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Political freedom and earnings management

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ABSTRACT

We hypothesize that a deteriorated political freedom environment increases firms' incentive to undertake earnings management. Using country-level political freedom data for 42 countries collected over the period from 1990 to 2017, we document a significantly positive relationship between a deteriorated political freedom environment and earnings management. Tests based on the instrumental variable and difference-in-differences frameworks provide evidence of a causal link between political freedom and earnings management. We further show that the effect of political freedom on earnings management is more pronounced for firms with external financing needs as well as for firms with stronger precautionary incentives, and that the effect is reduced if corporate governance improves. Our findings suggest that a deterioration in political freedom is an important obstacle to investors when accessing a firm's performance.

1. Introduction

According to the report of Freedom House, the political freedom environment around the world has deteriorated for 14 consecutive years since 2006.[2] Recently, the deteriorating trend of political freedom has attracted much attention in the finance literature because the political context has a significant effect on corporate decisions. For instance, Boubakri et al. (2013) document that deteriorated political rights worsen economic stability and decrease firms' risk-taking activities. Guedhami et al. (2017) emphasize that low levels of political freedom reduce firms' investment opportunities and increase dividend payouts. Qi et al. (2010), Ben-Nasr et al. (2012), and Boubakri et al. (2014) find that the cost of external financing is higher within a weaker political right environment. Prior studies also document that political costs are a significant consideration in earnings management (e.g., Watts and Zimmerman, 1978; Cahan, 1992; Monem, 2003). Engaging aggressive earnings manipulation increases the probability of financial fraud and threats to the efficiency of capital markets since active earnings management can undermine the trust between companies, gatekeepers, and market participants (McNichols and Stubben, 2008; Perols and Lougee, 2011; Amiram et al., 2018). Despite prior studies highlight that deteriorated political freedom breeds an unfavorable environment for financing, investment, and survive, however, less is known about how managers respond to the change of political freedom. Motivated by prior studies, we fill this research gap by investigating whether firms respond to the level of political freedom by manipulating earnings.

We find that a low level of political freedom increases managers' incentive to undertake earnings management. Our study suggests that managers actively seek to offset the adverse environment caused by deteriorated political freedom. First, a deterioration in political freedom increases the cost of external financing, which drives managers to mislead outside investors' expectations by

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[2] For instance, in 2019, political rights and civil liberties attenuated in 64 countries, while improved only in 37 countries. See www.freedomhouse.org for more detail.

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manipulating earnings. Second, lower levels of political rights are associated with a less stable economic environment, leading to more volatile future earnings and less incentive for risk-taking (Boubakri et al., 2013). To achieve smoother cash flows, firms may respond to reduced political freedom with aggressive earnings management. Third, the risk of state expropriation and corruption is high in a weak political institutional environment (e.g., Glaeser et al., 2004; Lederman et al., 2005), thereby weakening governance motives (e.g., Roe, 1991; Stulz, 2005; Roe, 2006; Desai et al., 2007). Therefore, managers are more likely to manipulate earnings upward to pursue private benefits under the weakened governance environment (e.g., Beasley, 1996; Davidson et al., 2005; Larcker et al., 2007). In addition, low levels of political freedom could also induce firms to manipulate earnings figures downward to alleviate the government expropriation (e.g., Jones, 1991; Guenther, 1994; Goncharov and Zimmermann, 2006). Through investigating the effect of political freedom on earnings management, this study highlights the real effect of political institution on the information in the capital market.

One concern is that firms are not randomly distributed across countries with different levels of political freedom, and this may raise potential endogeneity concerns. First, we address this problem using subsample tests. The negative effect of political freedom on abnormal accruals is not driven by a large number of U.S. firms in the sample, and is robust to subsamples categorized by shareholder rights, creditor rights, legal origin, and political stability. In addition to the subsample tests, we further address the endogeneity problem using instrumental variables (IV) and the difference-in-differences framework (DID). To mitigate endogeneity caused by time-variant omitted variables, we employ a two-stage fixed effect (2SLS) model using spatial democracy and privacy protected by law as the instrumental variables. We follow Guedhami et al. (2017) by employing the dramatic decoration in political freedom as a shock and use the DID framework to examine the effect of a change in freedom on the levels of abnormal accruals. The results further confirm the negative causal impact of political freedom on abnormal accruals.

We next investigate how political freedom affects the incentive of undertaking earnings management. Consistent with the prediction that reduced political freedom increases earnings manipulation through the incentives of external financing and earnings smoothing, the effect of political freedom is more profound for equity issuers, debt issuers, and firms with strong precautionary motives. We also find that an improved governance environment can lessen the effect of political freedom on abnormal accruals, implying that lower levels of political freedom weaken governance and induce managers' incentive to pursue their self-interests.

Finally, we investigate whether legal institutions and political freedom are complements, substitutes, or independent of each other for firms' earnings management decisions in the face of external financing needs. The results suggest that legal institutions and political freedom have a complementary effect on earnings management decisions for equity issuers but have independent effect for debt issuers.

This study contributes to the literature relating to the effects of political institutions on firm decision-making. Prior studies document that political costs are a significant consideration in earnings management decisions (e.g., Watts and Zimmerman, 1978; Cahan, 1992; Han and Wang, 1998; Monem, 2003; Ben-Nasr et al., 2020). Political freedom influences the cost of capital and economic instability (Qi et al., 2010; Ben-Nasr et al., 2012; Boubakri et al., 2014), which creates an unfavorable investment environment (Guedhami et al. 2017). Our study fills the gap in the literature relating to the effect of political institutions on firm decision-making from the perspective of accrual quality, and sheds light on the vital role of political freedom on the information in the capital market.

In addition, we contribute to the literature relating to earnings management. The existing literature shows that managers use earnings management as a tool to mislead the perception of outside investors and smooth earnings volatility (e.g., DeFond and Jiambalvo, 1994; Rangan, 1998; Barton, 2001; Shivakumar, 2000; Jiang, 2008). In our study, we demonstrate that the effect of political freedom on earnings management is more profound for firms with external needs and strong precautionary motives. We also find that the impact is alleviated for firms with stronger governance, which is consistent with the managerial self-interest explanation of earnings manipulation (e.g., Beasley, 1996; Davidson et al., 2005; Larcker et al., 2007; Eng et al., 2019).

This study provides policymakers with a deeper understanding of firms' response to a change in political freedom. A reduction in political freedom attenuates a firm's incentive to disclose actual operational performance, thereby decreasing transparency, intensifying agency problems, and increasing asymmetric information in the capital market. The complementary effect between political institutions and legal institutions suggests that stronger legal protection may be an efficient way to alleviate the negative effect of deteriorated political freedom on reporting quality.

The paper is organized as follows. Section 2 presents the related literature and hypothesis development. Section 3 describes the data and methodology. Section 4 presents the empirical results, and Section 5 concludes.

2. Literature review and hypothesis development

2.1. Earnings management and the cost of capital

A deterioration in political freedom can increase the cost of equity (Ben-Nasr et al., 2012; Boubakri et al., 2014) and the cost of debt (Qi et al., 2010). Meanwhile, managerial opportunism theory suggests that equity issuers have a higher propensity to manipulate discretionary accruals to sell the stock at a higher price (Rangan, 1998; Teoh et al., 1998b,a; Kim and Park, 2005). To achieve a higher offering price and obtain more proceeds from the offering, equity issuers undertake earnings management to increase investors' perceived firm valuation. Since managers have to borrow future income in order to manipulate their pre-issue earnings upward, investors may fail to fully distinguish between the information embedded in accruals and the cash flow components of reported earnings, so the low post-issue stock return caused by reverse earnings management is typically considered as evidence of managerial opportunism and inefficient market in the literature (Rangan, 1998; Teoh et al., 1998a). Consistent with this argument,

prior studies find evidence of earnings management around initial public offerings (Friedlan, 1994; Teoh et al., 1998a; DuCharme et al., 2001, 2004; Buchner et al., 2017), seasoned equity offerings (Rangan, 1998; Teoh et al., 1998b; Shivakumar, 2000; DuCharme et al., 2004; Kim and Park, 2005), management buyouts (Perry and Williams 1994), and reverse leveraged buyouts (Chou et al. 2006). Similarly, firms also have the incentive to mislead the perception of the market prior to debt issuance and debt restructuring (DeFond and Jiambalvo, 1994; Sweeney, 1994; Bharath et al., 2008; Jiang, 2008; Prevost et al., 2008; Liu et al., 2010).

In addition to opportunistic accruals manipulation, firms can also reduce the cost of external funding through voluntary information disclosure, in this case, the less informed investors benefit from lower risk of loss from trading with more informed investors (Diamond and Verrecchia, 1991; Baiman and Verrecchia, 1996; Botosan, 1997; Leuz and Verrecchia, 2000; Verrecchia, 2001; Clement et al., 2003). However, a weak political institution is associated with a high risk of government expropriation and severe corruption (Glaeser et al., 2004; Lederman et al., 2005; Hope et al., 2020). Within an environment of increased expropriation and corruption, there is an increased probability of politicians and bureaucrats transferring wealth away from firms by defying property rights, confiscating assets and aggravating taxes (Stulz, 2005; Durnev and Fauver, 2011). A high risk of government expropriation and corruption reduces the benefit of disclosing more information, thereby leading to less incentive of voluntary disclosure (Belkaoui, 1983; Bushman and Smith, 2001; Bushman et al., 2004; Graham et al., 2005; Bushman and Piotroski, 2006). Therefore, managers may prefer to undertake earnings manipulation, rather than voluntarily disclosing more information, to reduce the cost of external financing in a weak political freedom environment. In line with this reasoning, we hypothesize that:

Hypothesis 1. A deterioration in political freedom increases firms' incentive to undertake earnings management, especially among equity and debt issuers.

2.2. Earnings management and smoothing incentive

The restriction of political freedom is associated with a less stable economic environment and political stability, thereby decreasing the level of corporate risk-taking (Rajan and Zingales, 2003; Roe and Siegel, 2011; Boubakri et al., 2013; Phan et al., 2020). From the opportunistic point of view on earnings management, Barton (2001), for example, documents that employing earnings management to reduce cash flow volatility can substitute financial derivatives for hedging purposes. In addition, Trueman and Titman (1988) argue that firms conduct earnings smoothing to lead investors to perceive reduced levels of earnings volatility and probability of bankruptcy, which would benefit the firms through a lower cost of borrowing and more favorable trade between the firms and their customers, workers, and suppliers. Therefore, a deteriorated political freedom environment decreases the level of corporate risk-taking and increases firms' precautionary motives, which in turn increases firms' incentives to undertake earnings management.

Prior studies also document that firms with strong precautionary motives save more cash to avoid future underinvestment problems and to reduce the risk of cash flow issues (Almeida et al., 2004; Acharya et al., 2007; Han and Qiu, 2007; McLean, 2011; Duong et al., 2020). Similarly, these firms have a greater incentive to manipulate their earnings to avoid unexpected changes to future earnings than those with weaker precautionary motives. Therefore, we conjecture that firms with strong precautionary motives are eager to maintain smooth earnings in a restricted political freedom environment, leading to a higher probability of aggressive earnings management. This conjecture is restated as follows:

Hypothesis 2. The effect of political freedom on earnings management is more profound for firms with strong precautionary motives than weak precautionary motives.

2.3. Earnings management and corporate governance

Prior studies highlight the effect of the political economy on corporate governance and find that the risk of government expropriation and corruption weakens the motive of governance and intensifies the agency issue (La Porta et al., 2000; Rajan and Zingales, 2003; Bushman et al., 2004; Pagano and Volpin, 2005). For instance, Roe (2006) documents that ownership tends to be more concentrated, and that there are considerably more private benefits of control in countries with weak political institutions. Stulz (2005) and Durnev and Fauver (2011) find that firms facing increased state expropriation have fewer incentives to conduct extensive monitoring. Furthermore, taxation is typically recognized as one of the tools that politicians and bureaucrats use to expropriate wealth from firms, and prior studies find that taxation has an opposing effect on governance. Arlen and Weiss (1995), for example, find that higher taxes incentivize managers to pursue objectives that are different from those of shareholders, leading to an intensified agency problem. In addition, Desai et al. (2007) document that high tax rates reduce the level of governance, and Roe (1991) argues that high taxes promote low governance ownership structures. Therefore, reduced political freedom is associated with a weak governance environment due to the increased risk of government expropriation and corruption.

Several studies shed light on the governance mechanisms involved in reducing accrual manipulation (Beasley, 1996; Dechow et al., 1996; Davidson et al., 2005; Larcker et al., 2007). Where there is weak governance pressure, managers are incentivized to upwardly manipulate earnings to maximize performance-based compensation or to increase job security (Warfield et al., 1995; DeFond and Park, 1997; Cheng and Warfield, 2005; Bergstresser and Philippon, 2006; Cohen et al., 2008; Cornett et al., 2008). Therefore, restricted political freedom reduces governance and thereby fosters the incentive for undertaking earnings manipulation. Accordingly, our hypothesis is as follows:

Hypothesis 3. The effect of weak political freedom on earnings management is reduced if governance improves.

3. Data and methodology

We obtain firm-level financial data and country-level political freedom data from the Compustat Global and Freedom House databases. Our sample includes 42 countries covering the sample period from 1990 to 2017.[3] We exclude the financial and utility firms (standard industry code in the ranges 4900–4949 and 6000–6999), and firms with negative or missing values of total assets. We require firms to have non-missing total assets for at least three consecutive years and non-missing accounting data for calculating earnings management measures.[4] After the data cleaning steps, we obtain 390,769 firm-year observations.

To examine the relationship between political freedom and earnings management decisions, we estimate the following regression:

$$Accr_{i,t} = \alpha + \beta_1 PF_{j,t} + \gamma X_{i,t} + \delta_t + \mu_i + \epsilon_{i,t}, \quad (1)$$

where i, j and t index firm, country and year. The dependent variable $Accr_{i,t}$ is a specific measure of earnings management of firms. $PF_{j,t}$ denotes the proxy of political freedom. $X_{i,t}$ represents control variables. We also include year (δ_t) and firm (μ_t) fixed effects. Using the firm fixed effect can mitigate time-invariant omitted variable bias.

We deploy Dechow et al.'s (1995), Kothari et al.'s (2005), and Francis et al.'s (2005) models to calculate the proxy of earnings management. These models have been widely used to detect abnormal accruals in the accounting and finance literature. The modified-Jones model (Dechow et al., 1995) was developed from Jones's (1991) model, which adjusts Jones' model by subtracting growth in credit sales from growth in sales to calculate the discretionary component of total accruals. That is, the model estimates discretionary accruals from cross-sectional regressions of total accruals on sales changes (net of change in receivables) and property, plant, and equipment. A higher magnitude of abnormal accruals implies more aggressive earnings management. The second earnings management measurement is based on Kothari et al.'s (2005) argument that the modified-Jones model could be misspecified for the firms with extremely low or high return on assets (ROA) performance. We, therefore, include ROA to control for ROA performance in the calculation of discretionary accruals.[5] Francis et al.'s (2005) model is based on McNichols's (2002) model. The accrual quality is calculated using a five-year rolling window standard deviation. The advantage of the model is the focus on the uncertainty, rather than the magnitude of discretionary accrual. For instance, firms with consistently large discretionary accruals, but low standard deviation, are treated as being of good accrual quality by Francis et al.'s (2005) model but treated as being of poor accrual quality by the modified-Jones model. For simplicity, we refer to Dechow et al.'s (1995), Kothari et al.'s (2005), and Francis et al.'s (2005) models as $Accr_{MJ}$, $Accr_{MJROA}$ and $Accr_F$ in our table, respectively. The details of the variable construction for the three earnings management proxies are in Appendix A.

The independent variable of interest in our regression is political freedom proxies. Freedom House provides the annual indexes of a country's political freedom score (ranging from 1 to 7) based on political rights and civil liberties. The first political freedom proxy ($PolFrScore$) is calculated as the average of the two proxies for each year and country reported by Freedom House. A higher score represents a low level of political freedom. The second political freedom proxy is a dummy variable ($PolFrDummy$) that equals one if a country's political rights and civil liberties are greater than four in a given year, and zero otherwise.

Table 1 reports the average political rights, civil liberties, and political freedom scores, as well as the total number of observations by countries. Countries with high political freedom environments tend to be concentrated in North America and Europe. It is notable that the average political freedom score is 2.023, suggesting that most of the observations in our sample have high levels of political freedom. This could be due to the large proportion of U.S. companies.

We add the firm-level control variables that have been found to affect earnings management at the international level (Lang et al., 2006; Barth et al., 2008; Francis and Wang, 2008; He et al., 2017). Specifically, $FirmSize$ is the natural logarithm of total assets in year-2000 dollars. $SaleGrowth$ is the percentage change of sales. M/B is the natural logarithm of the ratio of market value over book value, which captures firms' investment opportunities. $FreeCashFlow$ is the operating cash flow over total assets. $CashFlowVolatility$ is the standard deviation of free cash flow using a five-year rolling window. ROA is income before extraordinary items over total assets. $Leverage$ is the market leverage ratio that captures default risk and governance by debt. $BIGN$ is a dummy variable that equals one if a firm is audited by any of the Big 8 auditing companies, and zero otherwise. IAS is a dummy variable that equals one if a firm has adopted International Accounting Standards (IAS). AGE is the number of years since a firm's first record in Compustat. We also follow Guedhami et al. (2017) by including GDP growth ($GDPGrowth$) and economic freedom ($EcoFr$) in our regressions to capture a country's time-varying investment environment. Table 2 reports the summary statistics for all the variables used in the baseline regression. The variable definitions and construction details are in Appendix A.

[3] The data on the economic freedom variable is only available from 1995. Therefore, the effective sample period in our regression is 1995–2017. However, our results are robust if we exclude the economic freedom variable and release the sample period from 1990.

[4] We require each country to have at least 30 observations with all accounting data available in order to calculate the accrual-based earnings management indicator in a given year. All the results remain robust if we obtain a minimum of 50 observations.

[5] Kothari et al. (2005) propose two approaches, ROA performance matching or modified-Jones model with control variables of ROA, to adjust for the biased earnings management detection caused by the extreme ROA performance. However, the ROA matching method will increase the frequency of Type II errors (Keung and Shih, 2014). Banker et al. (2018) show that the ability of the modified-Jones model with an ROA regressor does not reduce the ability of the ROA matching method to identify earnings management. We, therefore, include ROA in the modified-Jones model directly to control for the bias caused by different ROA performances.

Table 1
Characteristics across countries.

Country	FIC code	*PolRights*	*CivilLiberties*	*PolFrScore*	N.
		(1)	(2)	(3)	(4)
Argentina	ARG	2.000	2.000	2.000	415
Australia	AUS	1.000	1.000	1.000	20,319
Austria	AUT	1.000	1.000	1.000	945
Belgium	BEL	1.062	1.000	1.031	1231
Bulgaria	BGR	2.000	2.000	2.000	287
Brazil	BRA	2.170	2.061	2.115	2668
Canada	CAN	1.000	1.000	1.000	18,012
Switzerland	CHE	1.000	1.000	1.000	3162
Chile	CHL	1.076	1.124	1.100	1688
China	CHN	6.000	7.000	6.500	30,936
Germany	DEU	1.119	1.000	1.060	8627
Denmark	DNK	1.000	1.000	1.000	1948
Spain	ESP	1.000	1.000	1.000	1053
Finland	FIN	1.000	1.000	1.000	1860
France	FRA	1.207	1.000	1.104	8415
United Kingdom	GBR	1.263	1.000	1.131	23,503
Greece	GRC	2.000	1.566	1.783	2010
Indonesia	IDN	3.602	2.341	2.972	4408
India	IND	3.000	2.000	2.500	41,406
Ireland	IRL	1.000	1.000	1.000	1469
Israel	ISR	2.245	1.000	1.623	4037
Italy	ITA	1.276	1.060	1.168	2675
Japan	JPN	1.696	1.000	1.348	41,771
South Korea	KOR	2.000	1.599	1.800	9613
Mexico	MEX	2.836	2.486	2.661	1358
Malaysia	MYS	4.157	4.201	4.179	12,087
Netherlands	NLD	1.000	1.000	1.000	2604
Norway	NOR	1.000	1.000	1.000	2109
New Zealand	NZL	1.000	1.000	1.000	1361
Pakistan	PAK	5.000	4.529	4.764	3222
Peru	PER	3.000	1.958	2.479	1087
Philippines	PHL	3.000	2.947	2.973	2131
Poland	POL	1.242	1.000	1.121	4659
Portugal	PRT	1.000	1.000	1.000	538
Russia	RUS	5.383	6.182	5.783	1310
Singapore	SGP	4.093	4.548	4.320	7856
Sweden	SWE	1.000	1.000	1.000	6179
Thailand	THA	4.053	4.592	4.323	6361
Turkey	TUR	4.047	3.367	3.707	2229
United States	USA	1.000	1.029	1.015	99,902
South Africa	ZAF	2.000	1.695	1.848	3318
Mean		2.099	1.946	2.023	
Sum					390,769

This table reports the summary statistics of country-level variables by country. Columns (1)-(3) show the mean of each variable and Column (4) shows the total number of observations for each country. *PolRights* and *CivilLiberties* are political rights score and civil liberties score, respectively. *PolFrScore* is political freedom score, which is constructed using political rights and civil liberties scores. All the variables are defined in the Appendix A.

4. Empirical results

4.1. Baseline results

Table 3 presents the effect of political freedom on the three earnings management proxies. Column 1 shows that the political freedom score (measured by $PolFrScore$) significantly and positively impacts on earnings management measured by $Accr_{MJ}$. Compared with the mean of $Accr_{MJ}$, a one standard deviation increase in the political freedom score is associated with an increase of 32% earnings management activity.[6] Similar results can be observed for $Accr_{MJROA}$ and $Accr_{F}$, as shown in Columns 2 and 3. The political freedom dummy (measured by $PolFrDummy$) offers further support for the baseline results. In Column 4, the coefficient of the political freedom dummy is 0.073 and is significant at the 1% level. The result also shows economic significance, as abnormal accruals of the low political freedom firms are statistically more than 23% higher than the high political freedom firms.[7] In Columns

[6] This value is calculated by 0.063 (coefficient) times 1.652 (standard deviation in political freedom score), and then divided by 0.323 (mean of abnormal accruals).

[7] This value is calculated as 0.073 (coefficient) divided by 0.323 (mean of abnormal accruals).

Table 2
Summary statistics.

	Mean	S.D.	P25	Median	P75	N.
	(1)	(2)	(3)	(4)	(5)	(6)
$Accr_{MJ}$	0.323	0.773	0.034	0.089	0.239	383,744
$Accr_{MJROA}$	0.296	0.680	0.035	0.089	0.235	383,744
$Accr_{F}$	0.328	0.671	0.054	0.114	0.294	341,978
$PolFrScore$	2.023	1.652	1.000	1.000	2.500	390,769
$PolFrDummy$	0.097	0.296	0.000	0.000	0.000	390,769
$FirmSize$	4.594	2.295	3.138	4.681	6.098	389,589
$SaleGrowth$	0.192	0.933	−0.059	0.059	0.209	373,448
M/B	0.497	1.061	−0.190	0.456	1.122	328,670
$FreeCashFlow$	−0.003	0.344	−0.015	0.054	0.116	387,648
$CashFlowVolatility$	0.206	0.685	0.034	0.062	0.120	390,769
ROA	−0.078	0.512	−0.040	0.024	0.070	389,990
$Leverage$	0.187	0.707	0.000	0.000	0.005	349,128
$BIGN$	0.412	0.492	0.000	0.000	1.000	390,769
IAS	0.986	0.116	1.000	1.000	1.000	390,769
AGE	12.401	6.197	7.000	11.000	16.000	390,769
$EcoFr$	1.138	0.746	0.711	1.189	1.657	361,679
$GDPGrowth$	4.230	0.155	4.121	4.288	4.353	381,518
$SH.rights$	3.688	1.143	3.000	4.000	4.500	390,769
$CR.rights$	1.880	0.953	1.000	2.000	2.000	390,769
$CivilLaw$	0.379	0.485	0.000	0.000	1.000	390,769
$PolStability$	0.252	0.852	−0.449	0.474	0.969	346,109

This table reports the summary statistics of each variable used in the regression analysis. Columns (1)-(6) show the mean, standard deviation, 25th percentile, median, 75th percentile, and number of observations for each variable. $Accr_{MJ}$, $Accr_{MJROA}$, and $Accr_{F}$ refer to the earnings management proxies calculated using the Modified-Jones, Modified-Jones with ROA, and Francis et al.'s models, respectively. $FirmSize$ is the natural logarithm of total assets (in US dollar) adjusted by the exchange rate and inflation (base year: 2000). $SaleGrowth$ is the percentage change of sales. M/B is the natural logarithm of the ratio of market value over book value, which captures firms' investment opportunities. $FreeCashFlow$ is the operating cash flow over total assets. $CashFlowVolatility$ is the standard deviation of free cash flow using a five-year rolling window. ROA is income before extraordinary items over total assets. $Leverage$ is the market leverage ratio that captures default risk and governance by debt. $BIGN$ is a dummy variable that equals one if a firm is audited by any of the Big 8 auditing companies, and zero otherwise. IAS is a dummy variable that equals one if a firm has adopted International Accounting Standards, and zero otherwise. AGE is the number of years since a firm's first record in Compustat. $EcoFr$ and $GDPGrowth$ represent economic freedom and GDP growth, respectively, and capture a country's time-varying investment environment. $SH.rights$ and $CR.rights$ are shareholder protection and creditor protection, respectively. $CivilLaw$ is a dummy that equals one if a country belongs to civil law system, and zero otherwise. $PolStability$ is the political stability index. The details of variable construction are in the Appendix A.

5 and 6, the results remain unchanged for the other two earnings management proxies. Our results are also robust to a pooled ordinary least squares (OLS) specification with a set of country, year, and industry fixed effects.[8] The baseline results show that political freedom has a statistical and economic impact on abnormal accruals; firms in a low political freedom environment tend to conduct more aggressive earnings management. The results on the control variables are consistent with previous studies. We find that firms that are smaller, less profitable, have higher cash flow volatility and higher growth opportunity, and lower leverage are more likely to undertake earnings management. Firms that are audited by any of the Big 8 auditing companies do not adopt IAS standards are associated with higher earnings management activities. In addition to this, our results suggest a lower level of earnings management activities in firms that have a favorable investment environment.

We conduct several additional tests to check whether our finding is robust. The first issue we address is whether both political rights and civil liberties influence abnormal accruals. As the proxy of political freedom is constructed using political rights and civil liberties indicators, the redundant variable's noisy variation could bias our results if only one of them has explanatory power. Accordingly, we regress each of them on abnormal accruals separately. Second, current earnings management activities can be correlated with the past earnings management decisions. To address this, we include lagged earnings management proxies in our regression. Third, we lag all control variables to mitigate the concerns of a reverse causality problem. Finally, as mentioned earlier, our sample contains a high proportion of countries with high political freedom scores, so we redo the tests for the sample without U.S. firms to rule out the possibility that our results are driven by the large proportion of U.S. firms.[9] In addition, we also examine the relation between political freedom and earnings management using subsamples before and after the 2008 financial crisis. Tables IA2–7 report the corresponding results for each robustness test. We find that both political rights and civil rights have a significant impact on abnormal accruals, suggesting that considering both of them can better capture the effect of political freedom on earnings management. The previous abnormal accruals decision also has an impact on current abnormal accruals. In sum, the results in Tables IA2–7 show that the effect of the political freedom on abnormal accruals is consistent with the results in Table 3.

Prior studies document that legal origin and legal systems influence financial development and economic growth through investor protection and political uncertainty (La Porta et al., 1997, 1998; Beck et al., 2003; Boubakri et al., 2013; Persakis and Iatridis,

[8] Table IA1 reports the results for the pooled OLS specification.

[9] We also exclude both U.S. and Japanese firms from the sample, the results are robust.

Table 3
The effect of political freedom on earnings management.

	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_{F}$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_{F}$
	(1)	(2)	(3)	(4)	(5)	(6)
$PolFrScore$	0.063***	0.055***	0.063***			
	(0.004)	(0.004)	(0.005)			
$PolFrDummy$				0.073***	0.077***	0.080***
				(0.006)	(0.005)	(0.009)
$FirmSize$	−0.009**	−0.002	0.015***	−0.008**	−0.001	0.016***
	(0.004)	(0.003)	(0.005)	(0.004)	(0.003)	(0.005)
$SaleGrowth$	0.066***	0.062***	0.017***	0.065***	0.062***	0.017***
	(0.004)	(0.003)	(0.002)	(0.004)	(0.003)	(0.002)
M/B	0.008***	0.009***	0.002	0.008***	0.009***	0.001
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)
$FreeCashFlow$	−0.160***	−0.155***	−0.072***	−0.159***	−0.154***	−0.071***
	(0.025)	(0.022)	(0.015)	(0.025)	(0.022)	(0.015)
$CashFlowVolatility$	0.045***	0.045***	0.225***	0.045***	0.045***	0.225***
	(0.008)	(0.007)	(0.015)	(0.008)	(0.007)	(0.015)
ROA	−0.059***	−0.107***	−0.019	−0.060***	−0.108***	−0.020
	(0.020)	(0.018)	(0.013)	(0.020)	(0.018)	(0.013)
$Leverage$	−0.013**	−0.015***	−0.006	−0.013**	−0.015***	−0.006
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
$BIGN$	−0.057***	−0.054***	−0.042***	−0.057***	−0.054***	−0.042***
	(0.007)	(0.006)	(0.007)	(0.007)	(0.006)	(0.007)
IAS	−0.045**	−0.033*	0.016	−0.045**	−0.033**	0.016
	(0.020)	(0.017)	(0.030)	(0.020)	(0.017)	(0.030)
AGE	−0.003	−0.008	0.027***	0.000	−0.005	0.030***
	(0.010)	(0.008)	(0.008)	(0.009)	(0.008)	(0.008)
$EcoFr$	−0.452***	−0.346***	−0.262***	−0.498***	−0.385***	−0.310***
	(0.047)	(0.038)	(0.052)	(0.048)	(0.039)	(0.053)
$GDPGrowth$	−0.028***	−0.026***	0.003	−0.028***	−0.025***	0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R^2	0.259	0.280	0.610	0.259	0.280	0.609
No. of obs	278,360	278,360	255,624	278,360	278,360	255,624

This table presents the OLS estimates of the effect of political freedom on earnings management. All the regressions include firm and year fixed effects. The first row shows the dependent variables. The key explanatory variables are the political freedom score ($PolFrScore$) and political freedom dummy ($PolFrDummy$). The last two rows report the adjusted-R^2 and number of observations. All continuous variables are winsorized at their 1st and 99th percentiles; all standard errors in the brackets adjust for heteroskedasticity and clustering at the firm level. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. The details of variable construction are in the Appendix A.

2015). A weak legal institution has a low level of investor protection, thereby increasing earnings management activities and decreasing financial transparency (Ball et al., 2000; Leuz et al., 2003; Bushman et al., 2004). We, therefore, check whether our findings merely reflect the cross-country differences in legal environments.[10] Specifically, we split our sample into high and low shareholder protection and creditor protection groups, as well as different legal origins. A country is in a high shareholder protection group if its revised anti-director rights index (ranging from one to five) is higher than three. High creditor protection is defined as a country's creditor protection index (ranging from zero to four) being higher than three. The legal origin subsamples are split based on whether a country's legal system originated from either common or civil law. High and low political stability is based on whether a country's political instability index is lower than the average index in a given year.[11] For each subsample, we then regress the political freedom score on abnormal accruals with a full set of control variables, firm fixed effect and year fixed effects.[12] Our results in Table 4 show that the positive coefficient of the political freedom score is generally persistent in the subsamples, implying that the legal institutions cannot fully explain the effect of political freedom on earnings management.

4.2. Addressing endogeneity

Firms subjected to different political freedom contexts may have unobserved heterogeneity that is correlated with earnings management decisions. Controlling for firm fixed effects can only rule out the time-invariant omitted variables, and subsample

[10] We use subsample analysis because the variables related to the legal environment are time-invariant.

[11] Our results are robust using the rank of political stability provided by the World Bank. The World Bank provides a ranking of 215 countries for each year. We also define a country as being in the high political stability group if it ranks in the top 50th percentile and find the qualitatively unchanged results

[12] As Table IA4 suggests that lagged abnormal accruals have an effect on current abnormal accruals, we also treat this variable as a control variable in our remaining tests. However, excluding this variable does not change our results.

Table 4
The effect of political freedom on earnings management: Subsamples.

	$Accr_{MJ}$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_{MJROA}$	$Accr_{F}$	$Accr_{F}$
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Shareholder protection						
LowShareholderProtection	0.154***		0.120***		−0.008**	
	(0.013)		(0.011)		(0.004)	
HighShareholderProtection		0.052***		0.040***		0.011***
		(0.004)		(0.003)		(0.002)
Adj.R^2	0.335	0.157	0.327	0.182	0.818	0.797
No. of obs	102,895	147,875	102,895	147,875	95,259	137,459
Panel B: Creditor protection						
LowCreditorProtection	0.039***		0.036***		0.010***	
	(0.005)		(0.004)		(0.002)	
HighCreditorProtection		0.034***		0.014		0.020***
		(0.011)		(0.009)		(0.006)
Adj.R^2	0.297	0.155	0.303	0.190	0.833	0.758
No. of obs	188,061	62,709	188,061	62,709	173,570	59,148
Panel C: Law system						
CivilLaw	0.040***		0.004		0.007***	
	(0.005)		(0.004)		(0.002)	
CommonLaw		0.085***		0.094***		0.014***
		(0.007)		(0.006)		(0.003)
Adj.R^2	0.227	0.249	0.250	0.262	0.815	0.803
No. of obs	103,276	147,494	103,276	147,494	94,352	138,366
Panel D: Political stability						
LowPolStability	0.026***		0.019***		0.008***	
	(0.004)		(0.004)		(0.002)	
HighPolStability		0.115***		0.106***		0.042***
		(0.011)		(0.010)		(0.004)
Adj.R^2	0.257	0.319	0.276	0.347	0.801	0.830
No. of obs	87,680	142,310	87,680	142,310	82,253	133,411

This table reports the effect of political freedom score (*PolFrScore*) on earnings management across different subsamples. All the regressions include firm and year fixed effects as well as control variables. The first row shows the dependent variables, and the row titles show how the corresponding subsample is defined. *LowShareholderProtection* (*HighShareholderProtection*) is defined if the revised anti-director rights index is lower (higher) than four. *LowCreditorProtection* (*HighCreditorProtection*) is defined if the creditor protection index is lower (higher) than three. *CivilLaw* (*CommonLaw*) is defined if a country belongs to civil (common) law system. *LowPolStability* (*HighPolStability*) sample is defined if the political stability index is lower (higher) than the mean value of the index in a given year. All continuous variables are winsorized at their 1st and 99th percentiles; all standard errors in the brackets adjust for heteroskedasticity and clustering at the firm level. *, **, and *** indicate significance at the 10%, 5% and 1% level, respectively. The details of variable construction are in the Appendix A.

tests only partially alleviate this concern. We, therefore, use the IV technique and DID framework to examine whether our results remain robust.

The first instrument is the spatial democracy score provided by Bjørnskov and Rode (2020), which measures the average democracy level in a country's geographical neighbors. A country's democracy being driven by spatial democracy through spillovers and diffusion has been well documented in the literature (e.g.,Beck et al., 2006; Gleditsch and Ward, 2006; Aidt and Franck, 2015). Gleditsch and Ward (2006) document that a country picked at random will have a 75% probability of being a democracy if most of its neighbors are democracies, but only 14% if the majority of its neighbors are non-democracies. Intuitively, the spatial democracy score only influences a firm's earnings management decision through a country's political freedom.

The second instrument, provided by Coppedge et al. (2019), is the legal content's level of privacy protection, which measures how well the legal framework protects internet users' privacy and their data. The previous studies document that social media plays a vital role in political participation (Holt et al., 2013; Skoric et al., 2016; Vaccari and Valeriani, 2018). Diamond (2010) argues that citizens use information and communication technology to spread political, social, and economic freedom. Correspondingly, authoritarians can identify and punish dissenters through the capability of filtering and controlling the internet. We, therefore, use the level of privacy protection provided by legal content as the second instrument.

Column 1 of Table 5 shows the results from a country-level regression of political freedom on spatial democracy and the level of privacy protection provided by law.[13] Consistent with our conjecture, spatial democracy and privacy protection provided by law are positively correlated with a country's level of political freedom (negatively correlated with political freedom score), and both are significant at the 1% level. In addition to this, the instruments, taken together, can explain almost 50% of the variation in political

[13] We report the first-stage regression results in Table IA8.

Table 5
The effect of political freedom on earnings management: 2SLS.

	$PolFrScore$	$Accr^c_{MJ}$	$Accr^c_{MJROA}$	$Accr^c_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$SpatialDemocracy$	−1.752***	0.035	0.026	−0.077			
	(0.622)	(0.131)	(0.117)	(0.200)			
$PrivacyProtectedByLaw$	−0.693***	−0.059	−0.052	−0.050			
	(0.182)	(0.038)	(0.034)	(0.041)			
$PolFrScore$					0.141***	0.113***	0.019**
					(0.010)	(0.009)	(0.005)
Control variables	No	No	No	No	Yes	Yes	Yes
Year F.E.	No	No	No	No	Yes	Yes	Yes
Fixed effect model	No	No	No	No	Yes	Yes	Yes
Adj.R^2	0.498	0.038	0.040	0.035			
No. of obs	666	666	666	646	221,902	221,902	206,035
P-value for underidentification test					0.000	0.000	0.000
P-value for week instrument test					0.000	0.000	0.000
P-value for overidentification test					0.182	0.155	0.187

This table reports the instrument variables analysis of the effect of political freedom on earnings management using a 2SLS fixed effect regression. The first row shows the dependent variables for each regression. $SpatialDemocracy$ is the average democracy level in a country's geographical neighbors. $PrivacyProtectedByLaw$ is the legal content's level of privacy protection. Columns (1)-(4) are for country–year OLS regressions. $Accr^c_{MJ}$, $Accr^c_{MJROA}$, and $Accr^c_F$ are the cross-sectional mean values of $Accr_{MJ}$, $Accr_{MJROA}$, and $Accr_F$ in a given country. Columns (5)-(7) report the second stage results for $PolFrScore$ using the instrument variables of $SpatialDemocracy$ and $PrivacyProtectedByLaw$. The last three rows report the results for the underidentification test (Kleibergen-Paap rk LM statistic), week instrument test (Kleibergen-Paap rk Wald F statistic) and overidentification test (Hansen J statistic). All continuous variables are winsorized at their 1st and 99th percentiles; all standard errors in the brackets adjust for heteroskedasticity and clustering at the firm (country in Columns (1)-(4)) level. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. The details of variable construction are in the Appendix A.

Table 6
The effect of political freedom on earnings management: Difference-in-differences framework.

	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$MajorDeterioration$	0.196***	0.211***	0.026***	0.072***	0.040**	0.058*	0.081***	0.043**	0.063**
	(0.015)	(0.016)	(0.005)	(0.019)	(0.016)	(0.030)	(0.020)	(0.017)	(0.028)
$OneYearBeforeDeterioration$							−0.029	−0.032	−0.044
							(0.054)	(0.055)	(0.031)
$TwoYearBeforeDeterioration$							−0.021	0.014	0.014
							(0.022)	(0.020)	(0.018)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R^2	0.266	0.281	0.614	0.179	0.182	0.613	0.179	0.182	0.613
No. of obs	253,405	253,405	233,971	5611	5611	5397	5611	5611	5397

This table reports the effect of political freedom on earnings management using the difference-in-differences framework. The first row shows the dependent variables for each regression. $MajorDeterioration$ is a dummy variable that equals one if a country's freedom has deteriorated from free to partly free or from partly free to not free, and zero otherwise. $OneYearBeforeDeterioration$ equals one if a firm will suffer the major deterioration one year later, and zero otherwise. $TwoYearBeforeDeterioration$ equals one if a firm will suffer the major deterioration two years later, and zero otherwise. All continuous variables are winsorized at their 1st and 99th percentiles; all standard errors in the brackets adjust for heteroskedasticity and clustering at the firm level. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. The details of variable construction are in the Appendix A.

freedom. In Columns 2–4, we regress the two instruments on the three earnings management proxies. The results show that the instruments do not have a significant impact on earnings management. Overall, Columns 1–4 suggest that the two instruments are not subject to the weak instrument problem and the violation of exclusion criteria; however, we also conduct the formal tests and report the results in Columns 5–7.

In the next step, we use the 2SLS fixed effect model to examine whether the deterioration of political freedom is associated with more aggressive earnings management. The results in Columns 5–7 of Table 5 are consistent with the main results, in that low levels of political freedom positively affect abnormal accruals. The last bottom three rows of Table 5 suggest that our tests reject the violation of under-identification, weak instrument, and over-identification criteria, indicating that the instruments are valid.

Following Guedhami et al. (2017), we adopt the DID framework to investigate the causal relationship between political freedom and earnings management. Specifically, based on the categories of political freedom defined by Freedom House, we create a dummy variable of $MajorDeterioration$ that equals one if a country's freedom has deteriorated from free to partly free, or from partly free to not free, and zero otherwise. We then regress this variable on the abnormal accruals with a full set of control variables, firm and year fixed effects. The firm fixed effect absorbs the time-invariant omitted difference between treated and control groups. It also ensures that the estimates of major deterioration in political freedom reflect average within-firm changes in abnormal accruals over time, rather than in relation to simple cross-sectional correlations. The year fixed effects account for the difference in the average

Table 7
The moderating effect of equity issuance on the relationship between earnings management and political freedom.

	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$PolFrScore$	0.058***	0.052***	0.014***	0.062***	0.055***	0.016***	0.060***	0.053***	0.015***	0.062***	0.055***	0.016***
	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.002)
EI	−0.026***	−0.027***	−0.013***									
	(0.006)	(0.006)	(0.003)									
$PolFrScore \times EI$	0.019***	0.019***	0.008***									
	(0.002)	(0.002)	(0.001)									
$LargeEI$				0.006	0.008	−0.008*						
				(0.009)	(0.008)	(0.004)						
$PolFrScore \times LargeEI$				0.019***	0.018***	0.010***						
				(0.003)	(0.003)	(0.002)						
NEI							−0.012**	−0.014***	−0.010***			
							(0.006)	(0.005)	(0.003)			
$PolFrScore \times NEI$							0.016***	0.016***	0.007***			
							(0.002)	(0.002)	(0.001)			
$LargeNEI$										0.006	0.008	−0.008*
										(0.009)	(0.008)	(0.005)
$PolFrScore \times LargeNEI$										0.019***	0.018***	0.010***
										(0.003)	(0.003)	(0.002)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R^2	0.257	0.280	0.821	0.257	0.280	0.821	0.257	0.280	0.821	0.257	0.280	0.821
No. of obs	253,405	253,405	233,971	253,405	253,405	233,971	253,405	253,405	233,971	253,405	253,405	233,971

This table reports the political freedom–earnings management relationship among equity issuers and non-issuers. The first row shows the dependent variables. EI is a dummy variable, which equals one if the sale of stock is larger than zero, and zero otherwise. $LargeEI$ is a dummy variable equals one if the sale of stock is larger than 5% of total asset, and zero otherwise. NEI and $LargeNEI$ are defined in a same way except using net equity issuance (sale of stock minus stock repurchase). All continuous variables are winsorized at their 1st and 99th percentiles; all standard errors in the brackets adjust for heteroskedasticity and clustering at the firm level. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. The details of variable construction are in the Appendix A.

pre- and post-deterioration outcomes. Therefore, the dummy variable of $MajorDeterioration$ should capture the causal impact of the substantial decrease in political freedom on abnormal accruals between treated and control groups. Columns 1–3 of Table 6 show the results for the DID estimation. The significant positive coefficients of $MajorDeterioration$ in these columns confirm the positive causal effect on earnings management of political freedom, regardless of how abnormal accruals are measured.

We also apply the propensity score matching methodology to control for differences in firm characteristics between treated and control firms. Using all the control variables, we employ a logit regression to calculate the propensity score, which is the predicted probability of experiencing a major political freedom deterioration. For each firm that suffers the major deterioration, we select one matched firm, with replacement, with the closest propensity score from the group of control firms that operate in the same year. To better isolate the causal effect, we restrict the sample period to three years before and after the major deterioration and redo the test for the matched samples. Columns 4–6 show that the coefficient of $MajorDeterioration$ remains positive and significant. In Columns 7–9, we include the dummy variables of $OneYearBeforeDeterioration$ and $TwoYearsBeforeDeterioration$, which equals one if a firm will suffer the major deterioration one year later and two years later, and zero otherwise. Both pre-events dummy variables are insignificant, suggesting that the major deterioration variable captures the actual effect of events rather than the pre-trend differences. Overall, we find that political freedom has a causal effect on earnings management; firms tend to manipulate discretionary accruals more aggressively to respond to a deterioration in political freedom.

4.3. Political freedom, earnings management, and external financing

We next assess the potential mechanism for the relationship between political freedom and earnings management. If firms have an increased incentive to manipulate earnings due to the high cost of equity induced by weak political freedom, we should observe that the effect of weak political freedom on abnormal accruals is stronger for equity issuers than for non-issuers.

To test this prediction, we run several specifications of our baseline regression that include proxies of equity issuer. Specifically, we employ four proxies to define equity issuers. The first measure is equity issuer (EI), a dummy variable that equals one if a firm's sale of common and preferred stock is greater than zero. The second variable is net equity issuer (NEI), a dummy variable that equals one if a firm's net equity issuance (the difference between sale and repurchase of common and preferred equity) is greater than zero. We also follow prior studies (Hovakimian et al., 2001, 2004; Chang et al., 2006) to define a large equity issuer ($LargeEI$) and a large net equity issuer ($LargeNEI$) if equity issuance is more than 5% of total assets and net equity issuance is more than 5% of total assets, respectively. We then interact these dummy variables with the $PolFrScore$ to see their effects on earnings management.

Table 7 reports the relationship between political freedom and earnings management in the context of equity issuers and non-issuers. The significant and positive interaction terms ($PolFrScore \times EI$) in Columns 1–3 suggest that the positive effect of the political freedom score is stronger for equity issuers, regardless of the proxies of abnormal accruals. Similarly, Columns 4–12 show that the effect is robust to the other three equity issuer measures. The results indicate that the effect of political freedom on earnings management is more profound for equity issuers than for non-issuers, implying that an environment with reduced political freedom increases the cost of capital, thereby increasing the incentive to undertake earnings manipulation.

Similarly, if firms undertake earnings manipulation due to the high borrowing cost induced by weak political freedom, we should also observe that the effect of political freedom on abnormal accruals is higher for debt issuers than for non-issuers. We use long-term debt issuer ($LTDI$), large long-term debt issuer ($LargeLTDI$), net debt issuer (NDI), and large net debt issuer ($LargeNDI$) variables to measure a firm's debt issuance decision. Long-term debt issuer equals one if the change of a firm's long-term debt is greater than zero, and zero otherwise. A large long-term debt issuer is defined as a firm with a change in long-term debt larger than 5% of its total assets, and zero otherwise. Net debt issuer considers both long- and short-term debts, which equals one if the change in a firm's net debt issuance is greater than zero, and zero otherwise. A large net debt issuer is defined as a firm with a change in long- and short-term debts greater than 5% of its total assets, and zero otherwise.

Consistent with the prediction, the results in Table 8 show a significant and positive coefficient of the interaction term in Columns 1–6, suggesting that the effect of political freedom on abnormal accruals is more profound for debt issuers than for non-issuers. However, the insignificant coefficients of interaction terms in Columns 7–11 suggest that the relationship between political freedom and abnormal earnings is not more significant for debt issuers when taking short-term debt issuance into account. In the unreported results, we also find insignificant interaction between short-term debt issuers and political freedom. A potential explanation is that bank loans account for a high proportion of short-term debts. Since banks serving as financial intermediaries are well equipped with financial expertise, short-term debt issuers could reduce the incentive of conducting earnings manipulation due to the high risk of detection. Overall, the results indicate that restricted political freedom increases the cost of debt, thereby increasing the long-term debt issuers' incentive to undertake earnings manipulation.

Motivated by Qi et al. (2010), we further investigate whether legal institutions and political freedom are complements, substitutes, or independent for firms that have external financing needs to undertake earnings management. Qi et al. (2010) find that political rights act as complements for legal institutions in determining the cost of debt. We first test the effect of political freedom on equity issuers' earnings management decisions. To do so, we interact the political freedom score with equity issuers and low shareholder protection. A significant positive (negative) coefficient of the three-variable interaction term suggests that legal institutions and political freedom are complements (substitutes), as a marginal decrease in political rights induces higher (lower) abnormal accruals for equity issuers from countries with weaker shareholder rights. An insignificant coefficient of the three-variable interaction term suggests that legal institutions and political freedom have an independent effect on equity issuers' earnings management decisions.

In Panel A of Table 9, we find that the coefficients of three-variable interaction terms are significant and positive in all columns, implying that the legal institutions and political freedom have a complementary effect on equity issuers' earnings manipulation. A potential explanation is that weak legal institutions reduce corporate transparency. This leads to difficulties in detecting equity issuers' earnings manipulation within a weak political freedom environment. We follow the same procedure for debt issuers. However, the coefficients of the interaction on political freedom score, debt issuers, and low creditor protection are insignificant in all of the columns of Panel B. This suggests that the effects of legal institutions and political freedom could be independent of debt issuers' earnings management decisions.

4.4. Political freedom, earnings management, and precautionary motives

To investigate whether weak political freedom induces the incentive to conduct earnings smoothing through the decreased risk-taking and increased hedging needs for future volatile cash flows, we firstly follow McLean (2011) by using cash flow volatility, R&D expense, dividend status, and the first principal component of the three variables as the proxies to define precautionary motives. We create four dummy variables that equal one if a firm is considered as having strong precautionary motives and zero otherwise. Specifically, $Non\text{-}dividend\,Payer$ equals one if the firm does not pay a dividend and zero otherwise. $HighCFV$, $HighR\&D$ or $HighFCP$ equal one if a firm's cash flow volatility, R&D expense or the first principal component is above the median value in a given country and year, respectively, and zero otherwise. We then interact these dummy variables with the $PolFrScore$ indicator to see their effects on earnings management. If a low level of political freedom increases the incentive of undertaking earnings management due to the increased future cash flow risk and reduced risk-taking, we should observe that the effect of weak political freedom on abnormal accruals is more profound for firms with strong precautionary motives.

In Table 10, the results show that the interactions between political freedom score and dummies of strong precautionary motives deliver significantly positive coefficients for all proxies, except for $Non\text{-}dividend\,Payer$. However, the signal of the interaction of $PolFrScore$ and $Non\text{-}dividend\,Payer$ is positive in Columns 7–9, consistent with the interaction of political freedom score and other proxies of strong precautionary motives. In sum, we find the positive effect of political freedom score on abnormal accruals is greater for firms with strong precautionary motives, suggesting that a deteriorated political freedom environment increases the demand for smoother earnings, thereby increasing the incentive to undertake earnings management.

Table 8
The moderating effect of debt issuance on the relationship between earnings management and political freedom.

	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$PolFrScore$	0.062***	0.055***	0.015***	0.063***	0.056***	0.016***	0.064***	0.057***	0.016***	0.064***	0.057***	0.016***
	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.002)
$LTDI$	0.003	0.001	−0.004*									
	(0.005)	(0.004)	(0.002)									
$PolFrScore \times LTDI$	0.003***	0.003***	0.003***									
	(0.001)	(0.001)	(0.001)									
$LargeLTDI$				0.019***	0.018***	−0.001						
				(0.007)	(0.006)	(0.003)						
$PolFrScore \times LargeLTDI$				0.006***	0.006***	0.005***						
				(0.002)	(0.002)	(0.001)						
NDI							0.007*	0.006	−0.004**			
							(0.004)	(0.004)	(0.002)			
$PolFrScore \times NDI$							0.000	−0.000	0.001*			
							(0.001)	(0.001)	(0.001)			
$LargeNDI$										0.032***	0.028***	0.002
										(0.006)	(0.005)	(0.003)
$PolFrScore \times LargeNDI$										0.000	0.001	0.002**
										(0.001)	(0.001)	(0.001)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R^2	0.257	0.280	0.821	0.257	0.280	0.821	0.257	0.280	0.821	0.257	0.280	0.821
No. of obs	253,314	253,314	233,884	253,314	253,314	233,884	253,314	253,314	233,881	253,314	253,314	233,881

This table reports the political freedom–earnings management relationship among debt issuers and non-issuers. The first row shows the dependent variables. $LTDI$ is a dummy variable, which equals one if the change in the long-term debt is larger than zero, and zero otherwise. $LargeLTDI$ is a dummy variable equals one if the change of the long-term debt is larger than 5% of total asset and zero otherwise. NDI and $LargeNDI$ are defined in a same way except using net debt issuance (change in the sum of long-term and short-term debt). All continuous variables are winsorized at their 1st and 99th percentiles; all standard errors in the brackets adjust for heteroskedasticity and clustering at the firm level. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. The details of variable construction are in the Appendix A.

4.5. Political freedom, earnings management, and corporate governance

We next investigate whether weakened political freedom reduces governance, thereby stimulating managers' incentive to fulfill their self-interests through the manipulation of earnings. The worldwide explosion of corporate board reform provides us an opportunity to test whether the positive effect of a low political freedom score on earnings management attenuates under a significant increase in governance. Since the launch of the U.K.'s Cadbury Report in 1992, there has been a worldwide explosion of board reform aimed at improving governance by imposing or recommending greater board independence, the independence of audit committees and auditors, and the separation of chief executive offers' duality (Dahya and McConnell, 2007; Kim and Lu, 2013; Fauver et al., 2017; Hu et al., 2020). Therefore, if deteriorated political freedom induces earnings management through weakened governance, we should observe a weakened the relationship between political freedom and earnings in countries that have adopted board reforms.

To test the governance mechanism, we obtain the data on the first reforms and major reforms for each country from Fauver et al. (2017). We create a dummy variable of $FirstReforms$ that equals one if a firm has experienced first board reforms, and zero otherwise. We then interact these two dummy variables with the $PolFrScore$ variable to see their effects on earnings management. For robustness, we also employ the event of major board reforms to construct the dummy variable of $MajorReforms$. A negative coefficient of the interaction terms indicates that the effect of deteriorated political freedom on earnings management is lower in an improved governance environment.

Table 11 shows that, for both the first and major reforms, the coefficients of the interaction terms are significantly negative for all the proxies of abnormal accruals, implying that an improved governance environment can weaken the effect of low levels of political freedom on abnormal accruals. Consistent with Hypothesis 3, the evidence shows that weak political freedom increases earnings management through weakened governance effort.

5. Conclusion

This study assesses the effect of political freedom on earnings management decisions. Using a sample of 42 countries from 1990 to 2017, we find that political freedom has both an economically and statistically significant effect on firms' earnings management activities. Firms operating in a reduced political freedom environment tend to make more aggressive earnings management decisions. The results are robust to an ample set of robustness tests, including subsample tests using legal institutions, IV and DID estimations.

We find that the effect of political freedom on earnings management is more profound for equity issuers, debt issuers, and for firms with strong precautionary motives. Consistent with our hypothesis, firms undertake earnings management to reduce the cost of equity, the cost of debt, and cash flow risk caused by restricted political freedom. In addition, we also find that legal institutions

Table 9
Legal institution, political freedom and earnings management.

	$Accr_{MJ}$	$Accr_{MJ}$	$Accr_{MJ}$	$Accr_{MJ}$
	(1)	(2)	(3)	(4)
Panel A: Shareholder protection				
$PolFrScore$	0.047***	0.050***	0.047***	0.050***
	(0.004)	(0.004)	(0.004)	(0.004)
$PolFrScore \times LowShareholderProtection$	0.075***	0.077***	0.078***	0.077***
	(0.015)	(0.015)	(0.015)	(0.015)
EI	−0.005			
	(0.007)			
$EI \times PolFrScore$	0.012***			
	(0.003)			
$EI \times LowShareholderProtection$	−0.051***			
	(0.015)			
$EI \times PolFrScore \times LowShareholderProtection$	0.012***			
	(0.004)			
$LargeEI$		0.029**		
		(0.012)		
$LargeEI \times PolFrScore$		0.008		
		(0.005)		
$LargeEI \times LowShareholderProtection$		−0.036**		
		(0.018)		
$LargeEI \times PolFrScore \times LowShareholderProtection$		0.014**		
		(0.006)		
NEI			0.003	
			(0.007)	
$NEI \times PolFrScore$			0.010***	
			(0.003)	
$NEI \times LowShareholderProtection$			−0.025**	
			(0.012)	
$NEI \times PolFrScore \times LowShareholderProtection$			0.009**	
			(0.004)	
$LargeNEI$				0.029**
				(0.012)
$LargeNEI \times PolFrScore$				0.008
				(0.005)
$LargeNEI \times LowShareholderProtection$				−0.038**
				(0.018)
$LargeNEI \times PolFrScore \times LowShareholderProtection$				0.014**
				(0.006)
Control variables	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes
Firm F.E.	Yes	Yes	Yes	Yes
Adj.R^2	0.254	0.254	0.254	0.254
No. of obs	253,405	253,405	253,405	253,405

(*continued on next page*)

and political freedom are complementary for equity issuers' earnings management decisions. Earnings manipulation induced by low levels of political freedom is even more aggressive for a weak legal institution, suggesting that weak legal institutions reduce corporate transparency, leading to increased difficulty in uncovering equity issuers' earnings manipulation in a weak political freedom environment. We also find that a low level of political freedom influences earnings management through weakened governance; firms experiencing increased levels of governance reduce their earnings management activities in environments with low levels of political freedom.

Overall, a deterioration in political freedom attenuates firms' incentive to disclose actual operating performance, thereby decreasing transparency, intensifying agency problems, and increasing asymmetric information in the capital market. Our study appeals to more governance efforts from stakeholders and higher legal protection from policymakers to alleviate the adverse effects of deteriorated political freedom on reporting quality.

Appendix A. Variable definition

The abbreviations in the parentheses are the item names used in Compustat.

Modified-Jones' model ($Accr_{MJ}$): Modified-Jones' model is based on Jones' model. Abnormal accruals are measured by subtracting the non-discretionary accruals from total accruals. Specifically, we estimate the following regression:

$$Ta_{i,t} = \beta_0 + \beta_1 \frac{1}{Assets_{i,t-1}} + \beta_2 \frac{\Delta Rev_{i,t} - \Delta Rec_{i,t}}{Assets_{i,t-1}} + \beta_3 \frac{Ppe_{i,t}}{Assets_{i,t-1}} + \epsilon_{i,t} \quad \text{(A1)}$$

Table 9 (*continued*).

	$Accr_{MJ}$	$Accr_{MJ}$	$Accr_{MJ}$	$Accr_{MJ}$
	(1)	(2)	(3)	(4)
Panel B: Creditor protection				
$PolFrScore$	0.127***	0.127***	0.129***	0.129***
	(0.010)	(0.010)	(0.010)	(0.010)
$PolFrScore \times LowCreditorProtection$	−0.079***	−0.078***	−0.080***	−0.080***
	(0.012)	(0.011)	(0.012)	(0.012)
$LTDI$	0.012			
	(0.009)			
$LTDI \times PolFrScore$	0.001			
	(0.003)			
$LTDI \times LowCreditorProtection$	−0.012			
	(0.011)			
$LTDI \times PolFrScore \times LowCreditorProtection$	0.002			
	(0.004)			
$LargeLTDI$		0.010		
		(0.013)		
$LargeLTDI \times PolFrScore$		0.010*		
		(0.005)		
$LargeLTDI \times Lowcreditorprotection$		0.012		
		(0.015)		
$LargeLTDI \times PolFrScore \times LowCreditorProtection$		−0.005		
		(0.006)		
NDI			0.014	
			(0.009)	
$NDI \times PolFrScore$			−0.002	
			(0.003)	
$NDI \times LowCreditorProtection$			−0.009	
			(0.010)	
$NDI \times PolFrScore \times LowCreditorProtection$			0.002	
			(0.003)	
$LargeNDI$				0.027**
				(0.011)
$LargeNDI \times PolFrScore$				0.001
				(0.004)
$LargeNDI \times LowCreditorProtection$				0.008
				(0.013)
$LargeNDI \times PolFrScore \times LowCreditorProtection$				−0.001
				(0.005)
Control variables	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes
Firm F.E.	Yes	Yes	Yes	Yes
Adj.R^2	0.257	0.257	0.257	0.257
No. of obs	253,314	253,314	253,314	253,314

This table reports the effect of legal protection on the issuers, political freedom, and earnings management relationship. Panel A reports the results for the effect of shareholder protection on the relationship among equity issuers, political freedom, and earnings management. Panel B reports the results for the effect of creditor protection on the relationship among debt issuers, political freedom, and earnings management. All continuous variables are winsorized at their 1st and 99th percentiles. All standard errors in the brackets adjust for heteroskedasticity and clustering at the firm level. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. The details of variable construction are in the Appendix A.

where $Ta_{i,t}$ is firm i's total accruals in year t, which is calculated as the change of current assets (ΔACT) minus the change of current liabilities (ΔLCT) minus the change of cash and short-Term Investments (ΔCHE) plus the change of debt in current liabilities (ΔDLC) minus depreciation and amortization (DP), scaled by lagged total assets (AT). $\Delta Rev_{i,t}$ is the annual change in sales (ΔSALE). $\Delta Rec_{i,t}$ is the annual change in receivables (RECT). $Ppe_{i,t}$ is property, plant and equipment (PPEGT). The absolute value of the residual is abnormal accruals, which is the proxy for earnings management. Following He et al. (2017), we estimate Eq. (A1) for each country–year with industry fixed effect. We require a minimum of 30 observations in each country–year, but restricting the minimum number to 50 observations does not qualitatively change our results.

Modified-Jones with ROA ($Accr_{MJROA}$): as Jones-type model overestimates (underestimates) the discretionary accruals of high (low) ROA performance, we follow Kothari et al. (2005) to modify the equation by considering ROA. We estimate the following regression:

$$Ta_{i,t} = \beta_0 + \beta_1 \frac{1}{Assets_{i,t-1}} + \beta_2 \frac{\Delta Rev_{i,t} - \Delta Rec_{i,t}}{Assets_{i,t-1}} + \beta_3 \frac{Ppe_{i,t}}{Assets_{i,t-1}} + \beta_4 ROA_{i,t} + \epsilon_{i,t} \quad \text{(A2)}$$

Table 10
The moderating effect of precautionary motives on the relationship between earnings management and political freedom.

	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$PolFrScore$	0.062***	0.055***	0.016***	0.063***	0.056***	0.016***	0.062***	0.056***	0.016***	0.060***	0.053***	0.015***
	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.002)
$HighCFV$	−0.008	0.004	0.002									
	(0.009)	(0.008)	(0.006)									
$PolFrScore \times HighCFV$	0.007***	0.007***	0.006***									
	(0.002)	(0.002)	(0.002)									
$HighR\&D$				−0.008	−0.009	−0.008						
				(0.011)	(0.010)	(0.005)						
$PolFrScore \times HighR\&D$				0.006**	0.007***	0.002*						
				(0.003)	(0.002)	(0.001)						
$Non\text{-}dividendPayer$							0.007	0.008	0.006			
							(0.009)	(0.008)	(0.004)			
$PolFrScore \times Non\text{-}dividendPayer$							0.004	0.002	0.000			
							(0.003)	(0.002)	(0.001)			
$HighFCP$										−0.001	0.004	0.001
										(0.008)	(0.007)	(0.004)
$PolFrScore \times HighFCP$										0.013***	0.011***	0.006***
										(0.002)	(0.002)	(0.001)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R^2	0.257	0.280	0.821	0.257	0.280	0.821	0.257	0.280	0.821	0.257	0.280	0.821
No. of obs	253,405	253,405	233,971	253,405	253,405	233,971	253,405	253,405	233,971	253,405	253,405	233,971

This table reports the political freedom–earnings management relationship among firms with high and low precautionary motives. The first row shows the dependent variables. Precautionary motive is measured by cash flow volatility, research and development expense, dividend status and the first principal component of the three variables. A firm is considered to have high precautionary motives if the firm does not pay dividend ($Non\text{-}dividendPayer$) or its cash flow volatility ($HighCFV$), R&D expense ($HighR\&D$), and the first principal component ($HighFCP$) are larger than the median value in a given country and year. All continuous variables are winsorized at their 1st and 99th percentiles and all standard errors in the brackets adjust for heteroskedasticity and clustering at the firm level. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. The details of variable construction are in the Appendix A.

Table 11
The moderating effect of board reform on the relationship between earnings management and political freedom.

	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$	$Accr_{MJ}$	$Accr_{MJROA}$	$Accr_F$
	(1)	(2)	(3)	(4)	(5)	(6)
$PolFrScore$	0.079***	0.070***	0.027***	0.076***	0.068***	0.023***
	(0.005)	(0.004)	(0.002)	(0.005)	(0.004)	(0.002)
$MajorReforms$	0.053***	0.016**	0.032***			
	(0.009)	(0.008)	(0.005)			
$PolFrScore \times MajorReforms$	−0.022***	−0.016***	−0.013***			
	(0.002)	(0.002)	(0.001)			
$FirstReforms$				0.116***	0.078***	0.044***
				(0.010)	(0.010)	(0.005)
$PolFrScore \times FirstReforms$				−0.023***	−0.019***	−0.010***
				(0.002)	(0.002)	(0.001)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Firm F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R^2	0.257	0.280	0.821	0.257	0.280	0.821
No. of obs	253,405	253,405	233,971	253,405	253,405	233,971

This table reports the Political freedom–earnings management in the context of board reform. The first row shows the dependent variables. $MajorReforms$ is a dummy variable that equals one if a country has experienced a major board reform, and zero otherwise. $FirstReforms$ is a dummy variable that equals one if a country has experienced the first board reform, and zero otherwise. All continuous variables are winsorized at their 1st and 99th percentiles and all standard errors in the brackets adjust for heteroskedasticity and clustering at the firm level. *, ** and *** indicate significance at the 10%, 5% and 1% level, respectively. The details of variable construction are in the Appendix A.

where $ROA_{i,t}$ is return on asset ($\frac{IB_{i,t}}{AT_{i,t-1}}$). The absolute value of the residual is abnormal accruals, which is a proxy for earnings management. We estimate Eq. (A2) for each country–year with industry fixed effect and require a minimum of 30 observations in each country–year. However, restricting the minimum number to 50 observations does not qualitatively change our results.

Francis et al.'s (2005) model ($Accr_F$): we follow Francis et al. (2005) to calculate the standard deviation version of the earnings management proxy. The advantage of the model is that it focuses on the uncertainty rather than the magnitude of discretionary accrual, and such firms with consistently large discretionary accruals but low standard deviation are treated as having a good accrual

quality. We estimate the following regression:

$$Ta_{i,t} = \beta_0 + \beta_1 Cfo_{i,t} + \beta_2 Cfo_{i,t-1} + \beta_3 Cfo_{i,t+1} + \beta_4 \frac{\Delta Rev_{i,t}}{Assets_{i,t-1}} + \beta_5 \frac{Ppe_{i,t}}{Assets_{i,t-1}} + \epsilon_{i,t} \quad \text{(A3)}$$

where $Cfo_{i,t}$ is free cash flow divided by lagged total asset ($\frac{\text{OANCF}_{i,t}}{\text{AT}_{i,t-1}}$). Earnings management is calculated as the standard deviation of residuals using a five-year rolling window. We estimate Eq. (A3) for each country–year with industry fixed effect and require a minimum of 30 observations in each country–year. Restricting the minimum number to 50 observations does not qualitatively change our results.

$PolFrScore$: the average score of the indexes of political rights and civil liberties from the Freedom House database.

$PolFrDummy$: a dummy variable, which equals one if both political rights and civil liberties are larger than four and zero otherwise.

$Firmsize$: the natural logarithm of total assets (in US dollar) adjusted by the exchange rate and inflation (base year: 2000).

$SaleGrowth$: the change of sales (SALE) in current year divided by sales in the previous year.

$Leverage$: the sum of long-term (DLC) and short-term debt (DLTT) divided by market value (CSHOC×PRCCD).

$FreeCashFlow$: operating cash flow (OANCF) divided by total asset in the previous year.

$CashFlowVolatility$: the standard deviation of free cash flow using a 5-year rolling window (minimum three years required).

ROA: income before extraordinary items (IB) divided by total asset in the previous year.

$BIGN$: a dummy variable, which equals one if a firm is audited by any of the Big 8 auditing companies and zero otherwise.

IAS: a dummy variable, which equals one if a firm has adopted International Accounting Standards and zero otherwise.

AGE: number of years since a firm is included in Compustat.

M/B: the natural logarithm of market value dividend by the book value of equity (CEQ).

$EcoFr$: economic freedom index from the Heritage Foundation database.

$GDPGrowth$: a country's real GDP Growth rate from the World Development Indicators database provided by World Bank.

$SH.rights$: shareholder anti-self-dealing index from Djankov et al. (2008), which ranges from one to five.

$LowShareholderProtection$($HighShareholderProtection$): a dummy variable, which equals one if the anti-self-dealing index is lower (higher) than four and zero otherwise.

$CreditorRights$: creditor rights index from La Porta et al. (1998), which ranges from zero to four.

$LowCreditorProtection$($HighCreditorProtection$): a dummy variable, which equals one if the creditor rights index is lower (higher) than three and zero otherwise.

$CivilLaw$: a dummy variable, which equals one if a firm is of civil law origin, and zero if a firm is common law origin (La Porta et al., 1998).

$PolStability$: political stability index from the World Development Indicators database provided by World Bank.

$SpatialDemocracy$: spatial democracy index from Cheibub et al. (2010).

$PrivacyProtectedByLaw$: an index from V-Dem Dataset (Coppedge et al., 2019).

EI: a dummy variable, which equals one if the sale of stock (SSTK) is larger than zero, and zero otherwise.

$LargeEI$: a dummy variable, which equals one if the sale of stock is larger than 5% of total assets, and zero otherwise.

NEI: a dummy variable, which equals one if the sale of stock (SSTK) minus stock repurchase (PRSTKC) is larger than zero, and zero otherwise.

$LargeNEI$: a dummy variable, which equals one if the sale of stock minus stock repurchase is larger than 5% of total assets, and zero otherwise.

$LTDI$: a dummy variable, which equals one if the change in long-term debt is larger than zero, and zero otherwise.

$LargeLTDI$: a dummy variable, which equals one if the change in long-term debt is larger than 5% of total assets, and zero otherwise.

NDI: a dummy variable, which equals one if the change in the sum of long-term and short-term debt is larger than zero, and zero otherwise.

$LargeNDI$: a dummy variable, which equals one if the change in the sum of long-term and short-term debt is larger than 5% of total assets, and zero otherwise.

$HighCFV$: a dummy variable, which equals one if cash flow volatility is larger than the median value in a given country and year, and zero otherwise.

$HighR\&D$: a dummy variable, which equals one if R&D expense (XRD) scaled by total assets is larger than the median value in a given country and year, and zero otherwise. Missing XRD is replaced by zero.

$Non\text{-}dividendPayer$: a dummy variable that equals one if a firm does not pay dividend (DVT), and zero otherwise.

$HighFCP$: the first principal component is calculated using cash flow volatility, R&D expense and dividend status. High FCP is a dummy variable, which equals one if FCP larger than the median value in a given country and year, and zero otherwise.

$FirstReform$: a dummy variable, which equals one if a country has experienced the first board reforms, and zero otherwise.

$MajorReform$: a dummy variable, which equals one if a country has experienced the major board reforms, and zero otherwise.

Appendix B. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.intfin.2021.101443.

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