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Policy-related risk and corporate financing behavior: Evidence from China's listed companies

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ABSTRACT

Focusing on quarterly data of China's publicly-listed firms from 2013Q1-2017Q3, this paper presents an exploratory analysis of the causes of corporate financing behavior through the channels of firm-level characteristics, country-level factors, and policy-related risks. The analysis uses multidimensional measures of policy-related risks, including economic policy uncertainty, geopolitical risk, and political risk. In addition, we assess whether the correlations between policy-related risks and financing activities vary under different financing strategies such as debt financing and equity financing. We also examine how financial constraints and industry differences influence firm financing. The empirical findings indicate policy-related risks can negatively affect corporate financing decisions. The effect of policy-related risk is larger on debt financing than on equity financing. Evidence also reveals that both firm- and country-level factors are essential determinants that guide corporate financing decisions. Finally, the inhibitory influence of policy-related risk is larger for the two separate subsamples of financially constrained firms and manufacturing firms. Knowledge of these impacts can help managers and policymakers to formulate more efficient strategies aimed at improving their economic performance.

1. Introduction

Many researchers and practitioners have studied corporate financing behaviors due to their practical implications for corporate management and firm performance and even for the economy as a whole (e.g., Seo and Chung, 2017; Karpavičius and Yu, 2019). One prominent strand of the literature has focused on identifying the determinants that guide companies to choose their financing strategies (Anderson et al., 2003; Öztekin, 2015; Sun et al., 2016; Lee et al., 2017b). Though the real impacts of firm-specific characteristics including size, profitability, cash flow, and growth opportunity on financing behavior have been proven empirically, it is doubtful whether these firm-level characteristics fully explain financing decisions (de Jong et al., 2008; Graham et al., 2015). From an alternative macro-based angle, the macroeconomic condition and policy implemented by a government are of vital importance for changing the business environments in which firms operate. For example, monetary policy has a pivotal influence on external financing and the discount rates of investment projects (Baum et al., 2009; Panousi and Papanikolaou, 2012). On the one hand, a contractionary monetary policy increases the interest rate and thereby the cost of leverage. On the other hand, higher discount rates lower the investment rate, thus leading to lower demand for external financing. Nevertheless, the influence of country-level factors including macroeconomic conditions and institutional changes have not yet built up any appropriate recognition (Erel et al., 2012; Pindado et al., 2017). Our paper focuses on understanding the influence of firm-specific characteristics and knowing whether country-level factors impact financing behaviors.

Since shocks induced by the timing, content, and impact of policy change are frequently regarded as the main sources of uncertainty for the business environment, an immediate question naturally arises as to whether this policy-related risk has a profound influence on corporate financing decisions (Bernanke, 1983; Dixit and Pindyck, 1994). Due to previous data limitations, extant works have ignored the issue of how policy-related risks affect corporate financial decisions. This difficulty can be ameliorated by adopting the economic policy uncertainty (EPU) of Baker et al. (2016), which includes news-based policy uncertainty, tax

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legislation expiration, and dispersion in economic forecast, thereby capturing a widespread array of economic- and policy-related uncertainties. Also, there is an increasing recognition that a country's geopolitical uncertainty and its political risk are equally important factors that affect business cycles and financial market performance (Antonakakis et al., 2017; Cheng and Chiu, 2018; Lee and Lee, 2019; Lee et al., 2019). The recent developed geopolitical risk (GPR) index of Caldara and Iacoviello (2018) and the International Country Risk Guide (ICRG) index also provide appropriate measures for policy-related risk. Using these newly released indices, our efforts aim to formulate a better understanding about the effect of policy-related risk on corporate financing activities.

Previous studies on the causes of the corporate financing decision have mainly concentrated on capital markets in western industrialized or developed countries. Focusing on non-financial U.S. firms over 1993–2003, for example, Baum et al. (2009) assess the effect of macroeconomic and idiosyncratic uncertainties on leverage decisions and conclude that leverage decreases with uncertainty. Using a large dataset of non-financial U.S. firms over 1950–2003, Frank and Goyal (2009) evaluate the importance of firm- and country-level factors in financing activities, showing results that firm financing decreases with profits and increases with firm size and expected inflation. Qiu and La (2010) explore the firm-level causes of Australian corporations' capital structure over the period 1992–2006 and find that the debt decreases with their profitability. However, relatively little attention has been given to the transitional economy. From the institutional aspect, government control and political forces in transitional economies have a significant influence on corporate behavior (Shleifer and Vishny, 1992).

China provides a unique setting for our investigation for several reasons. First, with its fast-growing national economy in recent decades, its capital markets, institutions, and corporate practices are becoming more important in the global context (Jiang et al., 2017). Second, the transition in China from a central planning economy to a market-based economy has been widely documented (Firth et al., 2012; Wang et al., 2014). Although less intense than in the past, China still represents a government-oriented country that often implements central policies to control and influence economic behaviors of decision making units (DMUs) in the economy. Third, from the financial viewpoint, China's capital market faces more serious problems of imperfections and agency costs, which significantly impact a firm's financial decisions. These characteristics make China a good laboratory for assessing the impact of policy-related risk on financial behaviors. As shown in Fig. 1, China's EPU exhibits spikes around major economic and political events. Whether and how its EPU affects Chinese firms' financing activities still await a more in-depth exploration, because findings can provide useful lessons and implications for other transition economies.

By adopting quarterly data of China's publicly-listed firms from 2013Q1-2017Q3, this paper examines how firm- and country-level determinants and policy-related risks affect corporate financing decisions. The contributions of this research are four-fold. First, we extend the current works by exploring how policy-induced shocks affect corporate financing through a broad array of policy-related risks, including policy uncertainty, geopolitical risk, and political risk. These multidimensional measures offer a more comprehensive evaluation than only adapting a single indicator in previous works. Second, our analyses also fill some of the empirical gaps concerning the fast-growing capital markets in China. Given its importance to the world economy, our findings provide implications, especially for emerging countries. Third, we also conduct an extended analysis of corporate financing strategy by exploring the influence of policy-related risks on companies' debt and equity financing. Fourth, to generate more informative disclosures, we further divide the sample into different levels of financial constraint and different industry types to examine whether corporate financing decisions are influenced by different firm and industry characteristics.

Our empirical results reveal several central findings. First, they present that firm- and country-level factors significantly affect cooperate financing decisions, which matches up with the traditional capital structure theory. Second, we find that policy-related risks, like economic policy uncertainty, geopolitical risk, and political risk, have a significantly negative influence on corporate financing decisions. Third, as far as the corporate financing strategy is concerned, evidence also shows that the influence of policy-related risk is larger on debt financing than on equity financing. Fourth and finally, when firm and industry characteristics are considered, findings reveal the negative influence of policy-related risk on firm financing is larger in the case of high financially constrained firms as well as on manufacturing firms.

The rest of the article proceeds in six parts. Section 2 presents the literature review of previous related research. Section 3 introduces the empirical specifications and the econometric frameworks. Section 4 shows the data descriptions. Section 5 discusses the empirical findings. Section 6 rounds off with the conclusions.

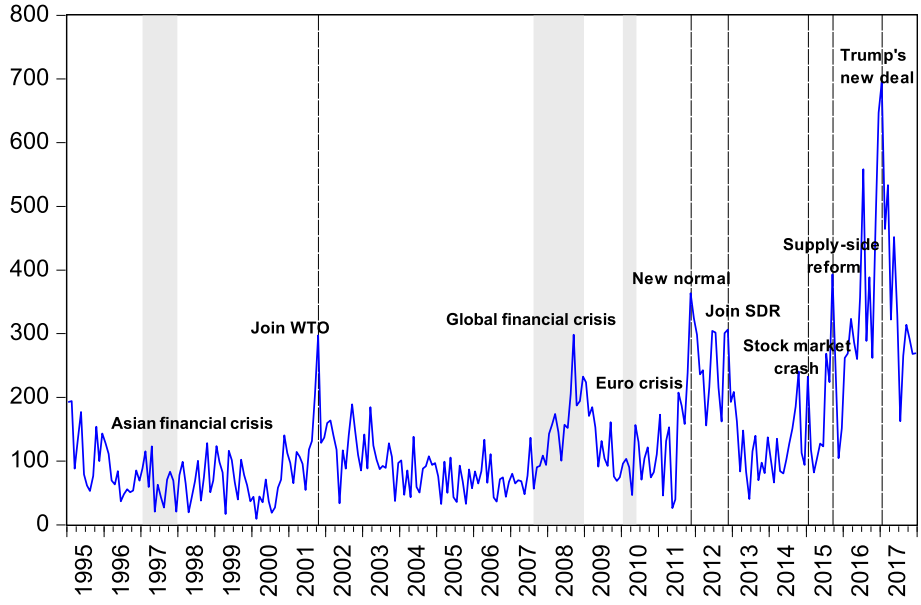

Fig. 1. Fluctuations in the EPU index for China.

2. Theoretical foundations and related literature

2.1. Corporate financing decisions

The causes of corporate financing decisions have been extensively explored by a sizeable body of theoretical and empirical investigations with mixed findings. The conventional capital structure theory, including the trade-off theory (Miller, 1977), the agency theory (Jensen and Meckling, 1976), and the pecking order theory (Myers, 1984; Myers and Majluf, 1984), provide an understanding of the role played by firm-level characteristics in affecting corporate financing decisions. Scholars and practitioners have long recognized that firm size, growth opportunities, and earning capacity are closely related to corporate financing. For firm's size effects, the trade-off theory postulates that sizeable companies are inclined to have lower bankruptcy costs and more diversified portfolios with relatively easier access to credit markets. The pecking order theory also suggests that sizeable companies are less likely to face the problem of information asymmetry. Based on the exposition above, the influence of firm size on corporate financing is forecasted to be positive. Previous empirical investigations also demonstrate consistent findings (e.g., Rajan and Zingales, 1995; Islam and Khandaker, 2015; Pindado et al., 2017; Dang et al., 2018; Karpavičius and Yu, 2019).

In terms of the influence of growth opportunities, the agency theory assumes that debt is regarded as an effective disciplinary device to mitigate opportunistic behavior and reduce manager-shareholder conflicts. For firms with limited growth and scarce investment opportunities, excess free cash flow can induce the problems of adverse selection and moral hazard. In this regard, debt use can reduce the potential agency cost (Kayo and Kimura, 2011). Nevertheless, the pecking order theory indicates that high growth firms with limited internal funding are inclined to use debt for their investment opportunities (Kayo and Kimura, 2011). Following these arguments, growth opportunities can be positively or negatively associated with corporate financing. For the empirical aspect, the role played by growth opportunity is still inconclusive. Some previous studies support a negative relation (e.g., Billett et al., 2007; Frank and Goyal, 2009), while others are in favor of a positive relation (e.g., Gupta, 1969; Dewally and Shao, 2014; Pindado et al., 2017; Chang et al., 2019; Karpavičius and Yu, 2019; Liu and Zhang, 2019).

As to the impact of earning capacity, the trade-off theory argues that high profitability companies are less likely to expose themselves to bankruptcy and thus are more levered due to the benefit of tax shields (Jensen, 1986; Frank and Goyal, 2003). Differently, the pecking order theory highlights the preferences of profitable firms for internal funds, which reduce leverage. So far, most empirical evidence on this issue suggests that earning capacity is negatively related with firm financing (e.g., Rajan and Zingales, 1995; de Jong et al., 2008; Kayo and Kimura, 2011; Karpavičius and Yu, 2017; Pindado et al., 2017; Dang et al., 2018; Chang et al., 2019).

Though the studies mentioned above contribute to our understanding of corporate financing decisions, it is also frequently emphasized that country-level factors including macroeconomic conditions and their uncertainties are important for firms when choosing their capital structure. On the one hand, firms operating under different phases of business cycles typically have different financing behaviors (Korajczyk and Levy, 2003; Halling et al., 2016). On the other hand, macroeconomic variables are used to capture the influence of time-varying economic conditions on firms' financing behavior (Baum et al., 2009; Frank and Goyal, 2009; Dewally and Shao, 2014; Karpavičius and Yu, 2017). For example, Frank and Goyal (2009) evaluate the importance of a wide range of influencing factors in the leverage decisions of non-financial firms in the U.S. over 1950–2003. Their empirical results reveal that firm leverage increases with gross domestic product (GDP) growth and expected inflation. Focusing on financial institutions in the U.S. during the global financial crisis period of 2007–2009, for example, Dewally and Shao (2014) assess how liquidity shocks affect bank lending and conclude that GDP growth has a significantly positive impact on banks' lending behavior. Baum et al. (2009) present empirical results supporting the inhibitory effect of macroeconomic and idiosyncratic uncertainties on non-financial U.S. firms.

To sum up, existing studies mostly emphasize on the importance of firm characteristics as a determinant of corporate financing. While recent experience highlights the role of country-level factors in affecting financing activities, empirical evidence on the relation between macroeconomic uncertainties and firm leverage is rather scarce. In addition, uncertainties induced by policy changes have not yet built up any appropriate recognition. To our best knowledge, a relative dearth of empirical works analyzes the influence of policy-induced shocks on corporate financing decision. Differently, this paper looks into the influence of firm-level characteristics and country-level factors and also the impact of policy-related risks on firm financing. Our investigations thus fill the gaps in the literature and provide insights into recent conflicting findings.

2.2. The impacts of policy-related risk

The role played by policy-related risk, including policy uncertainty, geopolitical risk, and political risk, in affecting the real economy has been aptly identified in the literature (e.g., Bloom, 2009; Kang and Ratti., 2013; Apergis, 2015; Lee et al., 2017a; Lee and Lee, 2018; Gupta et al., 2019; Zhang et al., 2019a). These risks are regarded as the main influencing factors on business cycle, employment, and economic growth. From a micro-level perspective, a growing and burgeoning literature advocates that policy-related uncertainty is a considerable determinant for the identification of corporate financial decisions. The majority strand of these studies mainly target investment behavior. The real option theory postulates that the value of a waiting option rises with market fluctuations and uncertainty, and thereby could delay a firm's investment activities (e.g., Bernanke, 1983; Bloom, 2009; Kang et al., 2014). As to other financial decisions, Francis et al. (2014) reveal that debt cost is influenced by political uncertainty. Baum et al. (2006) also find that uncertainty about future economic conditions has an apparent influence on firms' demand for cash holdings. When uncertainty increases, firms' managers will become more conservative and thus conduct similar cash management policies. Demir and Ersan (2017) and Phan et al. (2019) further indicate due to precautionary motives that firms facing high economic policy uncertainty have greater tendency to keep cash on hand.

Compared with those studies focusing on companies' investment behavior, the impact of policy-related risk on financing activities has drawn relatively less attention by academic researchers. With particular emphasis on the role of macroeconomic uncertainty, Baum et al. (2009) find evidence that a company's leverage decision making negatively correlates with uncertainty. Previous studies have shown that economic- and policy-related risks are likely to increase financial market frictions, thus affecting the cost of external financing. These impacts include the equity risk premium (Pástor and Veronesi, 2013a, 2013b), debt cost (Francis et al., 2014), and default risk (Gilchrist et al., 2014). In a more recent paper, Lee et al. (2017b) also show that policy uncertainty affects leverage behaviors in the U.S. banking industry. Therefore, it is expected that policy-related risk has a significant influence on companies' financing decisions. Following this vein, we further extend the literature with non-financial firms and broaden its scope by evaluating the effects of multidimensional policy-related risks, including economic policy uncertainty, geopolitical risk, and political risk. Our analyses thus complement the literature on how these policy-related risks affect corporate financing decisions for non-financial firms in China.

3. Methodology

Policy-induced shocks have been regarded theoretically as a main influencing factor of economic activity and strongly correlate with corporate financing decisions through the supply-side and demand-side

channels. On the supply side, external uncertainty causes more serious problems of information asymmetry, more volatile future cash flow, and more default risk, which result in a credit crunch (Zhang et al., 2015). On the demand side, firms operating under a high-degree of external uncertainty are more likely to maintain financial flexibility to cope with its adverse impact (Graham and Harvey, 2001). On the one hand, when facing more serious uncertainty for future cash flow, firms will reduce their financing demands to mitigate the financial risk and to avoid high external financing cost and bankruptcy cost. On the other hand, policy-related risk can depress corporate investment due to investment irreversibility, thus decreasing the demand for financing (Pástor and Veronesi, 2013a, 2013b).

Based on the exposition above, it is essential to consider the association of policy-related risk with firm financing from empirical aspects. The effect of policy-related risk we intend to examine is mainly based on the model developed by Julio and Yook (2012), Gulen and Ion (2016), and Lee et al. (2017b). Concerning firm-level determinants of corporate financing decisions, the trade-off, the agency, and the pecking order theories identify several factors such as cash flow, growth opportunity, size, and profitability that determine firm financing. Following convention, empirical studies on this issue also account for these factors, as mentioned in the previous section (e.g., Rajan and Zingales, 1995; de Jong et al., 2008; Kayo and Kimura, 2011; Islam and Khandaker, 2015; Karpavičius and Yu, 2017; Pindado et al., 2017; Dang et al., 2018; Chang et al., 2019; Karpavičius and Yu, 2019).

The benchmark models to use are augmentations of panel regressions common to the finance literature.

$$AF_{i,t} = \alpha_i + \beta_1 PR_{i,t-1} + \beta_2 CF_{i,t-1} + \beta_3 TQ_{i,t} + \beta_4 SG_{i,t} + \gamma X_{i,t-1} + \mu_{i,t} \quad (1)$$

Here, subscript i identifies the cross-sectional unit, and subscript t denotes the time period. In this benchmark regression, the dependent variable $AF_{i,t}$ represents a firm's actual financing. The principal explanatory variable is $PR_{i,t}$, representing policy-related risk measures, such as economic policy uncertainty, geopolitical risk, and political risk indices. The term $CF_{i,t}$ is a proxy for cash flow, while the term $TQ_{i,t}$ and $SG_{i,t}$ represent investment opportunity and growth opportunity, respectively. The $X_{i,t}$ controls include other firm-specific characteristics commonly included in leverage regressions like size (*SIZE*) and profitability (*ROA*). Finally, the term α_i is unobserved firm fixed effect, and $\mu_{i,t}$ is the error term.

To get a more complete picture on corporate financing decisions, we also include several country-level factors as the control variables. Following Frank and Goyal (2009) and Dewally and Shao (2014), we control for GDP growth and inflation. Thus, the benchmark model is modified as:

$$AF_{i,t} = \alpha_i + \beta_1 PR_{i,t-1} + \beta_2 CF_{i,t-1} + \beta_3 TQ_{i,t} + \beta_4 SG_{i,t} + \gamma X_{i,t-1} + \delta M_{i,t-1} + \mu_{i,t} \quad (2)$$

Here, country-level factors $M_{i,t}$ include the change of inflation (*INF*) and the GDP growth rate (*GDP*).

4. Data description

The China Stock Market and Accounting Research (CSMAR) database is used as a primary source for accounting data and other macroeconomic indicators in China. Table 1 provides all detailed information of the variables. To shed light on the short-term effects of policy-related risk, we adopt quarterly data for public firms listed in the A-share stock market from 2003Q1-2017Q3. The sample begins in 2003, because it was the first fiscal year that the China Securities Regulatory Commission requires all listed firms to publish their quarterly financial reports. Firms in financial industries and firms with Special Treatment (ST) are excluded from the sample.[2] For the purpose of reducing the influence of outliers, financial variables are winsorized at 1% in both tails. The final data consist of 111,870 firm-quarter observations.

Table 1
List of variables, definitions, and data sources.

Variable	Definition	Source
Actual financing *(AF)*	Actual financing flows/total assets	CSMAR
Debt financing *(DF)*	Debt financing/total assets	CSMAR
Equity financing *(EF)*	Equity financing/total assets	CSMAR
Economic policy uncertainty *(EPU)*	An assessment of China's economic policy uncertainty; a higher index means higher uncertainty	Baker et al. (2016)
Geopolitical risk (*GPR*)	An assessment of geopolitical risk; a higher index means higher risk	Caldara and Iacoviello (2018)
Political risk (*POL*)	An assessment of political risk, with 0 being high and 100 being low	ICRG
Cash flow *(CF)*	Net cash flow/total assets	CSMAR
Tobin's q *(TQ)*	An assessment of investment opportunity, proxied by the ratio of the market value of equity to the book value of total assets	CSMAR
Sales growth *(SG)*	An assessment of growth opportunity, proxied by the percentage change in sales	CSMAR
Firm size *(SIZE)*	Natural logarithm of total assets	CSMAR
Return on assets *(ROA)*	Net profits/total assets	CSMAR
Inflation *(INF)*	Percentage change in the consumer price index	CSMAR
GDP growth *(GDP)*	GDP growth rate	CSMAR

To proxy for policy-related risk, we use three different aspects of uncertainties: policy-related uncertainty, geopolitical risk, and political risk. The measure for policy uncertainty is based on the Chinese EPU index constructed by Baker et al. (2016).[3] The newspaper-based indices of policy uncertainty are scaled monthly by quantifying uncertainty-related contents containing economic, policy, and uncertainty via two Chinese newspapers. The measure for geopolitical risk is sourced from the newly constructed index of geopolitical risk data by Caldara and Iacoviello (2018).[4] This index includes terrorist attacks and other forms of geopolitical tensions, thereby capturing a widespread array of exogenous global uncertainty. Finally, political risk comes from ICRG constructed by the PRS Group. It evaluates a country's socioeconomic conditions and political stability. All these indices provide advantages to increase the data frequency in empirical works as they offer rigorous and consistent monthly ratings (Hoti, 2005; Lee et al., 2017a, 2019). In addition, as the property of policy-related risk is divergent and cannot be reflected in any single proxy, these measures present a more comprehensive evaluation under a unified framework. Based on the exposition above, these indices are considered as good and appropriate proxies of policy-related risk (Kang et al., 2014; Wang et al., 2014; Baker et al., 2016; Gulen and Ion, 2016; Caldara and Iacoviello, 2018; Lee et al., 2017a, 2019).

Table 2 reports the descriptive statistics in our analysis. The average DF and EF are respectively 0.267 and 0.033, showing that debt financing is the primary instrument for external financing in China. Among the three policy-related risks, economic policy uncertainty is the most volatile, while political risk is the least volatile. As to other control variables, the average cash flow and Tobin's q are respectively 0.015 and 2.135, which are consistent with those reported in previous works (Wang et al., 2014; Lin and Fu, 2017; Yang et al., 2019). On average, the logarithm of

[2] ST firms are excluded due to their abnormal financial conditions, while financial firms are excluded, because they are highly regulated and their capital structure is quite distinct from other industries.

[3] Available at https://www.policyuncertainty.com/.

[4] Available at https://www2.bc.edu/matteo-iacoviello/gpr.htm.

Table 2
Summary statistics.

Variable	Mean	Std. Dev	Minimum	Maximum	Observations
AF	0.2053	0.2733	−0.1709	14.3292	111,870
DF	0.2667	0.2476	3.94E-09	1.2656	95,491
EF	0.0328	0.1068	−0.1481	2.4571	111,870
EPU	5.0082	0.5989	3.9159	6.3355	112,042
GPR	4.5772	0.1609	4.2446	5.2182	112,042
POL	4.1254	0.0846	4.0013	4.2556	112,042
CF	0.0148	0.0587	−0.1768	0.2113	109,632
TQ	2.1350	1.7941	0.2198	11.7537	105,171
SG	0.1224	0.5406	−0.8582	4.7630	103,659
SIZE	21.7266	1.1873	19.0232	25.6582	109,632
ROA	0.0293	0.0315	−0.0893	0.1590	109,592
GDP	0.3517	0.6824	−0.7706	1.1488	110,952
INF	−1.24E-05	0.0102	−0.0614	0.0305	110,952

Note: Std. Dev. stands for standard deviation.

total assets is 21.727 (Yang et al., 2019). The average ROA is 0.029, which is similar to those of other studies on China (Firth et al., 2012, 2016; Liu and Zhang, 2019).

5. Empirical results

5.1. The impacts of policy-related risk on firm financing

To explore the influences of policy-related risk on the financing behavior of private firms, we first estimate the benchmark regression using only the risk index and some key determinants that are commonly used in finance literature, including cash flow, Tobin's q, sales growth, firm size, and profitability. Table 3 provides the estimation results of the panel fixed effect model, where the dependent variable is actual financing. Columns (1)–(3) present the results of the baseline specifications when firm-specific characteristics are considered, and standard errors are clustered at the firm level. As to the main variable of interest, *EPU* and *GPR* are significantly negatively related to companies' financing activities, suggesting that the higher economic policy uncertainty or geopolitical risk is, the less incentive there will be for firm financing. For the effect of political risk, we find that *POL* is significantly positively associated with financing activities. Given that a higher *POL* score implies lower political risk, this result suggests that an increase in *POL* (political stability) leads to an increase in financing activities. In other words, companies' financing decreases with political risk. It is generally expected that uncertainty and risk negatively influence economic and financial activities. On the one hand, in order to prevent sudden losses from uncertainty, firms turn more cautious when making financing decisions and tend to borrow less during high policy uncertainty phases (Baum et al., 2009; Phan et al., 2019). On the other hand, uncertainty incurs a high cost of external financing, causing worse financial constraints (Pástor and Veronesi, 2013a, 2013b; Brogaard and Detzel, 2015). Our finding is in line with the results of Lee et al. (2017b), Liu and Zhang (2019), and Phan et al. (2019).

As to the influences of control variables, the results reveal that most control variables reach statistical significance. The coefficient of *CF* is significantly positive, suggesting that financing activity increases with cash flows, which is consistent with the findings of Dang et al. (2018) and Liu and Zhang (2019). This result may be attributed to firms' risk-taking behavior. High cash flow companies are inclined to borrow more, because of their increased debt capacity. Results also show that *TQ* and *SG* have a significantly positive effect, implying that the higher investment opportunity or growth opportunity is, the more incentive there will be for firm financing. These results match the prediction of the pecking order theory and confirm the findings of Gupta (1969), Dewally and Shao (2014), Pindado et al. (2017), Chang et al. (2019), Karpavičius and Yu (2019), and Liu and Zhang (2019), to mention a few.

The coefficient of *SIZE* is significantly positive, suggesting that financing activity increases with firm size. These results match the postulation of the trade-off theory and pecking order theory and confirm the findings of Rajan and Zingales (1995), Islam and Khandaker (2015), Pindado et al. (2017), Dang et al. (2018), and Karpavičius and Yu (2019), to mention a few. Compared with small companies, sizeable companies can easily raise funds through external financing and benefit more from tax shields (Rajan and Zingales, 1995; Lee et al., 2017b). However, *ROA* is negatively associated with firm financing, which is in accordance with the pecking order theory and confirms the findings of Rajan and Zingales (1995), de Jong et al. (2008), Kayo and Kimura (2011), Karpavičius and Yu (2017), Pindado et al. (2017), Dang et al. (2018), and Chang et al. (2019), to mention a few. In this regard, higher profitability leads firms to reduce their chance of using external financing.

One potential concern with previous settings is that they only capture how firm-level characteristics affect financing activities, but do not reflect the impacts of macroeconomic conditions. To address this concern, we augment our baseline specifications by incorporating two alternative country-level factors, inflation and GDP growth, as proxies for current economic conditions. Columns (4)–(6) present the results of these augmented specifications, which essentially support our baseline specification. Evidence shows that the effects of the three policy-related risks and other control variables used in previous specifications remain unchanged. The coefficients of *GDP* and *INF* are significantly positive, indicating financing activity increases with economic growth and

Table 3
Estimated results for actual financing.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
EPU	−0.021*** (−10.002)			−0.010*** (−4.593)		
GPR		−0.219*** (−25.989)			−0.275*** (−26.137)	
POL			0.194*** (5.100)			0.198*** (5.236)
CF	0.132*** (5.119)	0.076*** (2.977)	0.127*** (4.923)	0.064** (2.522)	−0.004 (−0.155)	0.060** (2.343)
TQ	0.009*** (4.109)	0.008*** (3.451)	0.011*** (5.491)	0.011*** (4.569)	0.010*** (4.442)	0.013*** (6.167)
SG	0.049*** (18.006)	0.046*** (17.167)	0.049*** (17.737)	0.058*** (20.583)	0.053*** (19.289)	0.057*** (20.458)
SIZE	0.020*** (7.447)	0.022*** (8.475)	0.028*** (6.960)	0.015*** (5.234)	0.028*** (10.486)	0.028*** (6.836)
ROA	−0.077* (−1.811)	−0.222*** (−5.170)	−0.113*** (−2.667)	−0.461*** (−9.854)	−0.578*** (−12.439)	−0.513*** (−11.210)
GDP				0.054*** (45.704)	0.053*** (45.672)	0.056*** (48.686)
INF				0.388*** (4.993)	−0.522*** (−7.369)	0.415*** (5.364)
Firm FE	YES	YES	YES	YES	YES	YES
Cluster	YES	YES	YES	YES	YES	YES
Hausman	0.000	0.000	0.000	0.000	0.000	0.000
F-test	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R^2	0.155	0.166	0.155	0.171	0.183	0.172
Observations	93,720	93,720	93,720	92,707	92,707	92,707

Notes: Robust t-values clustered at the firm level are reported in parentheses. A constant term is included, but not reported to save space. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

inflation. These results consistently match our expectations and are in line with the findings of Frank and Goyal (2009) and Dewally and Shao (2014). Given that high GDP growth and inflation imply good economic conditions, firms would expect to earn more profits and use more debt under these economic conditions. One thing noteworthy here is when country-level factors are incorporated into our model that the adjusted R^2 values increase by approximately 2%. These results reveal that country-level factors are also important for companies' financing activities.[5]

5.2. Further evidence for debt financing and equity financing

To gain better insight into firms' financing strategy, we next investigate how firm-level characteristics, country-level factors, and economic policy uncertainties affect firms' debt and equity financing. Tables 4–5 present the estimation results for the panel fixed effect model. As mentioned above, Columns (1)–(3) list the results of the baseline specifications, while Columns (4)–(6) provide the results of the augmented specifications. We find that all these factors play a role in determining debt financing and equity financing, but their influencing direction and intensity are different. The effects of policy-related risks, growth opportunity, and economic conditions are similar to those previously reported. Evidence also shows that economic policy uncertainty, geopolitical risk, and political risk still have a more marked inhibitory effect on debt financing than on equity financing. The former coefficients (debt ones) are larger than the latter (equity ones), indicating that the effects of these policy-related risks on debt financing are stronger than those on equity financing. These results seem reasonable, as in China, bank loans are the primary source of external financing (Deng et al., 2013). The negative impacts of uncertainty on economic activities may exhibit larger influences on financial institutions, thereby affecting firms' debt activities.

We now focus our attention on those inconsistent effects between debt and equity financing. For the influence of cash flow, evidence shows that *CF* is positively related to debt financing, but negatively associated with equity financing. These results match the pecking order theory. Given equity financing is more expensive that debt financing, firms with large cash holdings would choose to use debt rather than equity. In terms of investment opportunity, we find that *TQ* has a negative effect on debt financing, while it has a positive impact on equity financing. These results may be attributed to agency problems among managers, shareholder and debtholders. On the one hand, when firms face less investment opportunity, debt use can lower the agency cost between managers and shareholders. On the other hand, equity use can lower the agency cost between shareholders and debtholders. Regarding firms' profitability, we find that *ROA* positively correlates with equity financing. One possible explanation is that profitable firms find it easier to gain access to equity markets. As to inflation, the results show that *INF* has a negative effect on debt financing. Inflation increases the borrowing costs and thus reduces the use of debt.

5.3. Robustness check

This section offers some robustness checks to the main findings. We first test our findings with different firm and industry characteristics. The corporate finance literature has shown that the degree of financial constraints faced by firms affects their financial decisions such as corporate investment (Wang et al., 2014; Zhang et al., 2019b), cash holdings (Almeida et al., 2004; Morellec et al., 2014; Silva, 2019), and financing behaviors (e.g., Agrawal and Matsa, 2013; de Jong et al., 2011; Chauhan and Huseynov, 2018; Datta et al., 2019; Phan et al., 2019). To assess how financial constraints influence the relation between policy-related risk and firm financing, we replicate the analysis by dividing the full sample into two subsamples of low financially constrained and high financially constrained firms according to their dividend payout ratio. Table 6 reports the estimation results under the two different financial constraints. Evidence shows that although the effect of policy-related risks is uncertain for low financially constrained firms, there is a significant and strong inhibitory effect of policy-related risks on corporate financing decisions. Given that high financially constrained firms are typically short of internal funds and lack access to capital markets (Phan et al., 2019; Datta et al., 2019), our results seem reasonable.

As to the industry characteristics, there are significant differences in capital structure and market competition between manufacturing firms and non-manufacturing firms. As Firth et al. (2012) and Jiang et al. (2015, 2017) note, compared with other industries, the investment by manufacturing firms in China is mostly in the form of capital expenditures. In this regard, we also conduct the analysis by dividing the full sample into two subsamples of manufacturing firms and non-manufacturing firms. Table 7 provides the estimation results under these two types of firms. Our empirical findings reveal that policy-related risks have a negative effect for both manufacturing and non-manufacturing firms. However, the significance and intensity are larger in the case of manufacturing firms.

We also apply two alternative policy-related proxies from the ICRG database, government stability (*GS*) and law & order (*LO*), to examine the effect of policy-related risk on companies' financing strategy. The former index reflects the strength and fairness of a country's legal system, while the latter index assesses counties' regulatory quality. With the same fashion of *POL*, higher rating scores of *GS* and *LO* indicate lower legal and regulatory risks.

Table 8 presents the results of these robustness tests for actual financing, debt financing, and equity financing respectively. Columns (1)–(3) investigate the effect of government stability, while Columns (4)–(6) examine the influence of law & order. We find that the coefficients of *GS* and *LO* are overwhelmingly significantly positive no matter which financing strategy we analyze. These results imply that the higher the legal and regulatory risks are, the less incentive there will be for firm financing. Evidence also shows that the effects of these policy-related risks on debt financing are larger than those on equity financing. Therefore, the robustness estimation results mostly support our main findings.

6. Conclusions and implications

The frequent episodes of volatility due to policy uncertainties in recent decades have attracted intense interest in regards to their impacts on economic and financial activities. Previous empirical research has concluded that these kinds of policy-related risk significantly influence corporate investment activities. Nevertheless, little attention has been paid to how they impact corporate financing in China. Using quarterly data on China's publicly-listed firms from 2013Q1 to 2017Q3, this paper extends the existing studies by investigating the determinants of corporate financing behavior not only through the channels of firm-level characteristics and country-level factors, but also through a broad array of policy-related risks including economic policy uncertainty, geopolitical risk, and political risk.

Our empirical results reveal that policy-related risk has a significantly negative influence on corporate financing activities, suggesting that firms facing high policy-related risk are less likely to use external financing. Policymakers should carefully consider the influence of policy change on corporate financial behavior and put more efforts on stable macroeconomic policy. For different financing strategies, we find that the aforementioned risk has a greater influence on debt financing than that on equity financing. These results are important to managers for determining and adjusting suitable financial strategies, because they can raise

[5] To see whether the findings are sensitive to potential endogeneity, we also replicate the analysis by using the dynamic panel generalized method of moments (GMM) model. The results show that our main conclusions remain unchanged.

Table 4
Estimated results for debt financing.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
EPU	−0.026*** (−12.898)			−0.015*** (−7.049)		
GPR		−0.179*** (−28.030)			−0.230*** (−30.192)	
POL			0.335*** (10.637)			0.354*** (11.114)
CF	0.667*** (24.576)	0.624*** (23.490)	0.661*** (24.456)	0.580*** (22.142)	0.528*** (20.653)	0.574*** (22.091)
TQ	−0.016*** (−14.283)	−0.018*** (−15.382)	−0.012*** (−10.478)	−0.013*** (−11.557)	−0.014*** (−11.980)	−0.008*** (−7.147)
SG	0.027*** (13.069)	0.024*** (11.865)	0.026*** (12.591)	0.037*** (18.234)	0.033*** (16.675)	0.037*** (18.069)
SIZE	0.008** (2.517)	0.005* (1.685)	0.026*** (6.419)	0.003 (0.788)	0.010*** (3.374)	0.027*** (6.588)
ROA	−0.708*** (−16.821)	−0.831*** (−19.214)	−0.778*** (−18.497)	−1.213*** (−25.318)	−1.321*** (−27.249)	−1.309*** (−27.531)
GDP				0.070*** (61.560)	0.069*** (63.096)	0.071*** (64.516)
INF				−0.162*** (−3.247)	−0.837*** (−14.709)	−0.144*** (−2.907)
Firm FE	YES	YES	YES	YES	YES	YES
Cluster	YES	YES	YES	YES	YES	YES
Hausman	0.000	0.000	0.000	0.000	0.000	0.000
F-test	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R^2	0.371	0.380	0.373	0.409	0.421	0.413
Observations	81,027	81,027	81,027	80,074	80,074	80,074

Notes: Robust t-values clustered at the firm level are reported in parentheses. A constant term is included, but not reported to save space. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5
Estimated results for equity financing.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
EPU	−0.005*** (−8.067)			−0.003*** (−4.361)		
GPR		−0.058*** (−19.431)			−0.074*** (−21.051)	
POL			0.052*** (6.931)			0.048*** (6.467)
CF	−0.010 (−1.313)	−0.025*** (−3.215)	−0.011 (−1.479)	−0.015* (−1.902)	−0.033*** (−4.245)	−0.016** (−2.055)
TQ	0.004*** (8.535)	0.003*** (7.757)	0.004*** (9.352)	0.003*** (7.691)	0.003*** (7.590)	0.004*** (8.645)
SG	0.008*** (15.823)	0.008*** (14.729)	0.008*** (15.573)	0.009*** (16.927)	0.008*** (15.253)	0.009*** (16.840)
SIZE	0.002*** (3.744)	0.003*** (4.987)	0.005*** (5.569)	0.001** (2.138)	0.005*** (7.951)	0.004*** (5.205)
ROA	0.090*** (8.714)	0.052*** (4.935)	0.081*** (7.881)	0.051*** (4.657)	0.020* (1.767)	0.038*** (3.529)
GDP				0.006*** (22.579)	0.005*** (21.874)	0.006*** (24.279)
INF				0.285*** (10.994)	0.042* (1.857)	0.296*** (11.241)
Firm FE	YES	YES	YES	YES	YES	YES
Cluster	YES	YES	YES	YES	YES	YES
Hausman	0.000	0.000	0.000	0.000	0.000	0.000
F-test	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R^2	0.113	0.122	0.113	0.116	0.127	0.117
Observations	93,720	93,720	93,720	92,707	92,707	92,707

Notes: Robust t-values clustered at the firm level are reported in parentheses. A constant term is included, but not reported to save space. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6
Robust checks: low financially constrained and high financially constrained firms.

Variable	Low financially constrained			High financially constrained		
	(1)	(2)	(3)	(4)	(5)	(6)
EPU	0.024*** (7.218)			−0.017 (−5.267)		
GPR		−0.170*** (−10.898)			−0.334*** (−21.147)	
POL			0.026 (0.526)			0.309*** (5.301)
CF	−0.034 (−1.009)	−0.052 (−1.552)	−0.023 (−0.701)	0.228*** (5.471)	0.123*** (2.962)	0.225*** (5.426)
TQ	0.013*** (3.461)	0.014*** (3.726)	0.015*** (4.285)	0.009*** (3.401)	0.008*** (3.114)	0.012*** (4.512)
SG	0.055*** (16.828)	0.053*** (16.370)	0.055*** (16.892)	0.056*** (11.005)	0.050*** (10.026)	0.055*** (10.889)
SIZE	0.027*** (6.676)	0.040*** (10.226)	0.036*** (6.355)	−0.005 (−1.092)	0.016*** (3.954)	0.014** (2.334)
ROA	−0.336*** (−5.497)	−0.380*** (−6.236)	−0.335*** (−5.535)	−0.788*** (−10.649)	−1.052*** (−14.075)	−0.848*** (−11.654)
GDP	0.057*** (36.742)	0.054*** (35.129)	0.056*** (37.698)	0.051*** (29.215)	0.051*** (30.812)	0.052*** (31.156)
INF	0.244** (2.556)	−0.591*** (−6.829)	−0.005 (−0.056)	0.988*** (6.917)	−0.020 (−0.152)	1.088*** (7.523)
Firm FE	YES	YES	YES	YES	YES	YES
Cluster	YES	YES	YES	YES	YES	YES
Hausman	0.000	0.000	0.000	0.000	0.000	0.000
F-test	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R^2	0.167	0.169	0.166	0.248	0.268	0.249
Observations	52,422	52,422	52,422	38,237	38,237	38,237

Notes: Robust t-values clustered at the firm level are reported in parentheses. A constant term is included, but not reported to save space. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respecively.

Table 7
Robust checks: manufacturing and non-manufacturing firms.

Variable	Manufacturing			Non-manufacturing		
	(1)	(2)	(3)	(4)	(5)	(6)
EPU	−0.010*** (−3.551)			−0.006 (−1.613)		
GPR		−0.293*** (−23.702)			−0.229*** (−11.237)	
POL			0.224*** (4.652)			0.112 (1.594)
CF	0.105*** (3.073)	0.031 (0.914)	0.103*** (3.031)	0.022 (0.586)	−0.033 (−0.908)	0.017 (0.468)
TQ	0.010*** (4.004)	0.009*** (3.852)	0.013*** (5.350)	0.014*** (2.802)	0.014*** (2.637)	0.015*** (3.401)
SG	0.071*** (14.211)	0.066*** (13.497)	0.070*** (14.077)	0.046*** (15.869)	0.042*** (15.016)	0.046*** (15.864)
SIZE	0.011*** (2.840)	0.026*** (7.235)	0.027*** (5.281)	0.015*** (3.322)	0.026*** (5.936)	0.022*** (2.976)
ROA	−0.390*** (−6.742)	−0.513*** (−8.839)	−0.457*** (−7.823)	−0.641*** (−9.079)	−0.736*** (−10.638)	−0.660*** (−9.718)
GDP	0.056*** (37.063)	0.054*** (36.974)	0.057*** (39.108)	0.053*** (26.837)	0.052*** (27.216)	0.054*** (29.104)
INF	0.371*** (3.810)	−0.606*** (−6.539)	0.383*** (3.926)	0.440*** (3.389)	−0.327*** (−3.007)	0.467*** (3.554)
Firm FE	YES	YES	YES	YES	YES	YES
Cluster	YES	YES	YES	YES	YES	YES
Hausman	0.000	0.000	0.000	0.000	0.000	0.000
F-test	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R^2	0.189	0.203	0.190	-.158	0.165	0.188
Observations	60,269	60,269	60,269	32,740	32,740	32,740

Notes: Robust t-values clustered at the firm level are reported in parentheses. A constant term is included, but not reported to save space. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respctively.

Table 8
Robust checks: two alternative policy-related proxies.

Variable	AF	DF	EF	AF	DF	EF
GS	0.111*** (6.270)	0.179*** (11.397)	0.025*** (5.180)			
LO				0.120*** (5.314)	0.197*** (9.739)	0.030*** (6.432)
CF	0.057** (2.236)	0.568*** (21.918)	−0.016** (−2.122)	0.055** (2.148)	0.565*** (21.760)	−0.017** (−2.206)
TQ	0.012*** (5.143)	−0.011*** (−10.166)	0.003*** (7.973)	0.011*** (5.052)	−0.011*** (−10.354)	0.003*** (7.984)
SG	0.058*** (20.517)	0.037*** (18.228)	0.009*** (16.886)	0.058*** (20.520)	0.037*** (18.174)	0.009*** (16.870)
SIZE	0.024*** (7.209)	0.018*** (5.014)	0.003*** (3.867)	0.023*** (6.762)	0.017*** (4.778)	0.003*** (4.359)
ROA	−0.483*** (−10.511)	−1.251*** (−26.408)	0.046*** (4.197)	−0.486*** (−10.595)	−1.256*** (−26.515)	0.045*** (4.097)
GDP	0.055*** (48.442)	0.071*** (64.494)	0.006*** (24.231)	0.056*** (49.746)	0.072*** (65.393)	0.006*** (24.361)
INF	0.375*** (4.905)	−0.189*** (−3.790)	0.288*** (11.047)	0.418*** (5.463)	−0.120** (−2.406)	0.296*** (11.322)
Firm FE	YES	YES	YES	YES	YES	YES
Cluster	YES	YES	YES	YES	YES	YES
Hausman	0.000	0.000	0.000	0.000	0.000	0.000
F-test	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R^2	0.172	0.412	0.117	0.172	0.412	0.117
Observations	92,707	80,074	92,707	92,707	80,074	92,707

Notes: Robust t-values clustered at the firm level are reported in parentheses. A constant term is included, but not reported to save space. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

their awareness for policy change.

As far as other control variables are concerned, evidence also indicates that both firm-specific characteristics and country-level factors are important determinants that guide corporate financing decisions. For firm-level characteristics, cash flow, investment opportunity, growth opportunity, and firm size are positively related with firm financing, while profitability has a negative impact on firm financing. With respect to country-level factors, results show that the better the economic conditions are and the higher the inflation is, the more incentive there will be for firm financing. When making financing decisions, corporate managers should be aware of these intrinsic firm characteristics and external macroeconomic conditions.

We also assess the robustness of our findings by considering distinct firm and industry characteristics. Evidence reveals that the inhibitory effects of policy-related risks on firm financing remain essentially unchanged, but their significance and intensity are different. We find that policy-related risk has a greater influence on firm financing in the two separate cases of high financially constrained firms and manufacturing firms. Governments should therefore devote a larger part of their attention on these firms when policy-induced risks increase.

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Appendix A. Supplementary data

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