressure for corporate donation and product market competition. In Column (1), we include only the control variables. In Column (2), together with the control variables, we include main test variable (MEDIANCPG1 in Panel A and LNAD in Panel B). In Column (3), together with the control variable and main test variable (MEDIANCPG1 or LNAD), we include the moderating variable (LNPEU). In Column (4), together with the control variable, MEDIANCPG1 (LNAD), and LNPEU, we include the interaction variable between MEDIANCPG1 (LNAD) and LNPEU. The variables (MEDIANCPG1, LNAD, and LNPEU) used to construct the interaction variable are mean-centered (TMEDIANCPG1, TLNAD, and TLNEPU) to mitigate multicollinearity problem as well as to facilitate the interpretation of the main effects (Aiken and West 1991; Harjoto et al. 2017; Rupert 2004). The slope coefficients of MEDIANCPG1 and LNAD in Column (2) in Panels A and B are positive and significant at the 1% level, supporting Hypothesis 2a that private firms in Korea increase corporate donations (CPG1) to gain competitive advantages when they operate in a more competitive market, measured by industry-peer donation and advertising expenses, which are consistent with prior findings (Zhang et al. 2010; Baron et al. 2011; Cao et al. 2019). Furthermore, Column (4) in Panel A shows that the coefficient of TLNEPU × TMEDIANCPG1 is

negative and significant at the 1% level, which support Hypothesis 2b and indicate that Korean private firms that operate under higher industry-peer pressure for corporate donations reduce their donations when EPU is heightened. Similarly, Column (4) in Panel B also provides evidence to support Hypothesis 2b that coefficient of  $TLNEPU \times TLNAD$  is negative and significant at the 1% level. This also indicates that Korean private firms that operate in competitive markets tend to reduce donations when EPU is heightened. In short, we find evidence to support Hypotheses 2a and 2b: private Korean firms in competitive markets or under high industry-peer pressure increase their donations in normal times to pursue their value enhancing motive, but decrease their donations when EPU is heightened to conserve their limited resources. This latter finding is consistent with the resource constraints and COR theory.

We found that the slopes of EPU (LNEPU) and the interaction variables ( $TLNEPU \times TMEDIANCPG1$  or  $TLNEPU \times TLNAD$ ) in hierarchical regression models presented in Column (4) of Panels A and B of Table 6 are statistically significant. Based on studies on pure and quasi moderating factor (Sharma 2003; Sharma et al. 1981), EPU (LNEPU) is considered as a quasi-moderator since it significantly affects corporate donation by itself and interacts with the product market competition measures (MEDIANCPG1 and LNAD). The F-statistics Change reported in Columns (2), (3), and (4) of Panels A and B of Table 6 indicate that the incremental R-squared Change from adding the market competition measures (MEDIANCPG1 or LNAD) and the moderating effect of EPU on the market competition measures ( $TLNEPU \times TMEDIANCPG1$  or  $TLNEPU \times TLNAD$ ) are statistically significant. Therefore, we find evidence that the moderating effect of EPU (LNEPU) on the relationship between product market competition and corporate donation provides a better fit to the data than a model without the moderating effect of EPU. Hence, we find evidence of the positive impact of market competition on corporate donations and the moderating effect of EPU on the impact of market competition on corporate donations, which further support Hypotheses 2a and 2b.

Table 7 presents data for the third hypotheses (H3a and H3b) based on hierarchical regression analyses with moderating effect of EPU. In Column (1), we include only the control variables. In Column (2), together with the control variables, we include main test variable (PROG). In Column (3), together with the control variable and PROG, we include the moderating variable (LNEPU). In Column (4), together with the control variable, PROG, and LNEPU, we include the interaction variable between PROG and LNEPU. LNEPU and PROG used in the interaction variables are mean-centered ( $TLNEPU$  and  $TPROG$ ) in the same manner as in Table 6. The slope of coefficient of PROG in Column (2) is positive and significant at the 1% level, supporting hypothesis H3a that private firms in Korea increase corporate donation (CPG1) to maintain a favorable relationship with the progressive government, which is consistent with prior studies (North 1991; Campbell 2007; Gao 2011; Borghesi 2017) that document the effect of ideological values and beliefs of the ruling party on corporate donation and social responsibility. In Column (4), the slope of the interaction variable,  $TLNEPU \times TPROG$ , is negative and is statistically significant at the 1% level. This result suggests that the positive association between corporate donation and progressive political regime is moderated by EPU.

**Table 7** Hierarchical regression for progressive political party regime and EPU as a moderator

Variables	(1) CPG1	(2) CPG1	(3) CPG1	(4) CPG1
SIZE	1.510*** [173.370]	1.511*** [173.509]	1.513*** [173.787]	1.514*** [173.942]
LEV	-0.015*** [-18.328]	-0.015*** [-18.306]	-0.014*** [-18.113]	-0.014*** [-17.994]
LOSS	-1.196*** [-37.741]	-1.193*** [-37.635]	-1.181*** [-37.271]	-1.174*** [-37.053]
CRATIO	0.026*** [13.646]	0.026*** [13.597]	0.027*** [14.112]	0.027*** [14.379]
OCF	-0.502*** [-6.860]	-0.500*** [-6.831]	-0.497*** [-6.793]	-0.498*** [-6.819]
BIGN	0.368*** [9.216]	0.363*** [9.091]	0.319*** [7.989]	0.302*** [7.546]
<b>LNEPU</b>			<b>-0.860***</b> <b>[-20.924]</b>	<b>-0.604***</b> <b>[-12.890]</b>
<b>PROG</b>		<b>0.229***</b> <b>[8.681]</b>	<b>0.203***</b> <b>[7.677]</b>	<b>0.209***</b> <b>[7.883]</b>
<b>TLNEPU × TPROG</b>				<b>-1.027***</b> <b>[-11.376]</b>
Constant	-16.825*** [-114.867]	-16.951*** [-115.176]	-12.724*** [-50.920]	-14.017*** [-51.071]
Observations	317,724	317,724	317,724	317,724
R-squared	0.126	0.126	0.127	0.128
R-squared Change		0.0001	0.001	0.001
F-statistics	7622.14	6545.55	5789.96	5163.09
F-statistics Change		75.35	437.82	129.42
Average (mean) VIFs	1.11	1.09	1.08	1.14

Bolded coefficients indicate the variables of interest related to the hypotheses

See the Appendix for variables definition. \*\*\*, \*\*, \* indicate, respectively, the significance at the 1%, 5%, and 10% levels

This result supports Hypothesis 3b and is consistent with the resource constraints and COR theory. When the progressive political regime rules during periods of high EPU, private firms in Korea reduce their donations to conserve resources that can be used in their core marketing and production activities.

We also find that the slopes of EPU (LNEPU) and the interaction variables (TLNEPU × TPROG) in hierarchical regression models presented in Column (4) of Table 7 are statistically significant. Based on the literature (Sharma 2003; Sharma et al. 1981), EPU (LNEPU) is considered as a quasi-moderator since it significantly affects corporate donation by itself and interacts with the progressive political leaning variable (PROG).

The F-statistics Change reported in Columns (2), (3), and (4) of Table 7 also indicate that there is incremental significant contribution (R-squared Change) of the main test variable (PROG) and interaction variables (moderating effects) in predicting the value of corporate donation. Therefore, based on the F-statistics, we find that progressive political leaning and the moderating effect of EPU on the relationship between progressive political leaning provide a better fit to the data than a model without the progressive political leaning and the moderating effect of EPU on the relationship between progressive party and corporate donation.

Since the progressive and the conservative parties' ruling periods overlapped with the global financial crisis (GFC) (see Table 1), as a robustness check, we excluded the global financial crisis period (2008–2009) to address the concern that our empirical results could have been driven by the GFC. Our untabulated result shows that the slope coefficient of  $TLNEPU \times TPROG$  shows consistent evidence to support Hypothesis 3b that EPU moderates the positive relationship between progressive party rule and corporate donation. Overall, our empirical results are robust regardless of whether the GFC period is included or not.

#### 4.4.1 Robustness tests

We conducted several tests to examine whether our primary results remain robust under different control variables, variable measures, subsamples, and an alternative estimation method, and after taking into account the potential serial correlation of corporate donation.<sup>10</sup> First, corporate donation in the current year could be influenced by donation level in the previous year. Thus, we included the previous donation ( $CPG1_{t-1}$  and  $CPG2_{t-1}$ ) as additional control variables in the regression when the dependent variables are CPG1 and CPG2, respectively.

Second, corporate donation could be influenced by political uncertainty during the presidential election in Korea, which could potentially confound our main results. Upon investigation, we found that only one out of four presidential elections that occurred during our sample periods creates a significant political uncertainty in Korea. During 2016 (one year prior to the 2017 presidential election, President Park Geun-hye was impeached and removed from her presidential power and duties.<sup>11</sup> To address this concern, we constructed the impeachment dummy variable (IMPEACH) which takes a value of one during 2016 and zero otherwise.

<sup>10</sup> We conducted balanced panel data analyses for 3,709 firms during 2002–2019 as a robustness test and our untabulated results are similar to those using unbalanced panel data in Table 4.

<sup>11</sup> During President Park Geun-hye's tenure, her aide, Choi Soon-sil, who did not have an official position in the government, had used her position to seek monetary donations from several business conglomerates and this was a main cause of President Park's impeachment in 2016 (<https://www.bbc.com/news/world-asia-55657297>). The 2016 presidential impeachment created a significant political uncertainty in Korea, especially related to corporate donation. Following Baker et al. (2016), we also investigated whether presidential elections with close votes (tight presidential elections) during 2002 between Roh Moo-hyun and Lee Hoi-chang and the 2012 election between Park Geun-hye and Moon Jae-in significantly affected corporate donation. Our untabulated results did not find a significant impact on corporate donations during this time, as there was not a spike in EPU.

**Table 8** Robustness tests: additional control variables and alternative EPU

Variables	(1)	(2)	(3)	(4)	(5)
	CPG1	CPG2	CPG1	CPG1	CPG1
<b>LNEPU</b>	<b>-0.869***</b>	<b>-0.518***</b>	<b>-0.822***</b>	<b>-0.633***</b>	
	<b>[-19.791]</b>	<b>[-7.883]</b>	<b>[-19.886]</b>	<b>[-9.821]</b>	
<b>LNEPU2</b>					<b>-0.379***</b>
					<b>[-14.408]</b>
SIZE	1.522***	0.364***	1.508***	1.508***	1.505***
	[72.444]	[19.977]	[81.717]	[81.710]	[81.562]
LEV	-0.015***	-0.006***	-0.014***	-0.014***	-0.014***
	[-14.127]	[-5.362]	[-15.901]	[-15.929]	[-15.960]
LOSS	-1.388***	-0.603***	-1.267***	-1.264***	-1.276***
	[-28.728]	[-11.883]	[-28.661]	[-28.588]	[-28.854]
CRATIO	0.033***	0.015***	0.031***	0.031***	0.030***
	[8.939]	[4.599]	[9.307]	[9.286]	[9.124]
OCF	-1.017***	1.916***	-0.569***	-0.571***	-0.569***
	[-10.096]	[10.201]	[-6.800]	[-6.831]	[-6.802]
BIGN	-0.061	-0.133	0.112	0.114	0.143
	[-0.547]	[-1.304]	[1.075]	[1.091]	[1.368]
<b>CPG1<sub>t-1</sub></b>	0.000***				
	[4.205]				
<b>CPG2<sub>t-1</sub></b>		0.602***			
		[82.005]			
<b>IMPEACH</b>			-0.096**		
			[-2.472]		
<b>LNUSEPU</b>				-0.376***	
				[-4.197]	
Intercept	-10.145***	-1.400***	-10.425***	-9.582***	-12.520***
	[-16.528]	[-2.780]	[-18.713]	[-16.324]	[-23.295]
Industry dummy	Yes	Yes	Yes	Yes	Yes
Cluster by firm	Yes	Yes	Yes	Yes	Yes
Observations	270,265	270,265	317,724	317,724	317,724
R-squared	0.148	0.386	0.144	0.144	0.143
Average (mean) VIFs	1.08	1.08	1.10	1.39	1.09

Bolded coefficients indicate the variables of interest related to the hypotheses

See the Appendix for variables definition. T-statistics, reported in bracket, are adjusted for firm-level clustering. \*\*\*, \*\*, \* indicate, respectively, the significance at the 1%, 5%, and 10% levels

Third, the U.S. heavily influences the Korean economy because of Korea's reliance on trade with the U.S., and U.S. investment and financial markets.<sup>12</sup> Hence,

<sup>12</sup> In 2018, Korea exported \$72,690,000 to the U.S. and imported \$59,170,000 from the U.S. These are the largest export and import totals of all countries trading with Korea (The Bank of Korea Economic Statistics System 2018).

**Table 9** Robustness tests: Exclude zero donation firms and Heckman two-stage regression

Variables	(1)	(2)	(3)
	CPG2	CPGDUM	CPG1
	Exclude zero donation firms	Heckman two-stage	
<b>LNPU</b>	<b>-1.417***</b> [-8.668]		<b>-0.120***</b> [-7.015]
<b>MEDIANCPG1</b>		<b>0.018***</b> [25.908]	
SIZE	0.156** [1.979]	0.251*** [66.111]	1.055*** [45.696]
LEV	-0.025*** [-5.471]	-0.003*** [-13.874]	-0.009*** [-16.831]
LOSS	-1.533*** [-9.425]	-0.210*** [-26.851]	-0.639*** [-24.625]
CRATIO	0.100*** [5.836]	0.005*** [7.866]	0.033*** [15.794]
OCF	7.025*** [13.640]	-0.099*** [-6.666]	-0.049 [-1.136]
BIGN	0.024 [0.064]	-0.056*** [-3.273]	0.160*** [4.424]
Inverse mills ratio (IMR)			3.400*** [24.408]
Intercept	11.912*** [7.146]	-3.884*** [-39.640]	-3.191*** [-7.121]
Industry dummy	Yes	Yes	Yes
Cluster by firm	Yes	Yes	Yes
Observations	157,188	317,724	157,188
R-squared	0.019	0.097	0.153
Average (mean) VIFs	1.09		1.88

Bolded coefficients indicate the variables of interest related to the hypotheses

See the Appendix for variables definition. T-statistics, reported in bracket, are adjusted for firm-level clustering. \*\*\*, \*\*, \* indicate, respectively, the significance at the 1%, 5%, and 10% levels

we include the U.S. EPU index (LNUSEPU) to control for the confounding effect related to U.S. EPU. As shown in Column (1) through Column (4) of Table 8, LNPU remains negative and statistically significant at the 1% level with CPG1. Thus, the explanatory power of EPU on corporate donation is not fully absorbed by any other uncertainty proxies, which highlights the robustness of our main results. We also found that political uncertainty, measured by the 2016 presidential impeachment, and the U.S. EPU adversely affected private firms' donations.

Following Nguyen and Nguyen (2020), we used the first month EPU (LNPU2) as an alternative EPU measure and reran the regressions in Table 4. Column (5) of



**Table 10** Robustness tests: firm fixed-effects regression

Variables	(1) CPG1	(2) CPG2
<b>LNEPU</b>	<b>-0.324***</b> [-9.002]	<b>-1.042***</b> [-13.478]
SIZE	0.934*** [46.554]	0.482*** [12.411]
LEV	-0.003*** [-4.046]	-0.004*** [-3.753]
LOSS	-0.378*** [-11.960]	-0.593*** [-9.347]
CRATIO	0.003 [1.055]	0.006 [1.019]
OCF	-0.342*** [-5.180]	1.347*** [8.315]
Intercept	-5.923*** [-15.958]	2.191*** [2.953]
Firm cluster	Yes	Yes
Observations	317,724	317,724
R-squared	0.023	0.004
Number of firms	48,903	48,903

Bolded coefficients indicate the variables of interest related to the hypotheses

See the Appendix for variables definition. \*\*\*, \*\*, \* indicate, respectively, the significance at the 1%, 5%, and 10% levels

Table 8 shows a significant negative coefficient for LNEPU2 at the 1% level with CPG1, which supports our main results.

Table 9 presents the results of our additional robustness tests. First, more than half of our sample of private firms had zero corporate donations. Thus, we excluded zero-donation firms and reran regressions to check whether our main results were driven by zero-donation firms. Column (1) of Table 9 shows negative and significant coefficient for CPG2 at 1%, corroborating our main results. Second, firms that make donations are self-selecting in reporting their donations. To tackle this potential self-selection bias, we ran Heckman (1979) two-stage regression as shown in Columns (2) and (3). In the first stage model, we constructed the corporate giving dummy variable CPGDUM, which is equal to one if a firm reports a corporate donation in the current and last year (and 0 otherwise) to estimate a Probit model. In addition, we used the industry median value of corporate giving (MEDIANCPG1) as a proxy for industry peer pressure to donate as our instrumental variable. Column (2) of Table 9 shows that coefficient of MEDIANCPG1 is positive and significant at the 1% level in the first-stage regression, suggesting that the likelihood of corporate giving in current and last year increases with MEDIANCPG1. In the second-stage model, we included the calculated inverse Mills ratio (IMR) from the first stage model along with other control variables. In Column (3), after controlling for IMR

calculated from the first-stage model, we found a consistent negative and significant association between LNEPU and CPG1 in the second stage model. Thus, our main results remain robust even after we addressed the potential self-selection bias with the Heckman two-stage procedures.

Finally, we acknowledge that there is a potential firms' specific omitted variables that affect corporate donation. We address this concern by conducting firm fixed-effects panel data regression model with standard errors are clustered at the firm-level (Firm Cluster) to control for firm specific and time invariant unobservable factors in our regression (Silviera, 2021). The results on Table 10 show that EPU negatively affects corporate donation (CPG1 or CPG2), indicating that our main results are robust even after we control firm-specific fixed effects for corporate donation. We conduct the generalized method of moment (GMM) dynamic panel data regression control the endogeneity and unobservable firm-specific fixed effects (Arellano and Bond 1991; Blundell and Bond 1998; Villarón-Peramato et al. 2018). We employ the change in EPU as our instrumental variable. We perform two specification tests, the first and second-order serial correlation tests of the residuals in the differenced equations (AR(1) and AR(2)) and the Sargan test for overidentification of our instrumental variable. Our untabulated results indicates that the change in EPU is negatively related to corporate donations, which corroborates our main finding. The  $p$ -value of the AR(1) indicates statistically significant for the first order of autoregressive, but the  $p$ -value for AR(2) test is 0.829 which indicates the absence of second order of serial correlation. The  $p$ -value for the Sargan test is 0.57, which indicates the null hypothesis indicating the overidentifying restriction for the GMM cannot be rejected. Therefore, our instrumental variable in our GMM regression is valid.

## 5 Conclusions

Our study examines the relationship between private firms' corporate donation behavior and EPU using unique and audited (credible) private firms' donation data in Korea. We find that EPU is negatively associated with corporate donation, which suggests that private firms reduce their corporate donations when EPU is heightened. This implies that increases in EPU adversely affect charitable giving as private firms curtail their donations to the community.

We find evidence to support the competitive advantages and value enhancing motives of corporate donation in which firms that operate in more competitive markets (peer pressure on donation and greater advertising expense) tend to have greater corporate donations. We also find that the political pressure exercised by the progressive party increases private firms' donations. However, EPU moderates the positive relationship between corporate donation and market competition, and the positive relationship between corporate donation and the progressive party ruling. This implies that heightened EPU offsets private firms' incentive to make charitable giving even if they are operating in competitive markets and are facing greater political pressure from the ruling party to engage in corporate donation.

Our study extends the literature that mostly focuses on the social capital argument (Dai et al. 2020) and the competitive advantage argument that signals firms' prospects to build trust with their stakeholders through CSR engagements (Zhang et al. 2020) when EPU is heightened. While we find evidence to support the competitive advantage argument, our study finds that private firms are more likely to revert to a resource conservation mode and precautionary saving motive when EPU increases by reducing their corporate donations. This precautionary saving motive when EPU is heightened creates a void in community charitable giving that has to be filled by government and publicly listed firms' involvement as private firms withdraw their donation contributions to the community. Further, private firms can reconsider the strategic role of donation to the local community rather than just reverting to a resource conservation mode even when EPU heightens. Stakeholders in society also are encouraged to rethink the role of private firms' donation to the local community and its implications under EPU.

Our study has several limitations. First, due to the absence of required data, we were unable to examine the impact of ownership structure and corporate governance. Future studies could explore more rigorous analyses when such data become available. Second, the literature indicates that the ideological orientations of private firms' owners play a significant role in the motives for corporate donation (Luo et al. 2017). Therefore, the role of personal and professional traits and political ideologies of private business owners on corporate donation can be further examined. Third, this study focuses solely on total aggregated donation amount. These aggregated amounts do not reveal how companies allocate their donations across different categories of corporate giving such as spending on social welfare to alleviate poverty, providing access to healthcare and education, and providing community support in response to natural disasters.

## Appendix

### Variable definitions.

Variables	Explanation
DON	Firms' donation expense (in \$)
CPG1	Natural logarithm of the firms' donation expense
CPG2	Donation expense divided by total assets
LNEPU	Natural logarithm of arithmetic average of economic policy uncertainty in the past twelve months in Korea by Baker et al. (2016)
LNEPU2	Natural logarithm of economic policy uncertainty in the first month in Korea by Baker et al. (2016)
LNUSEPU	Natural logarithm of arithmetic average of economic policy uncertainty in the past twelve months in U.S. by Baker et al. (2016)
IMPEACH	When President Park Geun-hye was impeached in year 2016, then coded as one, and zero otherwise
PROG	If the period of a ruling president is from progressive party (for example, Democratic in U.S.), then coded one, and zero otherwise

Variables	Explanation
GFC	Global financial crisis which includes year 2008 and 2009
SIZE	Natural logarithm value of total revenue
LEV	Total debt divided by total equity
LOSS	If net income is less than zero, then coded as one, and zero otherwise
CASH	Cash plus cash equivalents divided by total assets
CRATIO	Current assets divided by current liabilities
OCF	Operating cash flow divided by total assets
BIG N	If the firm is audited by Big N audit firms which are PWC, Deloitte, KPMG and E&Y, then coded as one, and zero otherwise
MEDIANCPG1	Two-digit industry median value of CPG1
LNAD	Natural logarithm of advertising expense
CPGDUM	If corporate giving in the current and last year is greater than zero, then coded as one, and zero otherwise

**Acknowledgment** The authors thank the Editor, Sascha Kraus, Handling Associate Editor and two anonymous reviewers for their constructive comments and recommendations. Harjoto recognizes financial support and release time from the 2019–2021 Denney Professorship from Denney Endowment at Pepperdine Graziadio Business School for this research. The authors thank Larry Bumgardner for editing this manuscript.

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**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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