

Equity Issues by Distressed Firms around the World*

Bokyoung Park

November 23, 2018

Abstract

This paper analyzes whether distressed firms are more likely to issue equity using a large international sample from 32 countries between 1990 to 2016. I find that firms facing financial distress are more likely to conduct equity issues. Moreover, the likelihood of distressed equity issuance is more noticeable as creditor rights are stronger. In particular, when automatic stay is not allowed and managers cannot retain their position during the bankruptcy process, the likelihood of issuing equity by distressed firms rises. Overall, my results suggest that the propensity of equity issues is a function of financial distress and creditor rights, and managers also play an important role in dealing with financial distress.

JEL Codes : G30, G32, G33

Keywords: Creditor rights, financial distress, equity offerings

* I am grateful to my dissertation committee, Woojin Kim (Advisor), Michael Weisbach, Jongsub Lee, Jung-Wook Kim, and Ji-Woong Jung. I also thank René Stulz, Ingrid Werner, Karen Wruck, Kuan-Hui Lee, James Park, Shan Ge, a number of finance Ph.D. students at The Ohio State University and Seoul National University, and participants at the Doctoral Students Consortium of 2017 FMA for helpful comments. This study was supported by Institute of Finance and Banking of Seoul National University.

1. Introduction

The traditional theory of equity issuance posits that distressed firms cannot issue equity. Because positive NPV from a new investment is not transferred to shareholders but creditors, shareholders are unwilling to buy equity from distressed firms (Myers 1977). Additionally, high asymmetric information with outside investors causes distressed firms to face a high cost in issuing equity and discourages them from accessing the equity market. However, there is growing empirical evidence of equity issuances by distressed firms (Franks & Sanzhar 2006; Jostarndt 2009; DeAngelo *et al.* 2010; Lim *et al.* 2017; Park 2017; Kim *et al.* 2018). Surprisingly, these studies show that firms in financial distress issue equity to ease financial difficulty or to avoid delisting.

In this paper, I want to investigate whether the propensity of distressed firms to issue equity differs across the world. I examine the following questions; Is there cross-country variation in the likelihood of equity issues for distressed firms? If so, what drives the cross-country this difference? Is the offer price more discounted for distressed firms than for healthy ones? Do distressed firms issue more new shares? The goal of this analysis is to understand what drives distressed firms to issue equity and how financial distress affects characteristics of equity issuances.

To address these questions, I consider a large international sample of 25,815 equity issuances and 410,806 publicly traded and firm-year observations from 32 countries between 1990 to 2016. First, I test whether firms issue equity when they are financially distressed. If distressed firms cannot meet their debt obligation, the distressed firms face bankruptcy risk. Distressed firms try to make preemptive efforts to avoid bankruptcy but an equity issuance has been not considered by the literature as a way of relieving financial distress. The main purpose of equity issue is usually assumed to finance new investment, so the debt overhang is

particularly costly to distressed firms. However, it has been theoretically or empirically shown that equity issuance can be used for recapitalization for distressed firms to avoid liquidation, or to relieve severe financial distress (DeAngelo *et al.* 2010; Moreno-Bromberg & Vo 2017; Kim *et al.* 2018). Additionally, stated purposes of proceeds from equity issuance reported on *SDC Global New Issues Database* substantially include objects related to recapitalization².

To test this idea, I exploit logit equations to estimate the likelihood of firms facing financial distress issuing equity. I conjecture that the propensity of issuing equity rises if distressed firms issue equity for recapitalization. If equity issuance is meant to finance new projects, the incidence of an equity issue lowers for distressed firms. In this paper, I find that distressed firms are more likely to issue equity and confirm the phenomenon occurs around the world.

In addition, I investigate whether creditor rights affect the likelihood of distressed firms issuing equity. When creditor rights are stronger, shareholders and managers of distressed firms face a higher probability of passing their controls to creditors when firms experience bankruptcy. Thus, strong creditor rights increase their responsiveness to financial distress to prevent bankruptcy risk, which might affect the propensity of distressed firms to issue equity. I exploit the measure of creditor rights across countries documented by Djankov *et al.* (2007) who updated La Porta *et al.* (1998). The creditor rights index is constructed by the sum of four components; restrictions on reorganization, no automatic stay, secured creditor paid first, and no management in stay. I test which component of creditor rights plays an essential role in the probability of issuing equity by distressed firms.

² For example, objects related to recapitalization encompass “Pay on long-term borrowings,” “Recapitalization,” “Reduce indebtedness,” “Refinancing bank debt, commercial paper, and euro bonds”

I find that the when creditor rights are stronger, distressed firms are more likely to issue equity. This result implies that distressed firms mitigate bankruptcy risk by issuing equity. In particular, when the legal provision prevents bankrupt firms from automatic stay and management in stay, distressed firms are more likely to issue equity. If shareholders of distressed firms lose their control on the firm's assets, they are more likely to issue equity to keep their power. With regard to the motivation of incumbent managers, Eckbo and Thorburn (2003) and Eckbo *et al.* (2016) show that when a firm is filing bankruptcy, and then incumbent executives are forced out, they are likely to leave executive labor market and to suffer from considerable compensation loss. Thus, since firm insolvency incurs the private cost of bankruptcy for management, and if managers should leave their position during the restructuring process, managers of distressed firms will be more likely to issue equity as a preemptive way of reducing bankruptcy risk.

Financial distress condition might not be a random event. In addition, creditor rights have been developed by observable and unobservable country and firm characteristics which might also affect the decision of equity issuance for distressed firms. Unobservable factors related to creditor rights might have influences on the probability of financial distress. To overcome these endogeneity issues and to identify the impact of creditor rights on equity issues for distressed firms, I control for country and firm characteristics. Moreover, to substantiate the evidence on the effect of creditor rights on equity issuances, I compare the probability of issuing distressed equity in the U.K. and the U.S. The U.K. and the U.S have relatively similar developments in the capital market, shareholder protection, and the ownership structure of corporation but the U.K has much stronger creditor rights than the U.S. Much literature draws a comparison between the two countries to explore the impact of creditor rights (Wald 1999; Davydenko & Franks 2008; Acharya *et al.* 2011). I find that distressed firms in the U.K are more likely to issue equity than those in the U.S. Therefore,

the results shown on cross-country differences in creditor rights are robust to alternative hypotheses. Overall, these results establish my cross-country analysis of the likelihood of equity issuance by distressed firms with regard to creditor rights.

Furthermore, I conduct the cross-country analysis with uneven observations for each country. My finding might be driven by several countries with the large number of observations. I repeat analyses excluding such countries, and I confirm robust results.

As additional tests, I want to investigate whether characteristics of equity issuances varies according to financial distress. First, I examine whether discounting in equity issuances are larger for distressed issuers. I find that distressed issue equity at more discounted offer prices. This finding is consistent with the prediction of Altinkılıç and Hansen (2003), who shows that when investors have uncertainty about firm's prospect, issuing firms have a higher discounting in equity issuances. My finding implies that they offer equity at a more discounted price to succeed in equity issuances because distressed firms have high uncertainty.

Second, I want to compare the ratio of issued shares to the pre-issued shares outstanding between distressed to non-distressed firms. I find that distressed firms are likely to issue equity with a larger number of shares than non-distressed firms. When a firm conducts an equity issuance, existing shareholders are concerned about wealth transference to new shareholders or ownership dilution. For this reason, most countries' corporate law requires that firms must receive shareholder approval when they issue more than a certain percentage of new shares relative to old shares (Holderness 2018). Shareholder approval can affect the incidence of equity issues as well as the number of offered shares. If the existing shareholders of a distressed firm need a capital injection from outside investors to mitigate financial distress and to continue as a going concern, they are willing to approve equity

issuance and to bear the cost of issuing equity. As a result, distressed firms are more likely to issue equity at a larger number of new shares outstanding.

My paper contributes to a number of literature. First of all, it adds to our knowledge of burgeoning evidence on equity issuances by distressed firms (Moreno-Bromberg & Vo 2017; Park 2017; Kang & Park 2018; Kim *et al.* 2018). It is well documented that firms cannot easily conduct equity issuance when they are in financial distress (Myers 1977; Shleifer & Vishny 1992). This is because distressed firms suffer from debt overhang and a high cost of issuing equity due to information asymmetry. Thus, equity issuance has not been considered as a way of mitigating bankruptcy risk. However, my paper highlights the role of issuing equity as recapitalization to reduce insolvency risk. I document that firms under financial distress do conduct equity issuances by exploiting international data. This result implies that equity issues can be a way of relieving financial difficulty around the world.

Second, my paper is related to a large body of studies on the relationship between creditor rights and a firm's decisions. Existing literature focuses on financial and investment decisions in ex-ante financial distress such as firms' risk-taking, cash policy, and leverage with linking them to creditor rights (Acharya & Subramanian 2009; Acharya *et al.* 2011; Nini *et al.* 2012; Kyröläinen *et al.* 2013; Cho *et al.* 2014; Favara *et al.* 2017). Meanwhile, in this paper, I shed light on the incidence of equity issues as a function of creditor rights during ex-post financial distress.

Finally, it contributes to our understanding of the literature on the effect of managers' incentive on firm's financial policy. When a managers is dismissed during bankruptcy process, they experience private cost such as lower probability of being hired as an executive or lower compensation (Eckbo *et al.* 2016). Park (2017) demonstrates that managers of distressed firms are likely to issue equity to prolong their career and this relation is stonger

when a firm has weaker corporate governance. My results show that the cross-country difference in the legal provision of management in state affects equity issuances by distressed firms, whereas Park (2017) focuses on firm-level governance.

The remainder of the paper is organized as follows. Section 2 describes the data and variables used in the analyses, and Section 3 presents the main empirical results and robustness tests. Section 4 includes the conclusion.

2. Data and Variables

2.1 Sample Construction

Two databases are used to analyze whether distressed firms are more likely to issue equity: *SDC Global New Issues Database* and *Worldscope*. The sample period starts from 1990 to 2016 because both *SDC* and *Worldscope* cover mostly U.S. observations before 1990. I obtain data on equity issuances from the SDC Global New Issues Database, which provides detailed information on seasoned equity offerings. SDC collects types of equity issuances, such as public offerings, rights offerings or private placements, total proceeds, stated purposes of proceeds, offer prices, and the number of shares issued. I exclude all IPOs and equity issuances with more than 50 percent of secondary shares. The offerings of secondary shares provided by existing shareholders do not provide an infusion of new capital to issuing firms. Following DeAngelo et al. (2010), I only include issues for common shares. Additionally, I remove transition economy countries: China, Hungary, Poland, and Russia. I eliminate countries with less than 30 equity issuances over the sample period.

Worldscope provides financial accounting data on public firms from a number of countries. I merge accounting data from one year prior to SEOs with equity issuance from the SDC database by using several identifier codes, such as ISIN, SEDOL, CUSIP, and TICKER. I remove SEOs data without available financial data. Firms conduct SEOs more than twice a year. To match annual accounting data with SEO events, I consider multiple events over a year as one. The offer price of multiple equity issuances is calculated by computing the weighted average offer price with each proceed weighted in proportion to its total proceeds. The type of multiple issuances considered as the type of equity issuance with the largest amount of proceeds in a year. I exclude firms in the financial industry and utilities based on the SIC industry code reported by Worldscope. I require the nonmissing values of total assets and interest coverage ratio for two consecutive years on Worldscope. The final sample consists of 25,815 equity issuances and 410,806 firm-year observations for 32 countries.

2.2. Variable Construction

2.2.1 Financial Distress

Wruck (1990) defines financial distress as a situation where a firm's cash flow is insufficient for meeting its current obligations. A natural way of capturing this definition is through the interest coverage ratio (ICR), which is the ratio of earnings before interest and taxes (EBIT) to the interest expense. In this analysis, I define a firm as financially distressed when it has an ICR of less than one for the last two consecutive years (Asquith *et al.* 1994; Lang *et al.* 1995; Claessens *et al.* 2003). In addition, when I assess how a firm responds to distress according to the level of financial distress, I define low level of financial distress as where the ICR of a firm is larger than one and less than two in a given year and a high level of financial distress as where the ICR is less than one.

2.2.2 Creditor Rights

I rely on a number of variables constructed in the law and finance literature to measure legal protection. First, I use the measure of creditor rights from Djankov *et al.* (2007), who revised the measure of creditor rights documented by LLSV (1998). Creditor rights are measured based on the following four components: 1) Consent for reorganization (*REORG*), 2) no automatic stay (*NOAUTOSTAY*), 3) secured debt first (*SECURED*), and 4) no management in stay (*MGMTS*).

First, restrictions on reorganization (*REOR*) are related to whether creditors can place restrictions on bankruptcy filing. Second, no automatic stay (*NOAUTOSTAY*) concerns whether creditors can seize their collateral and liquidate it to retrieve debt when a firm files for bankruptcy. If a filing firm is granted an automatic stay on assets, a debtor of the filing firm can keep their assets from a creditor. Thus, it is favorable for a creditor when a debtor cannot exercise an automatic stay. Third, secured debt first (*SECURED*) regards whether secured creditors have the top priority for receiving the proceeds of liquidation before other creditors, such as the government or workers. Lastly, no management in stay (*NOMGMTS*) concerns whether an incumbent manager is replaced by a court-appointed representative during the reorganization process. The value of each component is equal to one where a country adopts the legal provision. Therefore, the variable creditor rights (*CRIGHTS*) index calculated by the sum of four components ranges from 0 to 4. A higher value of creditor rights indicates stronger creditor rights.

2.2.3. Other Firm- and Country-level Control Variables

Control variables include industry-level³ financial distress, defined as a dummy variable equal to one if the median sales growth of firms is negative; size, defined as the natural logarithm of total assets in 2010 inflation-adjusted US dollars; profitability, defined as the net income to total assets; and tangibility, defined as the net property, plant, and equipment to total assets. I also included capital expenditure, cash, operating cash flow, total debt, and research and development normalized by total assets. Detailed definitions of the variables are provided in Appendix A1. All accounting variables are winsorized at the 1st and 99th percentiles.

Furthermore, the macroeconomic conditions and economic development in each country affect not only the abilities of firms to sell new equity and investors to buy but also the occurrence of financial distress or bankruptcy. To consider this issue, I included the log of Gross Domestic Product (GDP) per capita, GDP growth, and stock market cap to GDP. All macroeconomic variables were obtained from the *World Bank* database.

In addition, shareholder protection is associated with equity market development and equity issuances (La Porta *et al.* 1997; Shleifer & Wolfenzon 2002). To measure the strength of shareholder protection, I use the anti-self-dealing index constructed by Djankov *et al.* (2008). The anti-self-dealing index is the average value of two measures of the ex-ante and ex-post private control of self-dealing and ranges between zero and one.⁴

Table 1 illustrates the summary of statistics across countries. The number of firms and firm-year observations vary across countries. The U.S., Japan, and the U.K., account for approximately 21.32 %, 16.68 %, and 7.25 % of the firm-year observations, respectively.

³ Industries are based on two-digit SIC codes.

⁴ Pagano and Paolo (2005) and Spamann (2008) criticized the anti-director rights index by LLSV (1998) for its inaccuracy and ambiguity, which is why I use the anti-self-dealing index rather than the anti-director rights index.

Since the U.S and Japan have approximately 38 % of the sample, I also test my results by excluding two countries for a robustness check.

The variable of financial distress is a dummy variable in this paper. In Table 1, financial distress is the mean value of financial distress of each country. It is shown that a condition of financial distress does not occur in specific countries with the emerging market countries or weak investor protection.

I observe the substantial cross-country variation in equity issuance activity. Countries with more financial development observe frequent SEO activity and relatively large proceeds from equity issuance. Australia, the U.S., the U.K., and Canada consist of 16.36 %, 12.38 %, and 10.62 % of the total number of equity issuances. In particular, Australia has the largest number of equity issuance activities in this sample. For a robustness check, I exclude Australia from the sample and find robust results. Generally, firms under financial distress conduct equity issuance more than those not under financial distress. Furthermore, there is a cross-country difference in the frequency of equity issuances under distress. Distressed firms in the U.K., Australia, and Korea have a relatively high frequency of equity issuances, whereas distressed firms in the U.S., Italy, and Japan have a relatively low frequency of equity issuances.

The average index of creditor rights of countries is 2.15, and the standard deviation of creditor rights is 1.023. Furthermore, there is a variation of creditor rights in similar shareholder protection within a similar shareholder protection level. For instance, the U.S., U.K., and Canada have relatively strong shareholder protection. However, the U.K. has strong creditor rights, with the highest value of the index of creditor rights, while the U.S. and Canada has low creditor rights. In a robust analysis, I compare the propensity of conducting

SEOs in the U.S. with that in the U.K. to control for the effect of shareholder protection on equity issuance.

---- Insert Panel A of Table 1 ----

Panel B of Table 1 displays a comparison of the proportion of issuing equity by non-distressed firms with distressed firms. The ratio of conducting equity issuance when firms are in financial distress is higher than when firms are not in financial distress. I conduct the Chi-square test for the difference in the proportion of non-distressed and distressed firms regarding issuing equity. The p -value of the corresponding *Chi*-square test is less than 0.01, and I confirm a significant difference between the two groups. Thus, this results implies that the likelihood of equity issuance differs between distressed and non-distressed firms.

---- Insert Panel B of Table 1 ----

I observe the cross-country difference in equity issuance when firms face financial distress in Table 1. This variation is presumably driven by creditor rights. As the creditor rights become stronger, the likelihood of dismissing shareholders and managers rises during the bankruptcy process. If the shareholders and managers of distressed firms are worried about transferring their power to creditor rights during reorganization, they take action before bankruptcy, and the extent to which they take action are likely to increase with the probability of losing shareholder and managers' control.

Figure 1 illustrates the relation between creditor rights and the incidence of equity issuances when firms are not in distress and in distress. To calculate the propensity of equity issuance shown on Figure 1, at first, I compute the likelihood of issuing equity of each country, which is the ratio of the number of equity issuances to the number of firm-year

observations. Then, I compute the mean of these likelihoods of equity issuances for countries by creditor rights index.

The solid line indicates the average propensity of distressed firms to issue equity, and the dotted line indicates the average propensity of non-distressed firms to issue equity. On average, distressed firms are more likely to conduct SEOs than non-distressed firms. Furthermore, the incidence of equity issuances by both distressed and non-distressed firms overall increases as the creditor rights index rises. However, the incidence of equity issuances by distressed firms dramatically rises whereas the likelihood of equity issuances by non-distressed firms grows steadily, as the creditor rights are stronger.

---- Insert Figure 1 ----

Table 2 contains the summary of statistics for firm-level control variables, which are used in the analysis of Table 3. The differences in firm characteristics between non-distressed and distressed firms indicate how well the definition of financial distress captures the status of firms in distress. Distressed firms have smaller total assets than non-distressed firms. When firms face financial distress, they sometimes suffer from a loss in retained earnings or sell their assets, leading to a reduction in the firm's total assets. Firms under financial distress are likely to have a poorer performance measured by the return on assets and operating cash flow and a higher leverage ratio. These results basically capture the features of financial distress. Additionally, firms facing financial distress have lower sales growth and market-to-book ratios. This implies that distressed firms have fewer investment opportunities. Consequently, those firms have lower capital expenditure. When I compare the firm characteristics of issuing firms with those of non-issuing firms in both non-distressed and distressed firms, I confirm that issuing firms are likely to have better performance and

investment opportunities than non-issuing firms, which increase the likelihood of conducting SEOs.

---- Insert Table 2 ----

3. Empirical Results

3.1 Financial Distress and Equity Issuances

The objective of this research is to examine whether there is a relation between financial distress and equity issuances and what affects this relation. In this section, first, I estimate the logit regression model to test whether financially distressed firms issue equity.

$$\Pr(\text{Equity Issues})_{i,c,t} = \beta_0 + \beta_1 \text{Distress}_{i,c,t-1} + \Pi_1 \text{Controls}_{i,j,c,t-1} + \Pi_2 \text{Macro}_{c,t} + \eta_{ind} + \eta_t + \varepsilon_{i,j,c,t} \quad (1)$$

In the above model, the subscript i indicates the firm, c indicates the country, and t indicates the year. The dependent variable is equal to one if a firm conducts equity issuances. The variable of *Distress* is equal to one when a firm has an ICR of less than one for the last two consecutive years. I control for a firm's characteristics (*Controls*) and macroeconomic variables (*Macro*), which affect the decision to conduct equity issuances (Loughran & Ritter 1997; Schlingemann *et al.* 2002; Bongaerts & Schlingemann 2016). *Controls* include size, return on assets, capital expenditure, operating cash flow, leverage, tangibility, research and development, a dummy variable for research and development, sales growth, and market-to-book ratio. *Macro* comprises the log of GDP per capita, GDP growth, and stock market cap to GDP in the regression. The detailed definitions of all variables in the model are presented in Appendix A1. I include two-digit SIC industry fixed effects and year fixed effects and consider robust standard errors clustered by the firm's two-digit SIC. The coefficient β_1

measures the relation between financially distressed firms' decision and equity issuances. The coefficient β_1 is expected to have a positive value for equity issuances when a firm is in financial distress. This analysis is illustrated in the following table.

The results of Table 3 show the relation between financial distress and the likelihood of conducting equity issuance. All estimation results reported in Table 3 are marginal effects from the logit regression. In column 1, I include the indicator of financial distress controlling for year- and industry-fixed effects. *Financial distress* has a positive coefficient, which implies that when firms are in financial distress, they are more likely to issue equity. In column 2, I repeat the estimation in column 1, including country-level macroeconomic condition variables. The coefficient is still significantly positive. *GDP growth* and *stock market capitalization to GDP* have significant and positive coefficients. This is consistent with the well-documented finding that a firm can access the financial market to issue equity when a country has a large capital market and at the stage of economic growth. In column 3, I repeat the regression in column 2, including firm characteristics. The number of observations in column 3 becomes smaller than that in column 2 because some observations of accounting variables used in the analysis have missing values. I still find a significantly positive coefficient of financial distress even after controlling the macro and firm characteristics variables. All results from columns 1 to 3 are also economically significant. The marginal effect of the dummy variable of financial distress are approximately 6%. This implies that when a firm face financial distress, the likelihood of equity issuance increased by approximately 6%. Overall, Table 3 supports the hypothesis that distressed firms issue equity.

---- Insert Table 3 ----

In Table 4, I investigate how the degree of financial distress affects the firm's decision to issue equity and how this relationship varies according to creditor rights. All logit

regressions in Table 4 repeat the specifications in Table 3. Instead, I redefine financial distress to indicate the degree of financial distress. To capture a low level of financial distress, I define $I_{\{1 \leq ICR < 2\}}$ as an indicator variable equal to one when an ICR of a firm is greater than 1 and less than 2, otherwise zero. To indicate a high level of financial distress, I define $I_{\{ICR < 1\}}$ as an indicator variable equal to one when an ICR of a firm is less than 1, otherwise zero.

The results on Table 4 show how the distress level affects equity issues. From column 1 to column 3, the marginal effects of both the low level ($I_{\{1 \leq ICR < 2\}}$) and the high level ($I_{\{ICR < 1\}}$) of financial distress are positive and statistically significant at 1% level. However, the magnitude of the marginal effect of the high level ($I_{\{ICR < 1\}}$) of financial distress (from 0.05 to 0.06) is about twice as much as that of the low level ($I_{\{1 \leq ICR < 2\}}$) of financial distress (from 0.02 to 0.03). Hence, the probability of conducting SEOs at distress level is twice as large as that at the pre-distress level. Taken together, this result shows that firms are more likely to issue equity when they are in more severe financial distress.

---- Insert Table 4 ----

3.2 Creditor Rights and Equity Issuances

In this section, I proceed to analyze how creditor rights affect the likelihood of equity issuance by distressed firms. To test this relation, I test the following specification.

$$\Pr(\text{Equity Issues})_{i,c,t} = \beta_0 + \beta_1 \text{Creditor Rights}_{i,c,t-1} + \beta_2 \text{Crditor Rights}_{i,c,t-1} * \text{Distress}_{i,c,t-1} + \Pi_1 \text{Controls}_{i,j,c,t-1} + \Pi_2 \text{Macro}_{c,t} + \eta_{ind} + \eta_t + \varepsilon_{i,j,c,t} \quad (2)$$

The specification (2) additionally includes the variable *creditor rights* and the interaction term between *CRIGHTS* and *Distress* in the specification (1). The variable of *Distress* is omitted in the specification because *Distress* and the interaction term between *Creditor Rights* and *Distress* is highly correlated. Favara *et al.* (2017) also exclude the

interaction between two variables in their specification when they investigate the effect of debt enforcement on corporate policies for firms facing bankruptcy risk. For the robustness check, I also estimate the specification including *Distress* and confirm the same results. The interaction term between creditor rights and financial distress allows me to investigate whether creditor rights influence the decision to conduct equity issuance by distressed firms. Ai and Norton (2003) suggest the delta method for calculating the marginal effect of a change in the interaction term in the nonlinear model. The correct sign and magnitude of the coefficient in the nonlinear model may differ from the ones shown in the estimated results. Following Ai and Norton (2003), I compute the marginal effect of the interaction term. Since the creditor rights index is a country-level and time-invariant variable, robust standard errors are clustered at the country level.

The results presented in Panel A of Table 5 are the marginal effects from the logit regression. For dummy variables, the marginal effect considers discrete changes from zero to one. In column 1, I only include *CRIGHTS* and *Distress* before inserting the interaction term between two variables controlling for year and industry fixed effects. The coefficient is positive and statistically significant, which means that stronger creditor rights increase the propensity of issuing equity. In column 2, I add the interaction term between *CRIGHTS* and *Distress*. In column 3, I consider shareholder protection, which is closely associated with development in the equity market. In column 4, I repeat the estimation in column 3 after including macroeconomic variables. Similarly, in column 5, I repeat the estimation in column 4 after including firm characteristics that is associated with equity issuance. From columns 2 to 5, the marginal effects of *CRIGHTS* are consistently positive and statistically significant. This finding is somewhat consistent with Cho *et al.* (2014) finding that shows strong creditor rights induce firms to rely on less long-term debt and eventually have a higher ratio of equity to long-term debt. The marginal mean interaction effect for *CRIGHTS* and *Distress* are

positive and statistically significant. The marginal effect of *CRIGHTS* is approximately 0.01, which indicates that an increase in the creditor rights index by one unit is associated with an increase in the likelihood of issuing equity by approximately 1%. The mean interaction effect of *CRIGHTS* and *Distress* is 0.06, which suggests that an increase in creditor rights by one unit raises the probability of conducting SEOs by approximately 6% when firms are facing financial distress. Thus, the effect of creditor rights becomes much stronger when firms are in financial distress. The marginal effect of shareholder protection is positive but statistically insignificant. Overall, Panel A of Table 5 shows that creditor rights increase the propensity of issuing equity and, furthermore, the impact of creditor rights on equity issuance is more substantial than the shareholder protection.

---- Insert Panel A of Table 5 ----

Panel B of Table 5 presents the relationship between the level of financial distress and equity issuance over creditor rights. To show this relationship, I estimate logit regressions including *CRIGHTS* and the $CRIGHTS * I_{\{1 \leq ICR < 2\}}$ and $CRIGHTS * I_{\{ICR < 1\}}$ interactions. Similar to Table 4, I omit the variable of $I_{\{1 \leq ICR < 2\}}$ and $I_{\{ICR < 1\}}$ because of multicollinearity. Column 1 only considers year and industry fixed effects. In column 2, I repeat the regression of column 1 including the macroeconomic variables, and in column 3, I repeat the regression of column 2 controlling the firm characteristics. From column 1 to column 3, both the mean interaction effects of $CRIGHTS * I_{\{1 \leq ICR < 2\}}$ and $CRIGHTS * I_{\{ICR < 1\}}$ interactions are positive and statistically significant. The magnitude of the interaction effect of $CRIGHTS * I_{\{ICR < 1\}}$ is 0.042, whereas that of $CRIGHTS * I_{\{1 \leq ICR < 2\}}$ is 0.01 to 0.02. It suggests that an increase in creditor rights by one unit raises the probability of issuing equity by 1% and 4% when firms are at the low and high level of distress, respectively. The results of Panel B compared with that of Panel A indicate that creditor right induces firms to issue more as they approach the bankruptcy risk. Overall,

the results in Table 5 document that equity issuance is a function of distress level and creditor rights.

---- Insert Panel B of Table 5 ----

The creditor rights index is constructed by aggregating four components as a proxy for the strength of creditor rights (*REOR*, *NOAUTOSTAY*, *SECRUED*, and *NOMGMTS*). In Table 6, I want to explore which component of creditor rights drives the results in Panel A of Table 5. To achieve this, I separately estimate the logit regression entailing the interaction between each component of the creditor rights index and distress separately instead of the aggregated index of creditor rights. I use the specification of column 3 in Table 3, which incorporates macroeconomic variables, firm characteristics, and year and industry fixed effects.

Table 6 presents the marginal effects of each variable and the mean interaction effect of the interaction term. As seen in Table 6, only *NOAUTOSTAY* and *NOMGMTS* have statistically significant marginal effect on equity issuances and the influence of the two components become much stronger when firms suffer from financial distress. The marginal effects of *NOAUTOSTAY* and *NOMGMTS* is 0.03 and 0.02, respectively, and the mean interaction effect for both *NOAUTOSTAY* and *NOMGMTS* with *Distress* is 0.11. This implies that distressed firms are more likely to issue equity since shareholders face a risk of losing their control of assets and managers can be dismissed during reorganization. To be specific, if managers are fired after bankruptcy, they have difficulty finding another executive position and experience income loss (Eckbo & Thorburn 2003; Eckbo *et al.* 2016). Thus, managers are more likely to respond to bankruptcy risks when they are not allowed to remain in their position during the bankruptcy process. These results are consistent with previous research on creditor rights (Acharya *et al.* 2011; Kyröläinen *et al.* 2013; Cho *et al.* 2014). They highlight

the impact of no automatic stay and no management stay in restructuring among the components of creditor rights in corporate policies, such as cash, risk-taking, and leverage. Taken together, the results in Table 6 indicate that the main drivers of the effect of strong creditor rights are whether creditors can seize their collateral and liquidate it to retrieve debt and whether an incumbent manager is dismissed. Thus, distressed firms issue more equity when shareholders or managers face a higher probability of losing their power.

---- Insert Table 6 ----

3.3 Robustness check

As seen in Table 1, each country has different sample sizes. The U.S. and Japan have a large number of firm-year observations, and Australia has the largest equity activities among the countries. In Table 7, I construct four subsamples excluding USA, Japan, and Australia. Initially, I only exclude the following countries: The U.S. in column 1, Japan in column 2, the U.S. and Japan in column 3, and Australia in column 4. In Panel A of Table 7, I repeat the specification of Table 3. The marginal effect of distress remains positive and statistically significant in all subsamples from column 1 to column 4. In Panel B of Table 7, I repeat the specification of Table 4 in several subsamples. I still continue finding the positive and statistically significant marginal effect of creditor rights. Although the construction of the sample is uneven across countries, I confirm that several countries with a large number of observations do not drive main results.

One can argue that unobserved country-specific factors are the result drivers of the effect of creditor rights on equity issuance. To address this concern, I focus on the U.S. and the U.K. and compare equity issuance by distressed firms in these countries. They have a similar cultural background, ownership structure of corporations, and accessibility to the capital market. However, the UK has strong creditor rights ($CRIGHTS = 4$), whereas the U.S.

has weak creditor rights ($CRIGHTS = 1$). This comparison allows me to corroborate the role of creditor rights in equity issuances. Table 8 shows that the estimated mean interaction effect remains positive and statistically significant (marginal effect of 0.132, z -stat of 13.77). Distressed firms in the U.K. are more likely to issue equity by 13.2 % than in the U.S.. Therefore, I confirm that the difference in creditor rights affects the incidence of equity issuance by the distressed firms.

3.4 Additional tests for equity issuance by distressed firms

I have demonstrated that financial distress affects the likelihood of conducting SEOs. In this section, I want to investigate how financial distress influences the characteristics of equity issuance such as the discount of the offer price and the number of newly issued equity. Panel A of Table 9 displays the summary statistics of the offer price discount and the ratio of issued shares to existing shares. I compared these characteristics between non-distressed and distressed firms. Following Mola and Loughran (2004), I calculate the discount of an offer price as the logarithm of the offer-price-to-closing-price ratio one day before the issuance. The mean (median) values of the discount of issuance are -0.108 (-0.052) and -0.117 (-0.071) by non-distressed and distressed firms, respectively. The difference of the two mean values is statistically insignificant at 10% level (t -stat of 1.63), whereas the difference of the two median values is statistically significant at 1% level (z -stat of 3.88). When distressed firms issue equity, they sell equity at a more discounted price. Moreover, investors have uncertainty about the firm value of distressed firms; thus, the offer price of issuance becomes more discounted. This result is consistent with the prediction of Mola and Loughran (2004) who demonstrated that asymmetric information raises the discount of the offer price.

As for the ratio of issued shares to existing shares, distressed firms issue equity more than non-distressed firms. The mean (median) values of the percentage of issued shares relative to existing shares are 0.629 (0.150) and 1.384 (0.189) for non-distressed and distressed firms, respectively. The difference for the mean (median) is statistically significant at 1% level (*t*-stat and *z*-stat). When firms are in financial distress, shareholders try to avoid transferring their rights to the creditors. When a firm issues equity at a certain percentage of the existing shares, the issuance must receive approval from shareholders. When the existing shareholders believe issuing equity causes wealth transfer to new shareholders, they are unwilling to approve seasoned equity offerings. However, if they are more concerned about losing their control to creditors than wealth transfer, they are more likely to issue equity to obtain capital injection. Therefore, shareholders are more likely to approve equity issuance when firms are in distress.

In Panel B of Table 9, I conduct a multivariate analysis. The dependent variable in columns 1 and 2 is the offer price discount, and that in columns 3 and 4 is the ratio of the number of issued shares to the existing outstanding shares. Columns 1 and 3 include log of GDP per capita, stock market capitalization to GDP, and GDP growth rate. Columns 2 and 4 control for firm characteristics including macroeconomic conditions. Columns 1 and 2 show that financial distress is positive and statistically coefficient even after controlling the firm and macroeconomic conditions, which implies that distressed firms issue equity at a more discounted offer price. Columns 3 and 4 show that shareholders are likely to approve more equity when distressed firms conduct SEOs.

4. Conclusion

It is well-known that debt overhang issue discourages firms in financial distress to issue equity. However, the objective of this paper is empirically to analyze whether distressed firms conduct equity issuance across the world from 1990 to 2015. First, I find that distressed firms are likely to issue equity to mitigate bankruptcy risk. Further, firms are more likely to issue equity as they approach to higher financial distress. Second, strong creditor rights raise the propensity of conducting equity issues by distressed firms. In particular, the driving force of the effect of creditor rights are related to whether creditors can seize collateral and whether an incumbent manager are dismissed during a reorganization process. Third, firms in financial distress sell equity at a more discounted offer price due to asymmetric information on distressed firms. Also, distressed firms tend to issue more equity to raise a fund and reduce financial risk. It can be interpreted that shareholders are willing to approve the larger number of shares to be issued.

Taken together, this research shows that equity issuance is a function of financial distress and creditor rights. Furthermore, it has an important implication that the incentive of shareholders and managers of distressed firms is a key determinant of issuing equity when they have probability of losing their control on bankruptcy.

Appendix Table A1. Definition of variables

Variable	Definition	Source
Panel A. Firm-level variables		
Distress	Dummy variable equal to one when a firm has an interest coverage ratio (ICR) less than one for last two consecutive years.	Worldscope
ln(Assets)	Natural logarithm of total assets in U.S. dollars.	
ROA	Net income to total assets	
CAPX	Capital expenditure to total assets	
Cash Flow	Operating cash flow to total assets	
Leverage	Total debt to total assets	
Tangibility	Net property, plant, and equipment (PPE) to total assets	
Pre-distress	Dummy variable equal to one if interest coverage ratio is greater than one and less than two.	
R&D	Research and development expenses to total assets, where research and development expenses are set to zero if they are missing	
R&D Missing	Dummy variable equal to one if research and development expenses are not reported, and zero otherwise	
Sales growth	Growth rate of sales over the previous year	
M_B	Market value of equity to book value of total equity	
Panel B. Country-level variables		
CRIGHTS	The creditor rights index is the sum of the below four indicator variables documented Djankov <i>et al.</i> (2008) who revised creditor rights index by La Porta <i>et al.</i> (1998). The value of this index is from 0 to 4.	La Porta <i>et al.</i> (1998), Djankov <i>et al.</i> (2008)
REORG	Restrictions on reorganization (REOR) is an indicator variable for whether creditors can put on restriction on bankruptcy filing.	
NOAUTOSTAY	No automatic stay (NOAUTOSTAY) is an indicator variable for whether creditors can seize their collateral and liquidate it to retrieve debt when a firm files bankruptcy.	
SECURED	Secured debt first (SECURED) is an indicator variable for whether secured creditors have the top priority to receive the proceeds of liquidation before others creditors such as government or workers.	
NOMGMTS	No management in stay (NOMGMTS) is an indicator variable for whether an incumbent manager is replaced for a court-appointed representative during the reorganization process.	
SHRIGHTS	This is anti-self-dealing index which is the average of ex-ante and ex-post private control of self-dealing. Principal component ex-ante: (1) approval by disinterested shareholders; (2) disclosures by buyer; (3) disclosures by Mr. James; (4) independent review Principal component ex-post: (5) each of the elements in the index of disclosure in periodic filings; (6) standing to sue; (7) rescission; ease of holding Mr. James liable; (8) ease of holding the approving body liable; and (9) access to evidence.	Djankov <i>et al.</i> (2008)
ln(GDPPC)	Natural logarithm of gross domestic product per capita	World Bank
GDP growth	Annual growth rate of gross domestic product	
MKTCAP_GDP	Total stock market capitalization to the total gross domestic product	

<Reference>

- Acharya, V.V., Amihud, Y., Litov, L., 2011. Creditor rights and corporate risk-taking. *Journal of Financial Economics* 102, 150-166
- Acharya, V.V., Subramanian, K.V., 2009. Bankruptcy Codes and Innovation. *The Review of Financial Studies* 22, 4949-4988
- Ai, C., Norton, E.C., 2003. Interaction terms in logit and probit models. *Economics Letters* 80, 123-129
- Asquith, P., Gertner, R., Scharfstein, D., 1994. Anatomy of Financial Distress: An Examination of Junk-Bond Issuers*. *The Quarterly Journal of Economics* 109, 625-658
- Bongaerts, D., Schlingemann, F.P., 2016. The Real Effects of Credit Ratings: Evidence from Corporate Asset Sales.
- Cho, S.-S., El Ghoul, S., Guedhami, O., Suh, J., 2014. Creditor rights and capital structure: Evidence from international data. *Journal of Corporate Finance* 25, 40-60
- Claessens, S., Djankov, S., Klapper, L., 2003. Resolution of corporate distress in East Asia. *Journal of Empirical Finance* 10, 199-216
- Davydenko, S.A., Franks, J.R., 2008. Do Bankruptcy Codes Matter? A Study of Defaults in France, Germany, and the U.K. *The Journal of Finance* 63, 565-608
- DeAngelo, H., DeAngelo, L., Stulz, R.M., 2010. Seasoned equity offerings, market timing, and the corporate lifecycle. *Journal of Financial Economics* 95, 275-295
- Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2008. The law and economics of self-dealing. *Journal of Financial Economics* 88, 430-465
- Djankov, S., McLiesh, C., Shleifer, A., 2007. Private credit in 129 countries. *Journal of Financial Economics* 84, 299-329
- Eckbo, B.E., Thorburn, K.S., 2003. Control benefits and CEO discipline in automatic bankruptcy auctions. *Journal of Financial Economics* 69, 227-258
- Eckbo, B.E., Thorburn, K.S., Wang, W., 2016. How costly is corporate bankruptcy for the CEO? *Journal of Financial Economics* 121, 210-229
- Favara, G., Morellec, E., Schroth, E., Valtu, P., 2017. Debt enforcement, investment, and risk taking across countries. *Journal of Financial Economics* 123, 22-41
- Franks, J.R., Sanzhar, S.V., 2006. Evidence on debt overhang from distressed equity issues.
- Holderness, C.G., 2018. Equity issuances and agency costs: The telling story of shareholder approval around the world. *Journal of Financial Economics* 129, 415-439
- Jostarndt, P., 2009. Equity offerings in financial distress—Evidence from German restructurings.
- Kang, J.-K., Park, J.L., 2018. Equity Issuance and Agency Conflicts: Evidence from the 20% Rule for Privately Issued Equity. working paper
- Kim, W., Ko, Y., Wang, S.-f., 2018. Debt restructuring through equity issues. working paper
- Kyröläinen, P., Tan, I., Karjalainen, P., 2013. How creditor rights affect the value of cash: A cross-country study. *Journal of Corporate Finance* 22, 278-298
- La Porta, R., Florencio Lopez-de-Silanes, F., Andrei Shleifer, R. Vishny, 1998. Law and Finance. *Journal of Political Economy* 106, 1113-1155
- La Porta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R.W., 1997. Legal Determinants of External Finance. *The Journal of Finance* 52, 1131-1150
- Lang, L., Poulsen, A., Stulz, R., 1995. Asset sales, firm performance, and the agency costs of managerial discretion. *Journal of Financial Economics* 37, 3-37
- Lim, J., Schwert, M.W., Weisbach, M.S., 2017. The Economics of PIPEs. National Bureau of Economic Research
- Loughran, T.I.M., Ritter, J.R., 1997. The Operating Performance of Firms Conducting Seasoned Equity Offerings. *The Journal of Finance* 52, 1823-1850
- Mola, S., Loughran, T., 2004. Discounting and Clustering in Seasoned Equity Offering Prices. *The Journal of Financial and Quantitative Analysis* 39, 1-23
- Moreno-Bromberg, S., Vo, Q.-A., 2017. Resolution of financial distress under agency frictions. *Journal of Banking & Finance* 82, 40-58
- Myers, S.C., 1977. Determinants of corporate borrowing. *Journal of Financial Economics* 5, 147-175
- Nini, G., Smith, D.C., Sufi, A., 2012. Creditor Control Rights, Corporate Governance, and Firm Value. *Review of Financial Studies* 25, 1713-1761

- Pagano, M., Paolo, F.V., 2005. The Political Economy of Corporate Governance. *The American Economic Review* 95, 1005-1030
- Park, J.L., 2017. Equity Issuance of Distressed Firms: Debt Overhang or Agency Problem?
- Schlingemann, F.P., Stulz, R.M., Walkling, R.A., 2002. Divestitures and the liquidity of the market for corporate assets. *Journal of Financial Economics* 64, 117-144
- Shleifer, A., Vishny, R.W., 1992. Liquidation Values and Debt Capacity: A Market Equilibrium Approach. *The Journal of Finance* 47, 1343-1366
- Shleifer, A., Wolfenzon, D., 2002. Investor protection and equity markets. *Journal of Financial Economics* 66, 3-27
- Spamann, H., 2008. 'Law and Finance' Revisited.
- Wald, J.K., 1999. How firm characteristics affect capital structure: An international comparison. *Journal of Financial Research* 22, 161-187
- Wruck, K.H., 1990. Financial distress, reorganization, and organizational efficiency. *Journal of Financial Economics* 27, 419-444

Figure 1. The incidence of equity issues over creditor rights.

This figure compares the effect of creditor rights on the likelihood of equity issuances by distressed firms to non-distressed firms. The x-axis shows the creditor rights index by Djankov *et al.* (2008) and the y-axis shows the propensity of equity issues. I calculate the likelihood of issuing equity of each country, which is the ratio of the number of equity issuances to the number of firm-year observations. Then, I compute the mean of these likelihoods of equity issuances for countries by creditor rights index. The solid line indicates the propensity of issuing equity by distressed firms and the dotted line indicates the propensity of issuing equity by non-distressed firms. Multiple equity issues conducted by a firm in one year is considered as one activity. The data spans from 1990 to 2016 and is obtained from SDC *Platinum* and *Worldscope*.

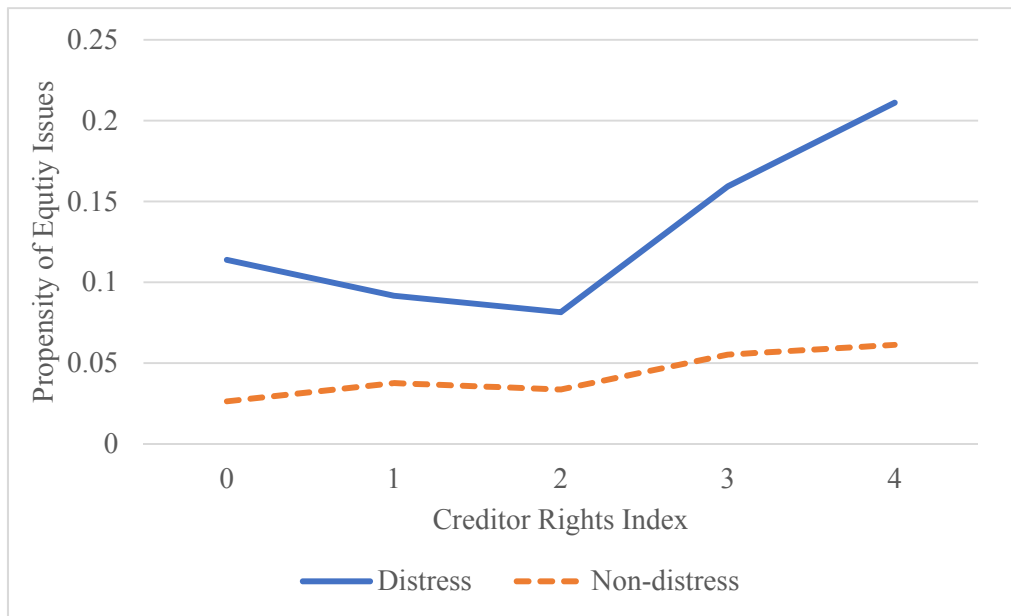


Table 1. Descriptive statistics

Panel A displays summary statistics for the 31 countries from 1990 to 2016. Panel A presents the number of firms, the number of firm-year observations, and the average of the financial distress which is equal to one when interest coverage ratio of firms is less than one for consecutive two years, the number of SEOs, the ratio of issuing firms under financial distress, the ratio of issuing firms under non-distress. The creditor rights index (*CRIGHTS*) is the sum of the four aspects of creditor rights documented Djankov *et al.* (2008), and the value of this index is from 0 to 4. The first component is restrictions on reorganization (*REORG*) which enable creditors to put on limit on the bankruptcy filing. The second component is no automatic stay (*NOAUTOSTAY*) which allows creditors to seize their collateral and liquidate it to retrieve debt when a firm files bankruptcy. The third component is secured debt first (*SECURED*) which provides secured creditors with the top priority to receive the proceeds of liquidation before others creditors such as government or workers. The last component is no management in stay (*NOMGMTS*) about which an incumbent manager is replaced for a court-appointed representative during the reorganization process. Shareholder protection index (*SHRIGHTS*) is the anti-self-dealing index which is the average of ex-ante and ex-post private control of self-dealing (Djankov *et al.*, 2008). $\ln(GDPPC)$ is the logarithm of gross domestic product per capita, $MKTCAP/GDP$ is the stock market capitalization to GDP, and $GDP\ growth$ is the annual growth in gross domestic production. Panel B presents the number of issuing and non-issuing equity according to whether firms are in financial distress or not. Information on the number of observations and financial distress are obtained from *Worldscope*, SEO activities are from *SDC Platinum*, and macroeconomic variables are from *World Bank Database*.

Panel A. Summary statistics by country

	No. of firms	No. of firm-year obs.	<i>Financial Distress</i>	<i>No. of SEOs</i>	<i>SEOs under distress</i>	<i>SEOs under non-distress</i>	<i>CRIGHTS</i>	<i>REORG</i>	<i>NO AUTOSTAY</i>	<i>SECURED</i>	<i>NO MGMTS</i>	<i>SHRIGHTS</i>	$\ln(GDPPC)$	$MKTCAP/GDP$	$GDP\ growth$
Australia	2304	14927	0.39	4224	0.45	0.17	3	0	1	1	1	0.76	10.56	1.04	0.03
Belgium	234	2417	0.16	90	0.10	0.03	2	0	0	1	1	0.54	10.35	0.60	0.02
Brazil	558	4929	0.25	194	0.05	0.04	1	0	1	0	0	0.27	8.73	0.49	0.03
Canada	3367	20949	0.45	2404	0.14	0.1	1	0	0	1	0	0.64	10.52	1.18	0.02
Chile	216	2356	0.13	99	0.04	0.04	2	0	1	1	0	0.63	8.99	1.01	0.04
Denmark	279	3230	0.15	131	0.10	0.03	3	0	1	1	1	0.46	10.37	0.45	0.02
Finland	231	2887	0.13	109	0.08	0.03	1	0	0	1	0	0.46	10.17	0.98	0.03
France	1523	14941	0.16	600	0.11	0.03	0	0	0	0	0	0.38	10.32	0.65	0.02

Germany	1402	14588	0.18	583	0.08	0.03	3	0	1	1	1	0.28	10.37	0.42	0.02
Greece	404	4675	0.21	57	0.03	0.01	1	1	0	0	0	0.22	9.99	0.44	0.01
Hong Kong	1884	15553	0.22	1500	0.2	0.07	4	1	1	1	1	0.96	10.32	7.63	0.04
India	2655	22961	0.13	976	0.05	0.04	2	1	0	1	0	0.58	7.08	0.79	0.08
Indonesia	501	5162	0.15	132	0.02	0.03	2	0	0	1	1	0.65	7.46	0.35	0.05
Ireland-Rep	128	1175	0.2	73	0.17	0.04	1	0	0	1	0	0.79	10.60	0.56	0.05
Israel	453	3299	0.21	71	0.06	0.01	3	0	1	1	1	0.73	10.19	0.76	0.04
Italy	457	4689	0.17	133	0.07	0.02	2	1	0	0	1	0.42	10.32	0.39	0.00
Japan	4696	68529	0.08	2290	0.08	0.03	2	0	0	1	1	0.5	10.49	0.77	0.01
Malaysia	1238	12938	0.17	814	0.09	0.06	3	1	1	1	0	0.95	8.75	1.46	0.05
Netherlands	357	3646	0.12	137	0.08	0.03	3	0	1	1	1	0.2	10.38	0.92	0.02
New Zealand	201	1688	0.14	134	0.23	0.06	4	1	1	1	1	0.95	10.10	0.37	0.03
Norway	470	3742	0.24	319	0.18	0.06	2	1	0	1	0	0.42	10.95	0.47	0.02
Philippines	222	1874	0.24	73	0.03	0.04	1	0	0	1	0	0.22	7.34	0.54	0.05
Singapore	1009	9480	0.14	862	0.18	0.08	3	0	1	1	1	1	10.46	2.07	0.06
South Africa	720	5481	0.1	142	0.06	0.02	3	1	0	1	1	0.81	8.40	1.91	0.03
South Korea	2176	21430	0.17	2351	0.33	0.06	3	0	1	1	1	0.47	9.85	0.74	0.04
Spain	260	2854	0.14	111	0.10	0.03	2	0	1	0	1	0.37	9.93	0.95	0.02
Sweden	878	7487	0.28	624	0.20	0.04	1	0	0	1	0	0.33	10.31	0.87	0.03
Switzerland	340	4009	0.1	104	0.09	0.02	1	0	0	1	0	0.27	10.87	1.90	0.02
Thailand	742	8069	0.15	438	0.11	0.04	2	0	0	1	1	0.81	8.15	0.66	0.04
Turkey	343	3587	0.15	103	0.07	0.02	2	1	1	0	0	0.43	8.88	0.29	0.04
United Kingdom	3652	29783	0.21	2741	0.21	0.06	4	1	1	1	1	0.95	10.25	1.23	0.02
United States	13078	87614	0.36	3196	0.05	0.03	1	0	0	1	0	0.65	10.61	1.19	0.02

Panel B. The likelihood of issuing and non-issuing equity based on the condition of financial distress

	Non-SEOs	SEOs	Total
Non-Distress	306,004	14,285	320,289
	(95.54)	(4.460)	(100)
Distress	79,130	11,530	90,660
	(87.28)	(12.72)	(100)
Total	385,134	25,815	410,949
	(93.72)	(6.282)	(100)

Table 2. Summary statistics for firm characteristics

This table presents the mean and median shown in parentheses for firm characteristics used in the analysis of column 3 in Table 3. All variables are defined in appendix Table A1. Data is obtained from *Worldscope*, and *SDC Platinum* over 1990 to 2016.

	Total	Non-distress	Distress	t-stat/ z-stat	Non-distress		t-stat/ z-stat	Distress		t-stat/ z-stat
	[N= 278,675]	[N= 223,156]	[N= 55,519]		Non-SEOs [N=306,004]	SEOs [N=14,285]		Non-SEOs [N=79,130]	SEOs [N=11,530]	
<i>ln(assets)</i>	12.153 (12.102)	12.524 (12.382)	10.660 (10.716)	195.34 (170.93)	12.541 (12.399)	12.211 (12.061)	17.62 (18.2)	10.680 (10.762)	10.526 (10.459)	5.32 (9.33)
<i>ROA</i>	-0.101 (0.026)	0.036 (0.039)	-0.654 (-0.165)	198.36 (333.81)	0.038 (0.040)	0.005 (0.032)	18.13 (19.71)	-0.673 (-0.157)	-0.527 (-0.225)	-7.25 (13.8)
<i>CAPX</i>	0.056 (0.035)	0.057 (0.038)	0.049 (0.022)	25.39 (81.36)	0.057 (0.038)	0.075 (0.042)	-28.94 (-11.50)	0.048 (0.021)	0.061 (0.023)	-13.47 (-7.38)
<i>Cash Flow</i>	0.131 (0.105)	0.150 (0.116)	0.056 (0.042)	71.34 (89.15)	0.146 (0.114)	0.211 (0.159)	-29.71 (-26.38)	0.047 (0.039)	0.116 (0.078)	-12.97 (-13.66)
<i>Leverage</i>	0.290 (0.229)	0.244 (0.218)	0.476 (0.301)	-135.46 (-68.14)	0.241 (0.215)	0.290 (0.273)	-22.86 (-27.32)	0.497 (0.311)	0.336 (0.236)	18.74 (19.24)
<i>Tangibility</i>	0.593 (0.524)	0.589 (0.531)	0.608 (0.491)	-9.37 (12.38)	0.592 (0.533)	0.543 (0.466)	12.72 (14.96)	0.619 (0.503)	0.536 (0.408)	13.02 (14.06)
<i>R_D</i>	0.022 (0.000)	0.013 (0.000)	0.059 (0.000)	-139.99 (-37.01)	0.013 (0.000)	0.011 (0.000)	5.07 (18.32)	0.058 (0.000)	0.062 (0.000)	-2.17 (-1.25)
<i>R_D_missing</i>	0.518 (1.000)	0.528 (1.000)	0.479 (0.000)	20.66 (20.64)	0.524 (1.000)	0.602 (1.000)	-16.11 (-16.1)	0.474 (0.000)	0.510 (1.000)	-5.60 (-5.60)
<i>Sales Growth</i>	0.075 (0.062)	0.086 (0.069)	0.031 (-0.001)	27.05 (56.97)	0.082 (0.068)	0.154 (0.118)	-22.10 (-23.43)	0.027 (-0.002)	0.053 (0.008)	-2.92 (-2.51)
<i>M_B</i>	1.967 (1.234)	1.978 (1.282)	1.923 (0.952)	2.58 (55.32)	1.961 (1.272)	2.290 (1.471)	-10.19 (-14.43)	1.774 (0.873)	2.927 (1.585)	-12.34 (-28.75)

Table 3. Financial distress and likelihood of equity issuances

This table shows the marginal effects (dF/dx) from logit estimation. The marginal effects for continuous variables are evaluated at mean values. The marginal effect for the dummy variable reflects discrete change from zero to one. The dependent variable is equal to one if a firm conducts equity issues. All variables are defined in appendix Table A1. All regressions control for year and industry fixed effects which are unreported for brevity. The z-statistics for marginal effects of coefficients are reported in parentheses and standard errors are clustered by the firm's two-digit SIC. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The sample period is from 1990 to 2016.

VARIABLES	(1)	(2)	(3)
<i>Distress</i>	0.059*** (10.759)	0.055*** (10.004)	0.064*** (13.137)
<i>ln(GDPPC)</i>		0.009 (1.390)	0.009 (1.511)
<i>MKTCAP_GDP</i>		0.002* (2.331)	0.002* (2.247)
<i>GDP growth</i>		0.519** (2.823)	0.489** (2.950)
<i>ln(Assets)</i>			-0.004 (-1.592)
<i>ROA</i>			0.005** (3.267)
<i>CAPX</i>			0.097*** (5.783)
<i>Cash Flow</i>			0.017*** (4.778)
<i>Leverage</i>			0.002 (0.205)
<i>Tangibility</i>			-0.023*** (-4.624)
<i>R_D</i>			0.032 (0.986)
<i>R_D_missing</i>			0.010 (1.805)
<i>Sales Growth</i>			0.002 (0.994)
<i>M_B</i>			0.001** (2.941)
Year/Industry F.E.	Yes	Yes	Yes
Observations	410,806	390,048	278,675
Pseudo R2	0.0731	0.0756	0.0780

Table 4. The level of financial distress and equity issuances

This table shows the marginal effects (dF/dx) from logit estimation. The marginal effects for continuous variables are evaluated at mean values. The marginal effect for the dummy variable reflects discrete change from zero to one. For interaction between variables, the mean interaction effect is the marginal effect of a change in the estimated probability of conducting equity issues for a change in both creditor rights and financial distress by reflecting Ai and Norton (2003). The dependent variable is equal to one if a firm conducts equity issues. The Indicator variable $I_{\{1 \leq ICR < 2\}}$ takes one if the interest coverage ratio (ICR) is greater than 1 and less than 2, otherwise zero and $I_{\{ICR < 1\}}$ takes one if the ICR is less than one, otherwise zero. All other variables are defined in appendix Table A1. All regressions control for year and industry fixed effects which are unreported for the brevity. The z-statistics for marginal effects of coefficients are reported in parentheses and standard errors are clustered at the country level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The sample period is from 1990 to 2016.

VARIABLES	(1)	(2)	(3)
$I_{\{1 \leq ICR < 2\}}$	0.019*** (6.129)	0.019*** (6.142)	0.031*** (9.431)
$I_{\{ICR < 1\}}$	0.056*** (12.806)	0.053*** (12.206)	0.062*** (15.949)
$\ln(GDPPC)$		0.009*** (6.815)	0.010*** (8.892)
$MKTCAP_GDP$		0.002*** (5.060)	0.002*** (5.328)
$GDP\ growth$		0.520*** (10.834)	0.481*** (10.745)
$\ln(Assets)$			-0.004*** (-7.573)
ROA			0.005*** (5.696)
$CAPX$			0.093*** (19.180)
$Cash\ Flow$			0.017*** (9.017)
$Leverage$			-0.000 (-0.003)
$Tangibility$			-0.023*** (-9.890)
R_D			0.037 (1.494)
$R_D_missing$			0.009*** (5.807)
$Sales\ Growth$			0.005*** (3.891)
M_B			0.001*** (8.522)
Year/Industry F.E.	Yes	Yes	Yes
Observations	410,806	390,048	278,675
Pseudo R2	0.075	0.078	0.082

Table 5. The effect of creditor rights and distress on equity issuances

This table shows the marginal effects (dF/dx) from logit estimation. The marginal effects for continuous variables are evaluated at mean values. The marginal effect for the dummy variable reflects discrete change from zero to one. For interaction between variables, the mean interaction effect is the marginal effect of a change in the estimated probability of conducting equity issues for a change in both creditor rights and financial distress by reflecting Ai and Norton (2003). The dependent variable is equal to one if a firm conducts equity issues. *CRIGHTS* indicates the creditor rights index documented by Djankov *et al.* (2008). In Panel A, *Distress* is defined as when the interest coverage ratio (ICR) is less than 1 for consecutive two years. In Panel B, the Indicator variable $I_{\{1 \leq ICR < 2\}}$ takes one if the ICR is greater than 1 and less than 2, otherwise zero and $I_{\{ICR < 1\}}$ takes one if the ICR is less than one, otherwise zero. All other variables are defined in appendix Table A1. All regressions control for year and industry fixed effects which are unreported for brevity. The z-statistics for marginal effects of coefficients are reported in parentheses and robust standard errors are clustered at the country level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The sample period is from 1990 to 2016.

Panel A.

	(1)	(2)	(3)	(4)	(5)
VARIABLES					
<i>CRIGHTS</i>	0.066*** (4.461)	0.010** (2.675)	0.009* (1.906)	0.010* (2.082)	0.013** (2.547)
<i>Distress</i>	0.022*** (3.843)				
<i>CRIGHTS*Distress</i>		0.063*** (5.086)	0.063*** (4.921)	0.060*** (4.984)	0.062*** (4.729)
<i>SHRIGHTs</i>			0.007 (0.351)	0.007 (0.379)	-0.010 (-0.472)
<i>ln(GDPPC)</i>				0.009* (2.483)	0.009* (2.398)
<i>MKTCAP_GDP</i>				-0.001 (-0.989)	-0.001 (-0.793)
<i>GDP growth</i>				0.338*** (3.326)	0.346*** (3.357)
<i>ln(Assets)</i>					-0.003 (-1.617)
<i>ROA</i>					0.003* (1.978)
<i>CAPX</i>					0.099*** (6.447)
<i>Cash Flow</i>					0.018*** (6.562)
<i>Leverage</i>					0.007 (0.979)
<i>Tangibility</i>					-0.022*** (-6.817)
<i>R_D</i>					0.070* (2.512)
<i>R_D_missing</i>					0.006 (1.691)
<i>Sales Growth</i>					0.004* (2.328)
<i>M_B</i>					0.001*** (3.805)
Year/Industry F.E.	Yes	Yes	Yes	Yes	Yes
Observations	410,806	410,806	410,806	390,048	278,675
Pseudo R2	0.0946	0.0969	0.0970	0.0972	0.0961

Panel B.

	(1)	(2)	(3)
<hr/>			
VARIABLES			
<i>CRIGHTS</i>	0.007*** (4.481)	0.008*** (4.770)	0.009*** (6.988)
<i>CRIGHTS</i> * $I_{\{1 \leq ICR < 2\}}$	0.012*** (7.532)	0.013*** (7.268)	0.018*** (10.432)
<i>CRIGHTS</i> * $I_{\{ICR < 1\}}$	0.040*** (18.470)	0.040*** (18.467)	0.042*** (21.423)
<i>ln(GDPPC)</i>		0.009*** (7.856)	0.009*** (9.172)
<i>MKTCAP_GDP</i>		-0.001* (-2.306)	-0.001** (-3.118)
<i>GDP growth</i>		0.358*** (12.862)	0.326*** (9.007)
<i>ln(Assets)</i>			-0.003*** (-7.822)
<i>ROA</i>			0.003*** (3.658)
<i>CAPX</i>			0.095*** (18.206)
<i>Cash Flow</i>			0.018*** (9.118)
<i>Leverage</i>			0.006 (1.865)
<i>Tangibility</i>			-0.021*** (-6.338)
<i>R_D</i>			0.071** (2.756)
<i>R_D_missing</i>			0.006*** (4.209)
<i>Sales Growth</i>			0.006*** (4.426)
<i>M_B</i>			0.001*** (8.775)
Year/Industry F.E.	Yes	Yes	Yes
Observations	410,806	390,048	278,675
Pseudo R2	0.097	0.098	0.099

Table 6. The effect of each component of creditor rights and distress on equity issuances

This table shows the marginal effects (dF/dx) from logit estimation. The marginal effects for continuous variables are evaluated at mean values. The marginal effect for the dummy variable reflects discrete change from zero to one. For interaction between variables, the mean interaction effect is the marginal effect of a change in the estimated probability of conducting equity issues for a change in both creditor rights and financial distress by reflecting Ai and Norton (2003). The dependent variable is equal to one if a firm conducts equity issues. *CRcomp* indicates restrictions on reorganization (*REOR*) in column 1, no automatic stay (*NOAUTOSTAY*) in column 2, secured creditor paid first (*SECURED*) in column 3, and no management stay (*NOMGMTS*) in column 4. All other variables are defined in appendix Table A1. All regressions control for year and industry fixed effects which are unreported for brevity. The z-statistics for marginal effects of coefficients are reported in parentheses and standard errors are clustered at the country level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The sample period is from 1990 to 2016.

VARIABLES	(1) <i>REOR</i>	(2) <i>NOAUTOSTAY</i>	(3) <i>SECURED</i>	(4) <i>NOMGMTS</i>
<i>CRcomp</i>	-0.078 (-0.339)	0.032*** (2.954)	0.005 (0.498)	0.019* (1.708)
<i>Distress*CRcomp</i>	0.014 (0.441)	0.109*** (3.793)	-0.040 (-1.329)	0.111* (4.561)
<i>SHRIGHTs</i>	0.033 (1.074)	0.005 (0.277)	0.032 (1.101)	0.018 (1.022)
<i>ln(GDPPC)</i>	0.009* (2.258)	0.005 (1.427)	0.009 (1.466)	0.007 (1.769)
<i>MKTCAP_GDP</i>	0.001 (0.921)	0.000 (0.118)	0.001 (0.643)	0.000 (0.152)
<i>GDP growth</i>	0.411* (2.206)	0.190* (2.507)	0.405* (2.183)	0.390** (2.791)
<i>ln(Assets)</i>	-0.006* (-1.992)	-0.004* (-2.124)	-0.004 (-1.685)	-0.004* (-2.108)
<i>ROA</i>	0.002 (1.358)	0.003 (1.703)	0.005** (3.159)	0.003* (1.965)
<i>CAPX</i>	0.096*** (5.561)	0.094*** (6.323)	0.097*** (5.767)	0.098*** (7.943)
<i>Cash Flow</i>	0.016*** (4.209)	0.017*** (6.772)	0.017*** (4.443)	0.018*** (6.261)
<i>Leverage</i>	0.004 (0.477)	0.008 (1.064)	0.002 (0.291)	0.008 (1.079)
<i>Tangibility</i>	-0.024*** (-4.804)	-0.021*** (-7.389)	-0.023*** (-4.305)	-0.023*** (-6.676)
<i>R_D</i>	0.058* (1.970)	0.077** (2.858)	0.032 (0.950)	0.078** (2.757)
<i>R_D_missing</i>	0.007 (1.406)	0.005 (1.311)	0.008 (1.803)	0.006 (1.601)
<i>Sales Growth</i>	0.003 (1.113)	0.004** (2.763)	0.002 (0.939)	0.004** (2.923)
<i>M_B</i>	0.001** (2.627)	0.001*** (3.494)	0.001** (2.877)	0.001*** (4.240)
Year/Industry F.E.	Yes	Yes	Yes	Yes
Observations	278,675	278,675	278,675	278,675
Pseudo R2	0.0995	0.0794	0.0972	0.0794

Table 7. Robustness check: Subsamples excluding some countries

This table shows the marginal effects (dF/dx) from logit estimation. The marginal effects for continuous variables are evaluated at mean values. The marginal effect for the dummy variable reflects discrete change from zero to one. For interaction between variables, the mean interaction effect is the marginal effect of a change in the estimated probability of conducting equity issues for a change in both creditor rights and financial distress by reflecting Ai and Norton (2003). I exclude the U.S. in the sample in column 1, Japan in column 2, the U.S. and Japan in column 3, and Australia in column 4. The dependent variable is equal to one if a firm conducts equity issues. All variables are defined in appendix Table A1. I include the variables *Distress* in Panel A, whereas I consider the interaction effect of *Distress* and *CRIGHTS* in Panel B. All regressions control for year and industry fixed effects which are unreported for brevity. The z-statistics for marginal effects of coefficients are reported in parentheses and robust standard errors are clustered at the country level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The sample period is from 1990 to 2016.

Panel A. The effect of financial distress

	(1) Excl.US	(2) Excl.Japan	(3) Excl.US&Japan	(4) Excl.Australia
VARIABLES				
<i>Distress</i>	0.080* (5.684)	0.066*** (3.645)	0.083*** (5.367)	0.059*** (3.367)
<i>ln(GDPPC)</i>	0.002 (0.293)	0.010 (1.523)	0.018*** (3.341)	0.004 (0.999)
<i>MKTCAP_GDP</i>	0.002 (0.396)	0.002* (2.078)	0.001 (1.497)	0.003*** (3.787)
<i>GDP growth</i>	0.100 (0.352)	0.494** (3.079)	0.408** (3.046)	0.338** (2.653)
<i>ln(Assets)</i>	-0.007* (-2.195)	-0.004 (-1.487)	-0.006* (-2.208)	-0.002 (-1.196)
<i>ROA</i>	0.003 (0.261)	0.005** (3.192)	-0.005 (-1.894)	0.006*** (5.099)
<i>CAPX</i>	-0.022 (-0.539)	0.098*** (5.783)	0.102*** (4.847)	0.082*** (5.683)
<i>Cash Flow</i>	0.035** (3.189)	0.018*** (4.911)	0.022*** (5.076)	0.017*** (4.343)
<i>Leverage</i>	0.032* (2.434)	-0.003 (-0.417)	0.015* (2.308)	0.006 (0.797)
<i>Tangibility</i>	-0.010 (-0.932)	-0.023*** (-5.035)	-0.028*** (-6.557)	-0.020*** (-4.236)
<i>R_D</i>	0.122*** (4.497)	0.031 (0.793)	-0.001 (-0.026)	0.047 (1.525)
<i>R_D_missing</i>	0.011* (2.235)	0.008 (1.253)	-0.005 (-1.174)	0.009 (1.688)
<i>Sales Growth</i>	0.001 (0.209)	0.002 (0.920)	0.006* (2.232)	0.002 (0.835)
<i>M_B</i>	0.001 (1.840)	0.001** (3.185)	0.001*** (3.732)	0.001** (2.900)
Year/Industry F.E.	Yes	Yes	Yes	Yes
Observations	207,656	236,162	165,145	267,875
Pseudo R2	0.102	0.0789	0.102	0.0642

Table 7 -continued

Panel B. The effect of creditor rights on equity issuance: Excluding major countries

	(1) Excl.US	(2) Excl.Japan	(3) Excl.US&Japan	(4) Excl.Australia
VARIABLES				
<i>CRIGHTS</i>	0.004 (0.997)	0.014** (2.562)	0.003 (0.992)	0.009* (2.175)
<i>CRIGHTS*Distress</i>	0.038*** (3.417)	0.048*** (3.818)	0.040*** (3.580)	0.042*** (3.410)
<i>SRIGHTS</i>	0.014 (0.610)	-0.008 (-0.385)	0.020 (0.840)	-0.014 (-0.697)
<i>ln(GDPPC)</i>	0.014*** (3.671)	0.010* (2.364)	0.016*** (3.683)	0.005* (2.031)
<i>MKTCAP_GDP</i>	-0.001 (-0.528)	-0.001 (-0.993)	-0.001 (-0.839)	0.000 (0.569)
<i>GDP growth</i>	0.376** (2.597)	0.307** (3.183)	0.268* (2.255)	0.275** (2.955)
<i>ln(Assets)</i>	-0.006** (-2.653)	-0.003 (-1.463)	-0.006* (-2.261)	-0.002 (-1.237)
<i>ROA</i>	-0.003 (-1.196)	0.003 (1.634)	-0.004 (-1.919)	0.005*** (3.295)
<i>CAPX</i>	0.103*** (5.688)	0.098*** (5.949)	0.102*** (4.570)	0.088*** (5.996)
<i>Cash Flow</i>	0.022*** (5.606)	0.019*** (6.581)	0.023*** (5.504)	0.017*** (5.729)
<i>Leverage</i>	0.023** (2.891)	0.003 (0.530)	0.018** (2.725)	0.010 (1.283)
<i>Tangibility</i>	-0.027*** (-7.181)	-0.021*** (-7.350)	-0.025*** (-6.623)	-0.020*** (-6.137)
<i>R_D</i>	0.035 (1.433)	0.070* (2.155)	0.021 (0.748)	0.078*** (3.450)
<i>R_D_missing</i>	0.000 (0.110)	0.004 (1.030)	-0.005 (-1.789)	0.007 (1.814)
<i>Sales Growth</i>	0.006** (2.795)	0.004* (2.144)	0.006* (2.522)	0.004 (1.884)
<i>M_B</i>	0.001*** (3.933)	0.001*** (4.229)	0.001*** (3.576)	0.001*** (3.536)
Year/Industry F.E.	Yes	Yes	Yes	Yes
Observations	207,656	236,162	165,145	267,875
Pseudo R2	0.105	0.0997	0.107	0.0767

Table 8. Comparison of the U.K. and the U.S.

This table shows the marginal effects (dF/dx) from logit estimation. The marginal effects for continuous variables are evaluated at mean values. The marginal effect for the dummy variable reflects discrete change from zero to one. For interaction between variables, the mean interaction effect is the marginal effect of a change in the estimated probability of conducting equity issues for a change in both creditor rights and financial distress by reflecting Ai and Norton (2003). The dependent variable is equal to one if a firm conducts equity issues. The variable *UK* is equal to one if a firm belongs to the U.K and zero if a firm is included in the U.S. All other variables are defined in appendix Table A1. All regressions control for year and industry fixed effects which are unreported for brevity. The z-statistics for marginal effects of coefficients are reported in parentheses and robust standard errors are clustered by the firm's two-digit SIC. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The sample period is from 1990 to 2016.

VARIABLES	
<i>UK</i>	0.019*** (10.711)
<i>Distress</i>	0.091** (3.196)
<i>UK_Distress</i>	0.132*** (13.766)
<i>ln(GDPPC)</i>	0.091** (3.201)
<i>MKTCAP_GDP</i>	0.025 (1.098)
<i>GDP growth</i>	1.571*** (11.367)
<i>ln(Assets)</i>	0.001 (1.950)
<i>ROA</i>	0.003*** (3.536)
<i>CAPX</i>	0.066*** (6.319)
<i>Cash Flow</i>	0.014*** (6.434)
<i>Leverage</i>	-0.002 (-1.403)
<i>Tangibility</i>	-0.015** (-3.289)
<i>R_D</i>	0.090*** (6.385)
<i>R_D_missing</i>	0.008*** (3.767)
<i>Sales Growth</i>	0.004* (2.117)
<i>M_B</i>	0.000*** (4.505)
Year/Industry F.E.	Yes
Observations	86,045
Pseudo R2	0.0932

Table 9. The effect of financial distress on issuance characteristics

Panel A presents the mean and median shown in parentheses of a discount of an offer price in column 1 and the ratio of issued shares to total shares outstanding before issuances in column 2. I calculate the discount as a logarithm of ratio of the offer price to the closing price one day before issuing. T-statistics(z-statistics) for comparison of mean (median) between non-distress and distress are reported. The information on equity issuance is obtained from SDC Platinum. Panel B shows the results of OLS regression. The sample period is from 1990 to 2016 and contains only equity issuances with available discount of offer price and issued shares. The dependent variable is the discount in column 1 and 2, and is the issued shares to total shares before issues in column 3 and 4. Explanatory variables are one-year lagged. All variables are defined in appendix Table A1. All specifications control for year and industry fixed effects which are unreported for brevity. Standard errors are clustered by the firm's two-digit SIC. The t-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A.

	Discount	Issued shares to total shares before issues
Non-Distress	-0.108 (-0.052)	0.629 (0.150)
Distress	-0.117 (-0.071)	1.384 (0.189)
t-stat	1.63	-13.24
z-stat	3.88	-13.07

Table 9 -continued

Panel B.

VARIABLES	(1) Discount	(2) Discount	(3) Issued shares to total shares before issues	(4) Issued shares to total shares before issues
<i>Distress</i>	0.041*** (4.270)	0.036*** (2.896)	0.869*** (7.728)	0.393*** (5.119)
<i>ln(GDPPC)</i>	-0.033*** (-2.772)	-0.027** (-2.417)	-0.034 (-0.829)	0.025 (0.568)
<i>MKTCAP to GDP</i>	-0.013*** (-6.386)	-0.011*** (-6.021)	0.059*** (3.832)	0.050*** (2.752)
<i>GDP growth</i>	0.937*** (3.504)	1.157*** (4.470)	5.241*** (3.644)	3.423* (1.839)
<i>ln(Assets)</i>		-0.004 (-0.986)		-0.128*** (-5.699)
<i>ROA</i>		0.015 (1.239)		-0.435*** (-3.013)
<i>CAPX</i>		-0.049 (-0.838)		-0.686 (-1.275)
<i>Cash Flow</i>		-0.002 (-0.161)		-0.310 (-1.297)
<i>Leverage</i>		0.122*** (5.906)		0.405 (1.401)
<i>Tangibility</i>		-0.011 (-0.605)		-0.038 (-0.267)
<i>R_D</i>		-0.011 (-1.442)		0.001 (0.021)
<i>R_D_missing</i>		-0.001* (-1.818)		-0.022*** (-3.079)
<i>Sales Growth</i>		0.028 (0.644)		-1.504** (-2.049)
<i>M_B</i>		-0.027** (-2.377)		0.144 (1.451)
Year/Industry F.E.	Yes	Yes	Yes	Yes
Observations	20,424	16,413	23,141	17,811
Adj R2	0.0177	0.0272	0.0234	0.0392

Appendix Table A2. Repeating Table 5 including distress dummy

This table shows the marginal effects (dF/dx) from logit estimation. The marginal effects for continuous variables are evaluated at mean values. The marginal effect for the dummy variable reflects discrete change from zero to one. For interaction between variables, the mean interaction effect is the marginal effect of a change in the estimated probability of conducting equity issues for a change in both creditor rights and financial distress by reflecting Ai and Norton (2003). The dependent variable is equal to one if a firm conducts equity issues. *CRIGHTS* indicates the creditor rights index documented by Djankov *et al.* (2008). All variables are defined in appendix Table A1. All regressions control for year and industry fixed effects which are unreported for brevity. The z-statistics for marginal effects of coefficients are reported in parentheses and robust standard errors are clustered at the country level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The sample period is from 1990 to 2016.

	(1)	(2)	(3)	(4)	(5)
VARIABLES					
<i>Distress</i>	0.066*** (4.461)	0.010 (1.055)	0.010 (1.028)	0.005 (0.714)	0.009 (1.138)
<i>CRIGHTS</i>	0.022*** (3.843)	0.012*** (3.563)	0.011* (2.459)	0.011* (2.459)	0.014** (3.071)
<i>Distress* CRIGHTS</i>		0.040*** (3.353)	0.039*** (3.093)	0.041*** (3.187)	0.042*** (3.063)
<i>SHRIGHTs</i>			0.005 (0.268)	0.006 (0.327)	-0.010 (-0.499)
<i>ln(GDPPC)</i>				0.009* (2.439)	0.009* (2.359)
<i>MKTCAP_GDP</i>				-0.001 (-0.977)	-0.001 (-0.803)
<i>GDP growth</i>				0.337*** (3.363)	0.344*** (3.411)
<i>ln(Assets)</i>					-0.003 (-1.520)
<i>ROA</i>					0.004* (2.118)
<i>CAPX</i>					0.099*** (6.430)
<i>Cash Flow</i>					0.018*** (6.557)
<i>Leverage</i>					0.007 (0.948)
<i>Tangibility</i>					-0.022*** (-6.787)
<i>R_D</i>					0.065* (2.282)
<i>R_D_missing</i>					0.006 (1.716)
<i>Sales Growth</i>					0.004* (2.265)
<i>M_B</i>					0.001*** (3.850)
Year/Industry F.E.	Yes	Yes	Yes	Yes	Yes
Observations	410,806	410,806	410,806	390,048	278,675
Pseudo R2	0.095	0.097	0.098	0.097	0.096

Appendix Table A3. Repeating Table 6 including distress dummy

This table shows the marginal effects (dF/dx) from logit estimation. The marginal effects for continuous variables are evaluated at mean values. The marginal effect for the dummy variable reflects discrete change from zero to one. For interaction between variables, the mean interaction effect is the marginal effect of a change in the estimated probability of conducting equity issues for a change in both creditor rights and financial distress by reflecting Ai and Norton (2003). The dependent variable is equal to one if a firm conducts equity issues. *CRcomp* indicates restrictions on reorganization (*REOR*) in column 1, no automatic stay (*NOAUTOSTAY*) in column 2, secured creditor paid first (*SECURED*) in column 3, and no management stay (*NOMGMTS*) in column 4. All other variables are defined in appendix Table A1. All regressions control for year and industry fixed effects which are unreported for brevity. The z-statistics for marginal effects of coefficients are reported in parentheses and standard errors are clustered at the country level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The sample period is from 1990 to 2016.

VARIABLES	(1) <i>REOR</i>	(2) <i>NOAUTOSTAY</i>	(3) <i>SECURED</i>	(4) <i>NOMGMTS</i>
<i>Distress</i>	0.060** (2.387)	0.024*** (2.986)	0.102*** (6.294)	0.018*** (3.222)
<i>CRcomp</i>	-0.004 (-0.339)	0.032** (2.954)	0.005 (0.506)	0.019* (1.763)
<i>Distress*CRcomp</i>	0.014 (.441)	0.109*** (3.793)	-0.040 (-1.329)	0.111*** (4.561)
<i>SHRIGHTs</i>	0.032 (1.042)	0.005 (0.269)	0.032 (1.096)	0.018 (1.022)
<i>ln(GDPPC)</i>	0.008* (2.124)	0.004 (1.141)	0.009 (1.491)	0.007 (1.574)
<i>MKTCAP_GDP</i>	0.001 (0.810)	0.000 (0.051)	0.001 (0.629)	0.000 (0.099)
<i>GDP growth</i>	0.410* (2.361)	0.186** (2.579)	0.417* (2.279)	0.400** (2.896)
<i>ln(Assets)</i>	-0.003 (-1.647)	-0.003 (-1.574)	-0.003 (-1.614)	-0.003 (-1.635)
<i>ROA</i>	0.005** (3.235)	0.004* (2.011)	0.005** (3.091)	0.004* (2.217)
<i>CAPX</i>	0.098*** (5.942)	0.096*** (6.256)	0.097*** (5.794)	0.100*** (7.979)
<i>Cash Flow</i>	0.017*** (4.615)	0.017*** (7.021)	0.017*** (4.508)	0.018*** (6.437)
<i>Leverage</i>	0.002 (0.263)	0.007 (0.937)	0.002 (0.265)	0.007 (0.960)
<i>Tangibility</i>	-0.023*** (-4.474)	-0.021*** (-7.082)	-0.023*** (-4.314)	-0.023*** (-6.642)
<i>R_D</i>	0.032 (0.876)	0.063* (2.413)	0.031 (0.923)	0.069** (2.616)
<i>R_D_missing</i>	0.008 (1.689)	0.005 (1.334)	0.008 (1.799)	0.007 (1.652)
<i>Sales Growth</i>	0.002 (1.029)	0.004* (2.518)	0.002 (0.987)	0.004** (2.705)
<i>M_B</i>	0.001** (2.871)	0.001*** (3.566)	0.001** (2.868)	0.001*** (4.101)
Year/Industry F.E.	Yes	Yes	Yes	Yes
Observations	278,675	278,675	278,675	278,675
Pseudo R2	0.0794	0.0995	0.0794	0.0972

Appendix Table A4. The effect of creditor rights conditional on financial distress

This table shows the marginal effects (dF/dx) from logit estimation. The marginal effects for continuous variables are evaluated at mean values. The marginal effect for the dummy variable reflects discrete change from zero to one. The dependent variable is equal to one if a firm conducts equity issues. *CRIGHTS* indicates the creditor rights index documented by Djankov *et al.* (2008). All variables are defined in appendix Table A1. All regressions control for year and industry fixed effects which are unreported for brevity. The z-statistics for marginal effects of coefficients are reported in parentheses and robust standard errors are clustered at the country level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The sample period is from 1990 to 2016.

	(1)	(2)	(3)	(4)
VARIABLES				
<i>CRIGHTS</i>	0.048*** (4.155)	0.055*** (4.111)	0.055*** (4.492)	0.054*** (4.825)
<i>SHRIGHTS</i>		-0.072 (-1.221)	-0.057 (-0.975)	-0.081 (-1.266)
<i>ln(GDPPC)</i>			0.026** (2.965)	0.021* (2.475)
<i>MKTCAP_GDP</i>			-0.004 (-1.432)	-0.003 (-1.431)
<i>GDP growth</i>			0.690** (2.663)	0.743** (2.620)
<i>ln(Assets)</i>				-0.005 (-0.733)
<i>ROA</i>				0.002 (1.194)
<i>CAPX</i>				0.136*** (5.063)
<i>Cash Flow</i>				0.020** (3.102)
<i>Leverage</i>				-0.022** (-2.813)
<i>Tangibility</i>				-0.027*** (-4.603)
<i>R_D</i>				0.103** (3.020)
<i>R_D_missing</i>				0.006 (0.736)
<i>Sales Growth</i>				0.000 (0.013)
<i>M_B</i>				0.001*** (3.845)
Year/Industry F.E.	Yes	Yes	Yes	Yes
Observations	90,590	90,590	86,007	55,478
Pseudo R2	0.119	0.122	0.129	0.136

Appendix Table A5. The effect of each component of creditor rights conditional on financial distress

This table shows the marginal effects (dF/dx) from logit estimation. The marginal effects for continuous variables are evaluated at mean values. The marginal effect for the dummy variable reflects discrete change from zero to one. The dependent variable is equal to one if a firm conducts equity issues. *CRcomp* indicates restrictions on reorganization (*REOR*) in column 1, no automatic stay (*NOAUTOSTAY*) in column 2, secured creditor paid first (*SECURED*) in column 3, and no management stay (*NOMGMTS*) in column 4. All other variables are defined in appendix Table A1. All regressions control for year and industry fixed effects which are unreported for brevity. The z-statistics for marginal effects of coefficients are reported in parentheses and standard errors are clustered at the country level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The sample period is from 1990 to 2016.

	(1)	(2)	(3)	(4)
VARIABLES	<i>REOR</i>	<i>NOAUTOSTAY</i>	<i>SECURED</i>	<i>NOMGMTS</i>
<i>CRcomp</i>	0.020 (0.427)	0.152*** (4.534)	-0.028 (-0.549)	0.138*** (4.623)
<i>SHRIGHTs</i>	0.019 (0.208)	-0.029 (-0.537)	0.043 (0.398)	-0.005 (-0.104)
<i>ln(GDPPC)</i>	0.025* (1.964)	0.011 (1.158)	0.021 (1.266)	0.012 (1.403)
<i>MKTCAP_GDP</i>	0.001 (0.420)	0.000 (0.016)	0.002 (0.680)	-0.000 (-0.077)
<i>GDP growth</i>	1.248 (1.903)	0.417 (1.701)	1.229 (1.861)	0.877* (2.565)
<i>ln(Assets)</i>	-0.006 (-0.850)	-0.005 (-0.742)	-0.006 (-0.858)	-0.006 (-0.886)
<i>ROA</i>	0.003 (1.824)	0.002 (0.973)	0.003 (1.700)	0.002 (0.938)
<i>CAPX</i>	0.144*** (3.912)	0.133*** (5.053)	0.143*** (3.884)	0.142*** (5.703)
<i>Cash Flow</i>	0.022* (2.109)	0.021** (3.024)	0.022* (2.104)	0.022** (3.089)
<i>Leverage</i>	-0.034** (-3.234)	-0.024*** (-3.667)	-0.034*** (-3.392)	-0.024*** (-3.308)
<i>Tangibility</i>	-0.035** (-2.896)	-0.027*** (-4.754)	-0.035** (-2.983)	-0.031*** (-4.817)
<i>R_D</i>	0.054 (1.094)	0.101** (3.259)	0.053 (1.115)	0.113*** (3.855)
<i>R_D_missing</i>	0.014 (1.138)	0.003 (0.414)	0.013 (1.174)	0.006 (0.721)
<i>Sales Growth</i>	-0.002 (-0.728)	0.001 (0.315)	-0.002 (-0.656)	0.001 (0.426)
<i>M_B</i>	-0.001 (-1.267)	-0.000 (-0.797)	-0.001 (-1.304)	-0.000 (-0.848)
Year/Industry F.E.	Yes	Yes	Yes	Yes
Observations	55,478	55,478	55,478	55,478
Pseudo R2	0.0934	0.138	0.0933	0.137