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## Article

# Influences of economic policy uncertainty on corporate social responsibility information disclosure

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## INFLUENCES OF ECONOMIC POLICY UNCERTAINTY ON CORPORATE SOCIAL RESPONSIBILITY INFORMATION DISCLOSURE

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### Abstract

Under the general background of negative impacts brought by economic policy uncertainty (EPU), companies have been motivated to foster a good and healthy company image, arouse high attention from investors, and mitigate crises by initiatively releasing their social responsibility report. To explore the impacts of EPU on corporate social responsibility information disclosure, using the sampled data of Chinese A-share listed companies and EPU indexes during 2008-2017, the impacts of EPU on the voluntariness to release social responsibility report, information quality, and future rating were tested; the intermediate mechanisms in the influence of EPU on corporate social responsibility information disclosure were explored; meanwhile, whether the influence of EPU on corporate social responsibility information disclosure varied with voluntariness/compliance, nature of corporate property right, market system environment, and corporate financial performance was explored. Results show that when the EPU is aggravated, the corporate voluntariness to release a social responsibility report is significantly enhanced, including the information disclosure quality, but the expected future social responsibility rating gradually decline. Operation and sales play a partial mediating role in the effects of EPU on facilitating corporate voluntariness to release social responsibility report and improving the disclosure quality, whereas the return on stocks only plays a partial mediating effect in the influence of EPU on the corporate voluntariness to disclose social responsibility report. Meanwhile, the EPU influences corporate social responsibility information disclosure behaviours differently among the samples with different release requirements, natures of property right, market system environments, and financial performances. The conclusions enriches studies on the microeconomic effects generated by economic policy uncertainties and extends studies regarding macro-factors driving companies to make social responsibility information disclosure decisions, thus providing an important reference for the government to formulate or adjust economic policies and for enterprises to execute information disclosure.

**Keywords:** economic policy uncertainty, social responsibility information, company sales, analyst attention, market system environment.

**JEL Classification:** G34, M41

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## Introduction

Enterprises have been adopting the profit-oriented development pattern and taken the profit maximization as the principle. Consequently, profitability has become the sole criterion for judging an enterprise. Few enterprises have fulfilled their social responsibilities out of their awareness of social responsibility. Just as Milton Friedman pointed out, the only social responsibility of an enterprise is to engage in profit-increasing activities using resources within the scope permitted by laws and regulations. However, the rapid economic growth, environmental pollution problem, food and drug safety problem, employee squeezing phenomenon, and so on have been emerging endlessly. Given this, companies must abandon the traditional concept of “judging by profit,” attach importance to the performance degree of their social responsibilities, and strive toward the sustainable development of the enterprise, environment, and society. Social responsibility report is an important carrier transmitting the performance of enterprise social responsibilities, and major nonfinancial information disclosed by enterprises. However, very few enterprises will initiatively release the social responsibility report, and the relevant information disclosure quality has not been optimistic.

Many scholars have started exploring the motivation of companies not listed into mandatory disclosure to initiatively release social responsibility reports and the factors influencing the reports’ quality. For instance, from the angle of personal characteristics of senior management, some scholars deem that the overseas background of senior management will facilitate the social responsibility information disclosure of enterprises (Ghosh and Moon, 2010; Fernández-Villaverde et al., 2019); the political connection of enterprises with the government has also been investigated, and it has been presumed that enterprises politically associated with the central government will likely release social responsibility report with better disclosure quality (Gulen and Ion, 2019). Some studies have been conducted from the perspectives of corporate governance (Khan et al., 2013; Qin et al., 2018), internal control (Li and Zhang, 2017), and nature of property rights (Liu and Zhu, 2014; Yu et al., 2017). However, all of the above studies have started from micro-factors, and few have involved the influences of macro-environmental changes on the enterprise initiative in releasing social responsibility reports and the reports’ quality, not to mention studies regarding the influence of economic policy uncertainty (EPU) on social responsibility information disclosure.

Given this, information disclosure systems were combed on the basis of the existing studies, corporate discretion in information disclosure decisions was explored, and the normative and empirical studies were combined to analyse the changes in corporate social responsibility report disclosure from the EPU perspective. The remainder of this study is organized as follows. Section 2 reviews the literatures related to EPU and corporate social responsibility report and proposes the research hypotheses. Section 3 introduces the sample selection process, data sources, and measurement methods of main variables. Section 4 tests the influences of EPU on corporate social responsibility information disclosure (the corporate social responsibility information involved mainly included corporate voluntariness to release social responsibility report, quality of social responsibility information disclosed, and the expected future social responsibility rating), conducts a series of robustness tests via multicollinearity elimination, two-way fixed effect test, endogeneity test, replacement of EPU data source, and regression method, and so on and then explores the intermediate mechanisms in the influence of EPU on corporate social

responsibility information disclosure, and furthermore, attempts to determine whether the influence of EPU on corporate social responsibility information disclosure varies with voluntariness/compliance, nature of corporate property right, market system environment, and corporate financial performance. Section 5 further discusses the empirical analysis results and draws the conclusions.

### 1. Literature review and research hypotheses

When the operation and sales performance and performance in the stock market are disturbed under the aggravated EPU and declining corporate product demand, companies may initiatively release the social responsibility report to form a good reputation and avoid problems. The release of social responsibility report can relieve companies from the plight mainly for the following reasons. First, when the EPU is elevated, the companies can improve the asymmetry of market information by releasing a social responsibility report. Under the aggravated EPU, infomediaries, such as analysts may fail to effectively mitigate the asymmetry of market information. Consequently, investors become discontented with public information, but instead, they tend to collect non-public information via all kinds of channels to reduce the negative impacts brought by uncertainties (Amiram et al., 2018; Nagar et al., 2019). If the social responsibility report is released in time, the companies can supplement the demands of external investors for nonfinancial information and improve the information asymmetry induced by EPU (Bloom, 2009; Demir and Ersan, 2017). Many scholars have affirmed that a social responsibility report has positive effects and concluded that it can relieve the asymmetry of market information, reduce the analysts' forecast errors, enhance the transparency of market information, supplement the deficiencies of financial information, and improve the information environment of the capital market (Dhaliwal et al., 2018; Wang et al., 2020). Second, when the EPU level is elevated, companies can acquire loan financing easily by releasing the social responsibility report, but under this circumstance, the macroeconomy will present a downturn, banks will be inclined to credit grudging, and the corporate financing difficulty will be exacerbated (Duchin et al., 2017; Nagar et al., 2019). In the macroenvironment with low safety, the lenders will be more sensitive to corporate social responsibility information, and those with favorable social responsibility performance can acquire lower loan interest rates and longer loan periods (Bharath et al., 2008; Trombetta and Omperatore, 2014). At the time, companies can more easily obtain bank loans and commercial credit financing by actively fulfilling their social responsibilities and transmitting relevant signals (Ghoul et al., 2017; Zhang and Liu, 2018). In addition, the government expects that enterprises can undertake more social responsibilities. If their social responsibility performance accords with the government's expectation, they will enjoy more opportunities to establish a political connection with the government and acquire governmental resource inclination and support (Wei et al., 2017). On this basis, the Hypothesis 1 is proposed:

**Hypothesis H1:** When other conditions remain unchanged, the higher the EPU level is, the stronger the voluntariness of companies to release the social responsibility report is.

Generally, the social responsibility report released by companies will not only arouse attention from stakeholders but also from infomediaries, including analysts, media, portal websites of related fields, and so on. The mediating effect generated by the attention from infomediaries can help companies elevate their reputation, establish a good image, improve

the good impression on consumers, and increase the sales volume (Goodell et al., 2013; Durnev, 2015; Merchant, 2015; Amiram et al., 2018). Furthermore, a high-quality social responsibility report can also lower the financing cost, and the higher the report quality is, the lower the financing constraints borne by companies will be (Paster and Veronesi, 2012; Julio and Yook, 2012; Xu, 2016). However, if a company muddles through the released social responsibility report and even releases a false report to meet the requirements of regulatory authorities or for other purposes, this can trigger tremendous negative impacts once reported by media (Haniffa and Cooke, 2005; Demir and Ersan, 2017). Therefore, companies will not release low-quality reports or false reports under the aggravated EPU, expecting to construct good image by fulfilling their social responsibilities and remit the negative impacts brought by uncertainties. Accordingly, Hypothesis 2 is put forward:

**Hypothesis H2:** When the other conditions are unchanged, the higher the EPU level is, the better the quality of social responsibility information disclosed by companies is.

According to the above analysis, the higher the EPU level is, the better the quality of social responsibility information disclosed by companies when the other conditions are unchanged, but when the information disclosure quality reaches a certain level, the improvement space of information quality (growth amplitude) will be reduced (Goodell et al., 2013; Merchant, 2015; Durnev, 2015; Amiram et al., 2018), which is related to the property of social responsibility activity itself: On the one hand, companies belong to profit-seeking organizations, whereas the performance of social responsibility belongs to a non-profit activity. The corporate performance of social responsibilities will not only occupy corporate economic resources, but moreover, the economic effect will remain uncertain after the performance. Hence, companies will not add a large amount of social responsibility investment every year (Trombetta and Omperatore, 2014). On the other hand, some social responsibility activities are continuous, such as building Hope Primary School, investing on environmental protection and transformation facilities, and upgrading working environmental safety, all of which are of inter-period possibility. If fully disclosed by companies since the beginning of the project, the information increment regarding this project will be reduced later (Durnev, 2015; Merchant, 2015; Amiram et al., 2018). On the basis of the above analysis, H3 is raised:

**Hypothesis H3:** After the corporate information disclosure quality reaches a certain level, as the EPU level is increased, the corporate expectation on the future social responsibility information disclosure may become stable or negative.

The elevated EPU will entail negative demand impacts on macroeconomy and aggravate the operation and sales status. The dull sale may trigger corporate operation problems, and they may be stuck in plight and even go bankrupt. To cope with negative demand impacts, companies may more actively transmit the social responsibility information (Ashbaugh-Skaife, 2008; Zygildopoulos et al., 2012; Benmelech and Frydman, 2014; Chen, 2016) to establish a good social image (Bekaert, 2009; Hass, 2016; DuCharme et al., 2004), promote the reputation, transform consumers' attitudes toward the enterprise brand, enhance their purchase intentions (Lins et al., 2017), and further improve the corporate operation and sales status.

Meanwhile, the increasing EPU will lower the information mastery degree of enterprise senior managers, aggravate their difficulty in judging the future environmental changes and impacts, and easily result in strategy mistakes, and the operating risks induced by the

strategy mistakes may lower the return on stocks, hence the companies are motivated to fulfill their social responsibilities more actively under the gradual decline of return on stocks, construct a good image, and elevate the future return on stocks (Ashbaugh-Skaife, 2008; Benmelech and Frydman, 2014; Chen, 2016). In view of this, studies claimed that the operation and sales and return on stocks can be intermediate paths for the EPU to affect corporate social responsibility information disclosure.

**Hypothesis H4:** EPU further enhances or inhibits the corporate social responsibility information disclosure by increasing or reducing the operation and sales and return on stocks.

## 2. Research methods

### 2.1 Sample selection and data sources

The data of Chinese listed companies during 2008-2017 were selected as the research samples, and the following were excluded: (1) Financial companies; (2) Annual observed values of companies marked with ST and \*ST; (3) Annual observed values of companies with data missing of main variables. As the expectation data of corporate social responsibility disclosure started from 2009, the time interval of samples regarding this aspect was from 2009-2017. To prevent the disturbance caused by outliers to the research results, double-side 1% Winsorization processing was performed for all continuous variables.

The quality data of corporate social responsibility information and expected data of corporate future social responsibility disclosure came from Rankins CSR Ratings (RKS), EPU data from the EPU index compiled by Baker et al. (2016), and other data from CSMAR database.

### 2.2 Modelling and variable description

- *EPU and enterprise voluntariness to disclose social responsibility report*

Model (1) was constructed to test the influence of *EPU* on corporate voluntariness to disclose social responsibility information, and the concrete model setting is as follows:

$$VolunCsr_{i,t} = \beta_0 + \beta_1 Epu_t + Controls + Industry + Year + \varepsilon \quad (1)$$

The explained variable *VolunCsr* is a dummy variable, which is used to measure the corporate voluntariness to disclose social responsibility information. The companies meeting the conditions of compulsory disclosure were excluded, such as Shenzhen Stock Exchange 100 Index constituent stock, Shanghai Stock Exchange corporate governance sector, and Shanghai Stock Exchange overseas sector, and those not listed into compulsory disclosure were taken as the samples. If a company volunteers to release the social responsibility report, then *VolunCsr* value is 1, or otherwise it is 0. If coefficient  $\beta_1$  is significantly positive, the corporate voluntariness to release the social responsibility report will be enhanced with the increase in EPU. Compiled by Baker et al. (2016), *EPU* is the explanatory variable used to measure China's economic policy uncertainty.

• *EPU and social responsibility report disclosure quality*

Model (2) was established to investigate the influence of EPU on corporate social responsibility information disclosure quality, and the concrete formula is as below:

$$ScoreCsr_{i,t} = \beta_0 + \beta_1 Epu_t + Controls + Industry + Year + \varepsilon \quad (2)$$

All listed companies that independently released social responsibility reports were taken as the samples. The dependent variable *ScoreCsr*, which is used to measure the quality of social responsibility information disclosed by companies, is the natural logarithm of social responsibility information rating data of RKS, the higher the score is, the higher the information quality will be. If coefficient  $\beta_1$  is significantly positive, the quality of social responsibility information disclosed by companies will be gradually improved with the increase of EPU.

• *Influence of EPU on growth trend of social responsibility report quality*

Model (3) was constructed to probe the influence of EPU on the expectation of corporate future social responsibility disclosure, specifically as seen in the following formula:

$$GradeCsr_{i,t} = \beta_0 + \beta_1 Epu_t + Controls + Industry + Year + \varepsilon \quad (3)$$

Similarly, all listed companies independently releasing the social responsibility reports were chosen as the samples. The explained variable *GradeCsr* is used to measure the expectation on corporate future social responsibility report. Values 3, 2, and 1 are assigned to the future expectation results of “positive,” “stable,” and “negative,” respectively. This variable is inconsistent with the social responsibility information disclosure quality *ScoreCsr*, *GradeCsr* expects the future social responsibility information disclosure tendency mainly from the variation trend of corporate disclosure quality within a certain period of time. The rating expectation of companies with high *ScoreCsr* scores may be “negative,” and that of companies with low *ScoreCsr* scores may also be “positive.” If coefficient  $\beta_1$  is significantly negative, the expectation on corporate future social responsibility information disclosure may tend to be stable or negative when the EPU level is elevated.

In reference to Tan (2017), Li and Zhang (2017), and so on, company size (*Size*) was set as the control variable for Models (1), (2), (3), and (4) pointed out that enterprises with large staff sizes tended to fulfill social responsibility information disclosure, hence the staff size was used in this study to measure the company size. In addition, the following variables were also controlled: financial leverage (*Lev*), return on total assets (*ROA*), company growth (*Growth*), cashflow, place of listing (*List*), share ratio of the first largest shareholder (*First*), scale of board of directors (*Board*), share ratio of senior managers (*Mshare*), proportion of independent directors (*IndeD*), fixed effect of industry (*Industry*), and fixed effect of year (*Year*).

• *Influence mechanism model of EPU on social responsibility report disclosure*

The intermediate mechanisms in the influence of EPU on enterprise financial information disclosure were explored on the basis of the mediating effect analysis method proposed by Wen and Ye (2014).

### 3. Result Analysis

#### 3.1 Influence mechanism model of EPU on social responsibility report disclosure

Table no. 1 presents the empirical results of influences of EPU on corporate social responsibility information disclosure, where Columns 1 to 3 displays the regression results of Models (1), (2), and (3). Column (1) shows the influence of EPU on corporate voluntariness to release social responsibility reports, revealing that the *Epu* coefficient is 0.052, which is significantly positive at 1%, meaning that under the external macro-background of gradually elevated EPU level, the companies not reaching the compulsory disclosure requirement of social responsibilities will be more voluntary to release social responsibility reports. Column (2) denotes the influence of EPU on the quality of the released social responsibility information. According to the empirical results, the *Epu* coefficient is 0.193, which is significantly positive at 1%, manifesting that within a certain scope, the higher the EPU level is, the better the quality of corporate social responsibility information disclosure will be. The influence results of EPU on the expected corporate future social responsibility disclosure ratings are shown in Column (3). Ultimately, *Epu* coefficient is  $-0.013$ , which is significantly negative at 1%, indicating that with the increase in EPU, the corporate future social responsibility disclosure level will likely be stable or negative.

**Table no. 1. Uncertainty of economic policy and information disclosure of corporate social responsibility**

Variables	(1)	(2)	(3)
	<i>VolunCsr</i>	<i>ScoreCsr</i>	<i>GradeCsr</i>
<i>Epu</i>	0.052*** (8.68)	0.193*** (22.78)	-0.103*** (-5.56)
<i>Size</i>	0.036*** (7.05)	0.077*** (10.39)	0.020*** (3.50)
<i>Lev</i>	0.017 (0.54)	-0.021 (-0.46)	-0.007 (-0.17)
<i>ROA</i>	0.191** (2.20)	0.236* (1.79)	0.204 (1.09)
<i>Growth</i>	-0.016*** (-3.26)	0.011 (1.01)	0.043* (1.93)
<i>Cashflow</i>	0.080 (1.56)	0.009 (0.11)	-0.091 (-0.73)
<i>List</i>	0.016 (1.21)	0.044*** (2.64)	-0.013 (-1.00)
<i>First</i>	0.022 (0.52)	0.142*** (2.74)	0.013 (0.32)
<i>Board</i>	0.064* (1.86)	0.124*** (3.22)	0.000 (0.01)
<i>Mshare</i>	-0.076** (-2.00)	0.022 (0.35)	-0.035 (-0.50)
<i>IndeD</i>	0.225* (1.87)	0.091 (0.70)	0.057 (0.47)
<i>Constant</i>	-0.530*** (-4.29)	1.833*** (13.95)	2.125*** (16.82)
<i>Industry</i>	control	control	control
<i>Year</i>	control	control	control



Observations	16986	5430	5129
R <sup>2</sup>	0.034	0.336	0.086

Note: The regression has performed the company-level cluster processing. The *t*-values are in parentheses, and \*\*\*, \*\*, and \* indicate the significance levels of 1%, 5%, and 10%, respectively.

### 3.2 Mediating effect test

#### • Mediating efficiency of corporate operation and sales

Corporate operation and sales (*Sale*) is measured by the division result of the main business income and total assets. On the basis of the mediating effect analysis method proposed by Wen and Ye (2014), the mediating variable—*Sale*—was tested as seen in table no. 2. In table no. 1, Column (1) shows the regression results of Model (1), the *Epu* coefficient is significantly positive and corresponds to coefficient *c* in mediating Model (4), namely, coefficient *c* is significantly positive; Column (1) in table no. 2 shows the regression of *Epu* for *Sale*, and the *Epu* coefficient is significantly negative, suggesting that with the elevation of EPU, the corporate sales volume will gradually decline, corresponding to coefficient *a* in mediating Model (5), assuming that coefficient *a* is significantly negative; *Sale* is added into Model (1), and the results are seen in Column (2), the *Sale* coefficient is significantly negative, whereas the *Epu* coefficient is significantly positive, which correspond to coefficients *b* and *c'* in the mediating Model 6, respectively, namely, the coefficient is significantly negative, whereas coefficient *c'* is significantly positive. *ab* share the same symbol with *c'*, meaning that *Sale* is the intermediate path in the influence of EPU on the corporate initiative to release social responsibility report.

Columns (3) and (4) in table no. 2 display the mediating effect test results of Model (2). According to Column (2) in table no. 1, the *Epu* coefficient is significantly positive, namely, coefficient *c* is significantly positive; Column (3) in table no. 2 shows the regression of *Epu* for *Sale* on the basis of social responsibility information disclosure quality samples, the *Epu* coefficient is significantly negative, namely, coefficient *a* is significantly negative; *Sale* is added into Model (2), and the results are seen in Column (4), the *Sale* coefficient is insignificant, whereas *Epu* coefficient is significantly positive, namely, *b* is negative but not significantly, whereas *c'* is significantly positive. As *b* is insignificant, the Bootstrap test should be further conducted, and the results are seen in table no. 3. The indirect effect is significant, and *ab* shares the same symbol with *c'*, indicating that *Sale* is the intermediate mechanism in the influence of EPU on corporate social responsibility information disclosure quality.

Table no. 2. Influence path of the company's sales

Variables	(1)	(2)	(3)	(4)
	<i>Sale</i>	<i>VolunCsr</i>	<i>Sale</i>	<i>ScoreCsr</i>
<i>Epu</i>	−0.050*** (−6.70)	0.050*** (8.16)	−0.042*** (−3.36)	0.193*** (22.06)
<i>Sale</i>		−0.027* (−1.84)		−0.001 (−0.06)
<i>Size</i>	0.072*** (9.41)	0.038*** (7.31)	0.060*** (5.50)	0.077*** (10.21)
<i>Lev</i>	0.347*** (7.34)	0.026 (0.85)	0.198** (2.46)	−0.021 (−0.46)

Variables	(1)	(2)	(3)	(4)
	<i>Sale</i>	<i>VolunCsr</i>	<i>Sale</i>	<i>ScoreCsr</i>
<i>ROA</i>	0.686*** (5.02)	0.219** (2.46)	0.348 (1.36)	0.237* (1.77)
<i>Growth</i>	0.022*** (2.66)	-0.015*** (-3.08)	0.070*** (3.43)	0.011 (0.99)
<i>Cashflow</i>	0.507*** (7.64)	0.094* (1.84)	0.737*** (4.71)	0.009 (0.12)
<i>List</i>	0.026 (1.41)	0.017 (1.24)	0.003 (0.09)	0.044*** (2.64)
<i>First</i>	0.133** (2.52)	0.026 (0.60)	0.274*** (3.31)	0.142*** (2.73)
<i>Board</i>	-0.106** (-2.23)	0.061* (1.78)	-0.034 (-0.54)	0.124*** (3.22)
<i>Mshare</i>	-0.079* (-1.93)	-0.078** (-2.07)	-0.126 (-1.13)	0.021 (0.35)
<i>IndeD</i>	-0.332** (-2.21)	0.216* (1.81)	-0.139 (-0.61)	0.091 (0.69)
<i>Constant</i>	0.239 (1.52)	-0.521*** (-4.22)	-0.041 (-0.22)	1.833*** (13.95)
<i>Industry</i>	control	control	control	control
<i>Year</i>	control	control	control	control
<i>Observations</i>	13898	16986	4496	5430
<i>R<sup>2</sup></i>	0.281	0.035	0.345	0.336

Note: The regression has performed the company-level cluster processing. The *t*-values are in parentheses, and \*\*\*, \*\*, and \* indicate the significance levels of 1%, 5%, and 10%, respectively.

Table no. 3. Bootstrap results of the company's sales

	Observed Coef.	Bootstrap Std. Err.	z	P> z	Normal based [95% Conf. Interval]	
_bs_1(Direct)	0.0010681	0.0003922	2.72	0.006	0.0002994	0.0018368
_bs_2(Indirect)	0.0495932	0.0035671	13.90	0.000	0.0426017	0.0565846

• *Mediating effect of return on stocks*

In Model (1), the *Epu* coefficient is significantly positive, corresponding to coefficient *c* in mediating Model (4), namely, *c* is significantly positive; *Return* is annual return on individual stock considering reinvestment of cash bonus. Column (1) in table no. 4 shows the regression results of *Epu* for mediating the variable *Return*, the *Epu* coefficient is significantly negative, indicating that the higher the EPU level is, the lower the *Return* will be, and this coefficient corresponds to coefficient *a* in mediating Model (5), namely, *a* is significantly negative; *Return* is added into Model (1), and the test results are seen in Column (2), the *Return* coefficient is significantly negative, whereas the *Epu* coefficient is significantly positive, corresponding to coefficients *b* and *c'* in mediating Model 6, respectively, thus *b* is significantly negative and *c'* is significantly positive. *ab* has the consistent symbol with *c'*, manifesting that *Return* plays a partial mediating role in the influence of EPU on corporate voluntariness to disclose social responsibility information.

In the quality Model (2) of social responsibility information disclosure, the *Epu* coefficient is significantly positive, namely, coefficient *c* is significantly positive; Column (3) shows

the regression results of *Epu* for *Return* on the basis of social responsibility information disclosure quality samples, the *Epu* coefficient is significantly negative, and this means that *a* is significantly negative; *Return* is incorporated into Model (2), and Column (4) shows that *Return* is insignificant whereas *Epu* is significantly positive, namely, *b* is positive but not significantly and *c'* is significantly positive. Next, the Bootstrap test was further conducted, and the results are seen in table no. 5. Resultantly, the indirect effect is significant, but *ab* has the opposite symbol to *c'*. According to the mediating effect test process indicated by Wen and Ye (2014), *ab* has the opposite symbol to *c'*, which means the existence of shading effect, namely, when the EPU level is elevated, corporate return on stocks will decline, which leads to the quality degradation of social responsibility information disclosed by companies. To determine why, the companies may increase the return on stocks by initiatively releasing social responsibility reports, but *Return* is not affected at all by the quality improvement of released social responsibility report, thus the companies may only release social responsibility information while neglecting the information quality.

Ultimately, *Sale* plays a partial mediating role in the effects of EPU on facilitating companies to volunteer to release social responsibility report and improve the social responsibility information quality, but *Return* exerts a partial mediating effect only in the influence of EPU on corporate voluntariness to disclose social responsibility report.

Table no. 4. Path of influence on stock returns

Variables	(1)	(2)	(3)	(4)
	<i>Return</i>	<i>VolunCsr</i>	<i>Return</i>	<i>ScoreCsr</i>
<i>Epu</i>	-0.872*** (-71.84)	0.058*** (9.34)	-0.652*** (-31.81)	0.193*** (22.03)
<i>Return</i>		-0.017*** (-3.68)		0.002 (0.23)
<i>Size</i>	-0.020*** (-6.03)	0.036*** (6.85)	-0.002 (-0.49)	0.077*** (10.33)
<i>Lev</i>	0.004 (0.19)	0.020 (0.65)	0.008 (0.21)	-0.024 (-0.53)
<i>ROA</i>	-0.452*** (-4.93)	0.213** (2.42)	-0.206 (-1.28)	0.227* (1.71)
<i>Growth</i>	0.012* (1.75)	-0.015*** (-3.02)	0.013 (0.63)	0.009 (0.85)
<i>Cashflow</i>	0.225*** (4.03)	0.086* (1.65)	0.142 (1.40)	0.018 (0.23)
<i>List</i>	0.039*** (5.83)	0.018 (1.34)	0.021* (1.95)	0.045*** (2.65)
<i>First</i>	0.077*** (3.59)	0.021 (0.50)	0.009 (0.28)	0.144*** (2.78)
<i>Board</i>	-0.045** (-2.30)	0.063* (1.83)	-0.027 (-0.91)	0.125*** (3.24)
<i>Mshare</i>	0.104*** (3.84)	-0.080** (-2.05)	0.143** (2.16)	0.028 (0.46)
<i>IndeD</i>	-0.063 (-0.90)	0.229* (1.89)	0.027 (0.28)	0.096 (0.74)
<i>Constant</i>	3.143*** (41.64)	-0.559*** (-4.50)	2.333*** (21.27)	1.829*** (13.89)

Industry	control	control	control	control
Year	control	control	control	control
Observations	13893	16636	4496	5397
R <sup>2</sup>	0.537	0.034	0.455	0.337

Note: The regression has performed the company-level cluster processing. The *t*-values are in parentheses, and \*\*\*, \*\*, and \* indicate the significance levels of 1%, 5%, and 10%, respectively.

**Table no. 5. Bootstrap results for stock returns**

	Observed Coef.	Bootstrap Std. Err.	z	P> z	Normal based [95% Conf. Interval]	
_bs_1(direct)	-0.0055302	0.0011666	-4.74	0.000	-0.0078167	-0.0032436
_bs_(indirect)	0.056211	0.0037824	14.86	0.000	0.0487976	0.0636244

### 3.3 Robustness test

To ensure the reliability of research conclusions, the Logit/Probit/Ologit/Oprobit regression method was used to verify the robustness of Hypotheses 1, 2, and 3 through the multicollinearity elimination, double fixed effects, endogeneity test, and replacement of EPU data source.

First, the regression of Models 1, 2 and 3 was conducted once again while the year was not controlled, and the regression results are as follows.:The *Epu* coefficient in Model (1) is 0.012, also being significantly positive and meaning that the elevated EPU level improves corporate voluntariness to release social responsibility information; *Epu* in Model (2) is 0.049, being significantly positive and indicating that the information quality is improved when the EPU level is elevated; *Epu* in Model 3 is -0.099, being significantly negative, and suggesting that the EPU decelerates the rising trend of social responsibility report quality. Therefore, the regression results were not obviously different from the basic regression under controlled year, and then multicollinearity was excluded.

Second, Models (1), (2) and (3) were re-estimated using a two-way fixed effect model with individual and year controlled, and the results are shown as follows. The *Epu* coefficient in in Model (1) is 0.062, being significantly positive, and indicating that under the double fixed effects with individual and year controlled, the EPU appears to significantly influence corporate voluntariness to release social responsibility report, therefore the conclusion of Hypothesis 1 is robust; *Epu* in Model (2) is 0.199, also being significantly positive, and on this basis, the conclusion that EPU can improve the quality level of corporate social responsibility information disclosure quality also holds under the controlled individual and year conditions, thus Hypothesis 2 supported; *Epu* in Model (3) is -0.109, being significantly negative, thus the Hypothesis 3 is verified under the double fixed-effect model.

Third, the global EPU index was selected as the instrumental variable of China's EPU index, the endogeneity test was conducted using the two-stage least square (2SLS) method (Chen and Liu, 2018), and the test results are seen as follows.The *Epu* coefficient is 0.012 in Model (1), which is significantly positive at 1%, thus supporting the Hypothesis 1; the *Epu* coefficient of Model (2) is 0.045, which is also significantly positive at 1%, thus the Hypothesis 2 is also verified; In Model 3, its *Epu* coefficient is -0.081, which is

significantly negative at 1%, and this is identical with the basic regression result. Ultimately, the three research hypotheses remain robust under the 2SLS-based test.

Fourth, the EPU index (*Epu\_D*) compiled by Davis et al. (2019) was used to replace the EPU index compiled by Baker et al. (2016) to conduct secondary regression estimation of corporate social responsibility information disclosure, and the results are listed as follows. The *Epu* coefficients in Model (1), (2) and (3) are 0.095, 0.350, and -0.287, respectively, all of which are significant and are not obviously different from the basic regression results using the index compiled by Baker et al. (2016) in table no. 1. This suggests that after the data source of EPU is replaced, Hypotheses 1, 2, and 3 maintain robust.

Fifth, the explained variable (*VolunCsr*) in Model (1) is a dummy variable. Model (1) was re-estimated via Logit and Probit models, and the results are listed as follows, accordingly. The *Epu* coefficients are 0.611 and 0.305, respectively, both of which are significantly positive at 1%, indicating that the EPU improves corporate initiatives in releasing social responsibility reports, and this accords with the basic regression result, thus Hypothesis 1 is verified. Furthermore, the explained variable (*GradeCsr*) in Model (3) is an ordered variable, hence Model (3) was re-estimated using Ordered Logit and Ordered Probit models as seen in as follows, respectively. The *Epu* coefficients are -0.483 and -0.218, respectively, both of which are significantly negative at 1%, thus verifying the negative impacts of EPU on expected corporate future social responsibility disclosure, thus Hypothesis 3 is verified. Generally, Hypotheses 1 and 3 remain robust after the corresponding measurement methods are replaced on the basis of the properties of relevant dependent variables.

### 3.4 Heterogeneity test

- *Heterogeneous influences of voluntariness and compliance*

On the basis of the stipulations of Shanghai Stock Exchange and Shenzhen Stock Exchange regarding the compulsory release of social responsibility report, the social responsibility report released by companies can be divided into voluntary and compliant disclosures, namely, except that the social responsibility reports released by the companies on Shanghai Stock Exchange corporate governance sector, Shanghai Stock Exchange overseas sector and Shenzhen Stock Exchange 100 Index were compliant disclosure, other companies were voluntary to disclose their social responsibility information. The regression of Models 2 and 3 was conducted on the basis of the samples in the voluntary disclosure group and those in the compliant disclosure group, and the regression results are seen as follows: in the Model (2), the *Epu* coefficients of samples in both groups are significantly positive at 1%, and the intergroup difference in this coefficient is not significant, indicating that when the EPU level is elevated, the disclosure qualities of voluntarily released and compliantly released social responsibility reports are apparently improved and no obvious difference is manifested. In addition, the regression results of Model (3) are displayed in as follows: among the samples in the voluntary disclosure group, the *Epu* coefficient is insignificant, but that of the samples in the compliant disclosure group is significantly negative at 1%, and the inter-group difference in *Epu* coefficient is remarkable. This means that when the EPU level is gradually elevated, the two groups are obviously different in the change of rating expectation, namely, the future rating expectation of the social responsibility report voluntarily released is not significantly affected, but that of compliantly released report

tends to be stable and even negative, manifesting that although the EPU has obvious promoting effect on the disclosure quality of voluntarily released and compliantly released social responsibility information, the future growth of disclosure level among compliant samples is gradually reduced compared with compliant samples.

• *Heterogeneous influences of the nature of corporate property right*

As state-holding companies differ from non-state-holding companies in fundamental nature, they also differ in the performance and disclosure of their social responsibilities. On the basis of property right, the samples were divided into state- and non-state-owned groups. The regression results of Models 1, 2, and 3 after the sample grouping are displayed as follows: The *Epu* coefficient of the state-owned sample group is significantly positive at 1% and the coefficient value is large, but the *Epu* coefficient in the non-state-owned sample group is significantly positive at 10% with a small coefficient value, and the intergroup difference in *Epu* coefficient is apparent, meaning that relative to non-state-owned holding companies, the effect of EPU on facilitating the corporate initiative to disclose social responsibility report is stronger among the state-owned holding companies.

The regression results of social responsibility information disclosure quality model are shown as follows: Although the *Epu* coefficients of state- and non-state-owned groups are significantly positive at 1%, the coefficient value of state-owned group is relatively larger, and the intergroup difference in this coefficient is significant, indicating the positive influence of EPU on the social responsibility information disclosure quality of state-owned holding companies is stronger than that of non-state-owned holding companies.

In addition, the grouped regression results of Model (3) are presented as follows: The state-owned group does not significantly from the non-state-owned group in the *Epu* coefficient, meaning that the influence of EPU on corporate future social responsibility rating expectation does not vary among companies with different natures of property rights. However, the significance and absolute values of the *Epu* coefficient in the state-owned group are higher than those in the non-state-owned group, which, to a certain degree, indicates a larger decline trend of social responsibility report rating expectation of state-owned holding companies than that of non-state-owned holding companies under the elevated EPU.

• *Heterogeneous influences of market system environment*

As the marketization progress varies by region in China, the market system environments that companies survive on significantly differ. Some of their microscopic behaviours also present corresponding regional characteristics (Xu and Zhou, 2019; Lu et al., 2019; Xiong et al., 2020), and the EPU may also heterogeneously affect corporate social responsibility disclosure behaviours. Thus, the market system environments were differentiated on the basis of the “government-market relationship ranking” data in Marketization Index of China’s Provinces: NERI Report (2018). This ranking system ranked regional marketization degrees in a descending order, and a region ranking lower had lower marketization degree, and the government intervened in the market more. According to the median of different years in the ranking data, the regions were divided by year into regions with high marketization degree and those with low marketization degree, the samples were further divided into the group with high marketization degree (*Mar\_High*) and the group with low marketization degree (*Mar\_Low*) on the basis of the regions where the company

samples were registered, to perform the regression of Models 1, 2, and 3, and the results are seen as follows:

Although the *Epu* coefficients of the groups with high marketization degree and that with low marketization degree are significantly positive at 1%, the coefficient value of the group with low marketization degree is larger, and the intergroup difference is significant, indicating that under the system environment with the stronger government intervention in the market, EPU shows a greater promoting effect on the corporate voluntariness to disclose social responsibility reports.

The intergroup difference in neither the significance level nor the value of *Epu* coefficient is significant, meaning that the influence of EPU on corporate social responsibility report quality does not vary obviously under different market system environments. Combining the above analysis revealed that under the EPU circumstance, companies in regions with stronger governmental intervention are more willing to release social responsibility reports relative to regions with minor governmental intervention, but the disclosure quality level is nothing better. Furthermore, the regression results of Model (3) are listed as follows, the *Epu* coefficient is significantly negative in the group with high marketization degree but insignificant in the group with low marketization degree, and the intergroup difference is significant, indicating that in regions with less governmental intervention, the EPU lowers the expectation on corporate future social responsibility report rating to a greater degree. Ultimately, the growth amplitude of corporate social responsibility report quality is gradually reduced.

- ***Heterogeneous influences of corporate financial performance***

Although the companies allocate partial financial resources to the non-profit activity – social responsibility, Zhang et al. (2013) and Yin et al. (2014) found that corporate performance of social responsibilities significantly and positively influenced corporate financial performance, and Tao and Jin (2013) stated that the higher the corporate social responsibility information disclosure quality was, the better the financial performance would be. In view of this, the EPU may heterogeneously influence corporate social responsibility information disclosure among the companies with different financial performances. Given this, Tobin Q value was used in this paper to measure corporate financial performance, the samples were divided into the group with high financial performance and the group with low financial performance on the basis of Tobin Q value to conduct the regression of Models 1, 2, and 3, and the results are seen as follows.

The heterogeneous influence results of EPU on voluntariness to release social responsibility report among companies with different financial performances are displayed as follows. Fundamentally, the *Epu* coefficient in the group with high financial performance is insignificant, and that in the group with low financial performance is significantly positive 1%, and the intergroup difference is obvious, indicating that relative to companies with high financial performance, the EPU facilitates the initiatives of companies with low financial performance to disclose their social responsibility information to a greater extent.

According to the regression results, the *Epu* coefficients in group with high financial performance and that with low financial performance are significantly positive, but the value of *Epu* coefficient in the group with low financial performance is larger, and the

intergroup difference in the coefficient value is significant, manifesting that the EPU improves the social responsibility information disclosure quality more obviously among the companies with low financial performance.

Although the significance level and value of *Epu* coefficient in the group with high performance and that with low performance differ to some extent, the intergroup difference is insignificant, meaning that the EPU does not significantly and differently affect the future social responsibility rating expectation among the companies with various financial performances.

#### 4. Discussion

From the above analysis results, all research hypotheses are verified. According to the research findings, the corporate voluntariness to release social responsibility report will be significantly enhanced under the elevated EPU level, and moreover, the quality of social responsibility information disclosed is better, but the growth trend of social responsibility information quality tends to be stable or negative; moreover, Sale plays a partial mediating role in the influences of EPU on promoting corporate voluntariness to release social responsibility information and improving the social responsibility information quality, whereas Return plays a partial mediating role only in the influence of EPU on corporate voluntariness to disclose social responsibility reports, specifically as follows:

First, Hypothesis 1 is verified on the basis of the regression results in Column (1) of table no. 1, namely, the increasing EPU level will significantly enhance corporate voluntariness to release social responsibility reports. This conclusion is similar to that drawn by Karamanou and Vafeas (2005). As aforementioned, the promoting effect of EPU on corporate willingness to release social responsibility reports can be analysed from three aspects: stakeholder, improvement of information asymmetry, and resource acquisition. As a negative external impact, the EPU will lead to reduction of economic output, decline of corporate sales performance, poor performance in stock market, elevation of information asymmetry, and weak resource acquisition ability (Amiram et al., 2018; Wang et al., 2018; Xu and Wang, 2018; Deng, 2019; Nagar et al., 2019). Under this adverse circumstance, the companies can establish a good enterprise image, increase consumers' willingness to buy, improve the performance in stock market and market information environment, acquire financing resources, and establish political connections by releasing their social responsibility reports (Dhaliwal et al., 2012; Lins et al., 2017; Wei et al., 2017; Wang et al., 2018; Che and Su, 2018; Lu et al., 2019), resultantly, their initiatives in releasing social responsibility reports will be strengthened.

Second, Hypothesis 2 is verified through the regression results in Column (2) of table no. 1. Namely, the higher the EPU level is, the better the corporate social responsibility information disclosure quality will be, which coincides with the research result of Khan et al. (2013). The willingness to disclose social responsibility information and disclosure quality actually supplement each other. Under the background of EPU, the aforementioned positive influences of social responsibility information (shaping good corporate reputation and image, relieving the market information asymmetry, transmitting information to the government to establish political connections, and so on) shall be based on high-quality social responsibility information disclosure. If the disclosure quality is low, the social responsibility information of companies cannot be effectively transmitted to external



stakeholders or non-stakeholders, and the companies will fail to acquire potential revenues from the fulfilment of social responsibilities. Therefore, when the EPU level is elevated, the companies will still improve the social responsibility information disclosure quality.

Third, Hypothesis 3 is verified on the basis of the regression results in Column (3) of table no. 1, namely, the corporate future social responsibility disclosure level will tend to be stable or negative with the increase in EPU level, which accords with the research results of Hutton (2009), Brockman (2008) and Rogers (2008). This means that although the EPU facilitates the corporate voluntariness to disclose social responsibility information and improves the report quality, the growth amplitude of this improvement may tend to be steady and even gradually decline, and consequently, the corporate expectation on social responsibility rating will be more inclined to stable and even negative status, thus Hypothesis 3 is supported. This result actually explains Hypothesis 2 from another angle. Specifically, after the corporate information disclosure reaches a certain level, the improvement space will be reduced, the considerable quality improvement will be less likely to occur, and the increment thereafter will be limited. Accordingly, under a high EPU level, corporate social responsibility disclosure quality will be gradually elevated to a certain level, and the growth amplitude will tend to be stable or be reduced.

Fourth, the regression results in Columns (3) and Column (4) of table no. 2 fail to completely verify Hypothesis 4, namely, Sale plays a partial mediating role in the influences of EPU on facilitating corporate willingness to release social responsibility information and improving social responsibility information quality, whereas Return plays a partial mediating role only in the influence of EPU on corporate voluntariness to disclose social responsibility reports. This coincides with the research result of Preacher and Hayes (2018). When the EPU level is elevated, corporate return on stocks will decline, which, in turn, degrades the quality of the social responsibility information disclosed. A possible reason is that Return can be elevated by initiatively releasing social responsibility reports, but the quality improvement of already released social responsibility report has no influence on Return, and thus companies may be only dedicated to releasing social responsibility information while ignoring the information quality.

## Conclusions

Under the general background of economic globalization, the economic policy uncertainties faced by enterprises are incessant. On the basis of China's EPU index compiled by Baker et al. (2016), Chinese A-share listed companies during 2007–2018 were selected as the research samples to investigate the influences of EPU on corporate social responsibility information disclosure, and its mediating effects and heterogeneous influence results were further explored, and the following conclusions were drawn: (1) When the EPU level is gradually elevated, the corporate willingness to release social responsibility reports is significantly enhanced. (2) The higher the EPU level is, the better the quality of social responsibility information disclosed is. (3) With the increase in the EPU level, the corporate expectation on future social responsibility rating gradually declines, namely, the growth trend of social responsibility information quality tends to be stable or negative. (4) The operating sales plays a partial mediating role in the influences of EPU on facilitating corporate willingness to release social responsibility information and improving the

disclosure quality, whereas the stock returns plays a partial mediating role only in the influence of EPU on corporate voluntariness to disclose social responsibility reports. (5) The EPU exerts heterogeneous influences on corporate social responsibility information disclosure behaviours among the samples with different release requirements, different natures of property rights, and different financial performances under different market system environments.

The possible innovation points of this study are as follows: (1) the EPU-related literatures are extended. Although abundant literatures exist involving the economic consequences generated by EPU to micro-enterprises, few scholars have been specialized in probing the influences of EPU on enterprise information disclosure, not to mention to systematically analyse enterprise information disclosure decisions. In most literatures, it was merely taken as a supplement for a brief analysis. Even if some problems are involved in related literatures, there lacks multi-aspect exploration and the test of influence channels, thus this study has made marginal contributions to some degree. (2) The changes in enterprise information disclosure were studied from the angle of external macro-impact in this study. In many literatures, the factors influencing the enterprise information disclosure have been explored mostly from international factors, such as microscopic enterprise characteristics, but external macro-environment was combined with micro-subjects in this study. As the micro-subject behaviours minimally affect macro-policies, relatively speaking, the research based on internal factors can more effectively mitigate the endogeneity problem.

Ultimately, this study has certain limitations as follows: corporate information disclosure involves various contents, but only social responsibility information that was easy to quantify was chosen, while the information that was difficult to quantify was not included into the analytical framework. In the future research, more scientific data screening method and quantification model should be used to further extend the related studies. Moreover, although the control variables were incorporated into the research models and a series of robustness tests was carried out, the corporate information disclosure decisions can be influenced by numerous factors, and an endogeneity problem seems to persist.

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