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The causal effect of political risk on the stock market: Evidence from a natural experiment

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Abstract

By using the misfired missile event from Taiwan to mainland China as an exogenous shock, we identify the causal effect of potential military risk on the Chinese A-share market. We find that the misfired missile event indeed causes a significant decline in the stock prices of Taiwan-related A-share firms, especially for firms that have stronger relationship with Taiwan. Further analysis shows that the increased required rate of return due to higher political uncertainty is the main driving force of the stock price decline. Our findings provide strong support for the existence of priced political risk in the stock market.

KEYWORDS

military risk, natural experiment, political risk, political uncertainty, stock price

JEL CLASSIFICATION

G11, G12, G14, G18

1 | INTRODUCTION

The economic consequence of political risk is an important topic, as well as a common concern among governments and investors around the world. Existing literature indicate that political

uncertainty has a significant impact on asset prices. For example, the theoretical model proposed by Pastor and Veronesi (2012, 2013) shows that an increase in political uncertainty will lead to a decline in stock prices, especially for firms that are more sensitive to government policy changes. Political uncertainty may increase the risk premium of assets, especially when the economy is weaker and the political uncertainty is higher. In this paper, we mainly focus on the impact of Taiwan-related political risk on the Chinese A-share market.

Prior studies focus on several political events to explore the impact of political uncertainty on asset prices, including leadership elections, referendums, major policy adjustments and other events. For example, Smales (2016) finds that the increased political uncertainty around the final results of the Australian federal election leads to volatility increase in the financial market, and this impact is intensified as the polling day draws closer. Liu et al. (2017) construct indicators measuring listed firms' relationship with Bo Xilai and find that the cumulative abnormal return (CAR) of politically sensitive stocks (firms related to Bo Xilai) is 0.249% lower than that of other stocks after the Bo Xilai scandal. Darby and Roy (2019) examine stock price volatility during the period surrounding the Scottish Independence Referendum and find that the volatility of Scottish stock prices peaked when the referendum result was 'close to the end'. In addition, Badshah et al. (2019) explore the impact of EPU on the dynamic correlations between stock and commodity prices. Also, researchers have examined various channels through which political uncertainty affects asset prices. Hillier and Loncan (2019) investigate the exogenous shocks that cause political risks in Brazil and find that political connection and risk exposure to foreign capital are important channels through which political risk can impact asset prices. These studies have shown that when firms are faced with political uncertainty, their stock prices and earnings may decrease, and the volatility of stock prices may increase.

While a large amount of evidence show that political uncertainty has negative impacts on asset prices, a key obstacle in the empirical test is the difficulty of separating the effects of political uncertainty from other confounding effects (Kelly et al., 2016). Political events in the above-mentioned studies, such as leadership elections, referendums or major policy adjustments, are either expected or predictable. There might have been information leakage before these events, and such information may have already been reflected in the financial market.

In this paper, we use a reliable exogenous event to examine how the political uncertainty caused by unexpected event can impact the stock market, wihch is an accidental misfire of a missile by Taiwan into the Taiwan Strait on 1 July 2016. Since the misfired missile accident was a completely unexpected event and there was no information leakage beforehand, it was an exogenous event. The Taiwan Strait lies between the mainland China and the Taiwan Island, and the incident of a misfired missile by Taiwan immediately aroused great concern on both sides of the Strait. This situation immediately led to tension across the Strait and increased political risk. Therefore, this event is a completely exogenous shock that resulted in political risk increase, thus providing a valuable opportunity to explore the causal effect of political risk on the stock market. Political risks encompass a wide range of political events, such as corruption, wars, coups, violent social unrest and so on. Since we use the misfired missile event to help us establish causality, our paper actually examines the impact of potential military risk on the stock market, rather than other types of political risks.

By constructing indicators measuring the firm's relationship with Taiwan and taking the misfired missile incident as an exogenous event, we find that the political risk caused by this event has a significant negative impact on the stock prices of firms with economic ties to Taiwan. Specifically, we find that the CAR of Taiwan-related A-share stocks is 2.20% lower than that of unrelated stocks after the missile event. We also find that this negative effect is stronger

for firms with closer ties to Taiwan. Further analysis shows that the main driver of stock price decline is the change in the discount rate.

Our paper contributes to the literature in three main aspects. First, prior studies use several events, such as leadership elections, referendums and major policy adjustments, to explore the impact of political risk on asset prices (Badshah et al., 2019; Darby & Roy, 2019; Smales, 2016). These studies may be susceptible to endogeneity problems. But in this paper, we use a purely exogenous shock that leads to political risk, with no information leakage before the event and no other confounding economic effects. Such an event can provide a clean setting to test the causal relationship between political risk and stock prices.

Second, existing studies find that increased political uncertainty can lead to lower asset prices and higher asset price volatility (Baker et al., 2016; Chau et al., 2014; Darby & Roy, 2019; Kelly et al., 2016; Liu et al., 2017; Pastor & Veronesi, 2012; Pastor & Veronesi, 2013; Smales, 2016). We contribute to the literature on the channels through which political risk might affect the stock market.

Third, existing literature have examined the impact of political risk on stock market in the United States, mainland China, Australia, Arab countries, Scotland, Brazil, Scandinavian countries and other countries and regions (Bahmani-Oskooee & Xi, 2011; Banerjee & Dutta, 2022; Chau et al., 2014; Darby & Roy, 2019; Doan et al., 2020; Gao et al., 2019; Gonçalves et al., 2022; He et al., 2022; Hillier & Loncan, 2019; Ifwarsson et al., 2021; Liu et al., 2017; Luo et al., 2016; Pastor & Veronesi, 2012; Smales, 2016). Our paper focuses on the political risk in Taiwan, which is an important supplement to studies in this field. Mainland China and Taiwan have significant economic relationships in terms of trade and financial investment in the past decades. For example, mainland China is Taiwan's largest trading partner, accounting for 25.2% of total trade and 21.6% of Taiwan's imports in 2021 (please refer to https://www.trade.gov/country-commercial-guides/taiwan-market-overview). Despite Taiwan's regulations limiting outbound foreign investment, 52% of Taiwanese companies' total stock of foreign direct investment remains located in mainland China at the end of 2022 (please refer to https://www.piie.com/research/piie-charts/taiwans-outbound-foreign-investment-particularly-tech-continues-go-mainland).

While the conflicts have existed since the 1950s, the recent escalation has resulted in a significant increase in tensions between mainland China and Taiwan, and has the potential to disrupt economic ties. For example, Taiwan's exports to mainland China and orders to Taiwan from mainland China and Hong Kong both have huge decrease in recent years (please refer to https://www.reuters.com/markets/asia/taiwan-jan-exports-down-5th-month-china-shipments-slump-2023-02-07/ and https://www.scmp.com/economy/global-economy/article/3210856/taiwans-export-orders-fall-fifth-straight-month-hit-459-cent-slump-mainland-china-and-hong-kong). In terms of investment, Mainland Chinese investment in Taiwan and new investments in mainland China by Taiwanese companies also both have huge decline in recent years (please refer to https://www.scmp.com/economy/global-economy/article/3211956/mainland-chinese-investment-taiwan-hits-13-year-low-amid-tense-political-ties and https://www.bloomberg.com/news/articles/2023-04-20/taiwan-firms-pull-back-in-china-as-investments-elsewhere-surge#xj4y7vzkg). In Supporting Information: Figure OA1, we depict the geopolitical risk index proposed by Caldara and Iacoviello (2022) in mainland China and Taiwan over the period from 1985 to 2022. We can find that the geopolitical risk in mainland China and Taiwan both have significant increase since 2016. In this sense, our study is relevant and timely because the recent escalation of conflicts has raised concerns among investors about the potential impact on firms that are closely related to Taiwan. To

the best of our knowledge, no previous study has specifically focused on the impact of potential conflicts beween mainland China and Taiwan on stock market performance.

In terms of practical contributions, our paper can provide valuable insights for practitioners in the finance industry, particularly those interested in managing political risk in their investment portfolios. By examining the impact of potential military risk on stock market performance, our paper can help investors better understand the potential risks and investment opportunities associated with political events and develop more effective strategies for managing these risks. Additionally, our paper can help policymakers to better understand the potential impact of political risk on economies and develop effective policies for managing such risks. The potential conflicts between mainland China and Taiwan may also have impacts on other stock markets and economies in the South Asia and Southeast Asia regions. The risk of potential military conflicts between mainland China and Taiwan could lead to disruptions in regional trade, as both sides may impose trade barriers and restrictions. This could affect countries in the South and Southeast Asia regions that have significant trade relationships with either mainland China or Taiwan. For example, countries like Vietnam and the Philippines have large trade relationships with mainland China, while Malaysia and Singapore have significant trade relationships with Taiwan. The potential military risk between mainland China and Taiwan could also have significant geopolitical implications for the South and Southeast Asia regions. This may lead to increased military spending by countries in the region, which could impact their budgets and their ability to invest in other areas. Future studies could explore these impacts further, as suggested in a study by Tang et al. (2021), which analysed the spillover effects and networks of economic uncertainty in 12 Asia-Pacific countries from 2000 to 2020.

The remainder of this paper is organised as follows. Section 2 introduces hypothesis development. Section 3 describes our sample and research design. Section 4 presents empirical results. Finally, Section 5 concludes.

2 | HYPOTHESIS DEVELOPMENT

The political uncertainty theory in Pastor and Veronesi (2013) predicts that political uncertainty also commands risk premium. In equilibrium, when risk-averse investors hold stocks in periods of high political uncertainty, they would require higher expected returns. In other words, stock prices would fall to reflect higher required returns (Pastor & Veronesi, 2012) when political uncertainty increase. Liu et al. (2017) explore political scandals arising from the transgressions of domestic politicians and find that the stock prices of firms related to Bo Xilai dropped significantly after the Bo Xilai scandal. In contrast, we focus on the impact of potential conflicts between mainland China and Taiwan on the Chinese A-share market. In a general sense, the potential military risk studied in our paper may have more severe impacts on the stock market compared to other types of political risks.

Following Liu et al. (2017), we construct indicators measuring firm's relationship with Taiwan and investigate the influence of political uncertainty on the stock prices of different firms. We predict that the Taiwan misfired missile event would increase political uncertainty and lead to stock price decline of Taiwan-related firms in the Chinese A-share market. Our Hypothesis 1 is as follows:

> **Hypothesis 1.** The stock prices of Taiwan-related A-share firms may have significant decline after the Taiwan misfired missile event.

If the Taiwan misfired missile event indeed has negative impacts on the stock prices of Taiwan-related A-share firms, we further explore the channels through which political risk affects the stock market. Considering a simple discounted cash flow model, decrease of future cash flow or increase of discount rate both may lead to decline of stock prices. Following Liu et al. (2017), we also propose the cash flow hypothesis and volatility hypothesis as follows to explore the channels. Graham Jr et al. (2005) and An et al. (2016) point out that political risk may cause profitability and firm value to drop. If stock prices of Taiwan-related A-share firms do decline, then analyst earnings forecast (measure of expected cash flow) may drop after the event. In addition, firms' future operating performance (i.e., the realised cash flow) and firm value may also decline after the event. Therefore, we propose Hypothesis 2a and Hypothesis 2b as follows:

Hypothesis 2a. Realised Cash Flow Hypothesis: Operating performance of Taiwan-related A-share firms may deteriorate after the event.

Hypothesis 2b. Expected Cash Flow Hypothesis: Analyst earnings forecast of Taiwan-related A-share firms may be adjusted downward after the event.

If stock price decline is caused by the increase of discount rate due to the increased political risk, as described in Pastor and Veronesi (2012, 2013), then the required rate of return by investors will increase after the event. Specifically, the increase in the required rate of return may be reflected in larger stock price volatility of policy-sensitive firms (Liu et al., 2017). In addition, the volatility of analyst earnings forecast of Taiwan-related A-share firms would be larger than that of non-Taiwan-related firms. Therefore, we propose Hypothesis 3a and Hypothesis 3b as follows:

Hypothesis 3a. Realised Volatility Hypothesis: The stock price volatility of Taiwan-related A-share firms may have larger increase than that of non-Taiwan-related firms after the event, ceteris paribus.

Hypothesis 3b. Expected Volatility Hypothesis: The volatility of analyst earnings forecast of Taiwan-related A-share firms surrounding the event date may be larger than that of non-Taiwan-related firms, ceteris paribus.

3 | DATA AND RESEARCH DESIGN

By using the data disclosed in the 2015 annual reports (we used the 2015 annual reports as they were the most recent publicly available annual reports to investors at the time of the Taiwan missile event on 1 July 2016), we construct two indicators to measure firm's relationship with Taiwan. Our sample excludes firms in the financial industry, ST and PT stocks, and stocks with negative book equity. Our treatment group include Chinese A-share listed firms related to Taiwan, while the control group consists of A-share listed firms in the same industry and with similar market capitalisation to Taiwan-related A-shares (listed firms are divided into five groups according to their market capitalisations within the industry, and those in the same group are considered to have similar market capitalisations). The annual reports of listed firms are obtained from the websites of the Shanghai Stock Exchange and Shenzhen Stock Exchange (please refer to

http://www.sse.com.cn/disclosure/listedinfo/regular/ and http://www.szse.cn/disclosure/listed/fixed/index.html), and other data are obtained from the CSMAR database.

3.1 | Definition of variables

The key indicators (*Relation* and *Rel_strength*) measuring firm's relationship with Taiwan are constructed based on manual reading of the annual reports in the year before the event. Firms are defined as economically related to Taiwan (*Relation* = 1) if one of the following conditions is met: firms export goods or services to Taiwan; firms import goods or services from Taiwan; firms have Taiwanese shareholders; or firms have Taiwanese directors, supervisors or senior managers. For instance, the controller of GANSO (603886.SH) is Xiuwan Zhang who is Taiwanese, so *Relation* for GANSO is 1. We also construct *Rel_strength* to indicate the strength of Taiwan relation. For example, if three of the above four conditions are met, then *Rel_strength* equals 3.

For the dependent variables, we focus on the stock price performance represented by the CAR surrounding the event date (*CAR*), that is, subtracting the daily market return from the daily individual stock return to obtain daily abnormal returns, and then using daily abnormal returns to calculate *CAR*. For the realised cash flow of firms (*Deps*), we use the growth rate of earnings per share (*EPS*) after the event compared with that in the year before the event to reflect the impact of the event on firm's operating performance. In terms of the expected cash flow of firms (*Dfeps*), we use the growth rate of analysts' forecast of *EPS* for the year 2016 within 3 months after the event compared with that in the 3 months before the event. To measure the volatility of stock price (*Dvol*), we use the standard deviation of stock price within 3 months after the event to subtract the standard deviation of stock price over the prior 2 years before the event. The volatility of analysts' forecasts (*Volfeps*) is calculated as the standard deviation of the EPS forecast by analysts for the year 2016 within 6 months before and after the event date. Control variables include the market-to-book ratio (*Mtb*), analyst coverage (*Ana_cover*), return on equity (*Roe*), debt-to-assets ratio (*Asset_Debt*), natural logarithm of firm size (*Lnsize*), Tobin's q (*Tobinq*) and price-to-earnings ratio (*Pe*). All the continuous variables are winsorised at the 1% and 99% levels. For detailed variables definition, please refer to Supporting Information: Table OA1.

3.2 | Baseline specification

To examine the relationship between the Taiwan relation and stock market reactions, we estimate the following equation:

$$CAR_i = \beta_0 + \beta_1 * Relation_i + \sum \beta_j * Control_i + Industry\,FE_i + \varepsilon_i. \quad (1)$$

$Relation_i$ equals 1 if firm i have close relationship with Taiwan, and equals 0 otherwise. CAR_i refers to the CAR over the 10 trading days after the event. Industry fixed effect (*Industry* FE_i) is also included. All the regression used in our paper is based on the OLS model. Since the Taiwan missile event used in this paper is a short-term event that occurred within a single day,

the empirical analysis in our paper uses cross-sectional models. This is also the reason why we can only include industry-fixed effects and not year-fixed effects in our Equation (1).

4 | EMPIRICAL RESULTS

4.1 | Exogeneity of the event

To verify the exogeneity of the event, we present the pattern of Baidu and Google search indexes over the period from 1 January 2016 to 1 January 2017 in Figure 1. We use '台湾导弹' (which means Taiwan Missile in Chinese) and 'Taiwan Missile' as keywords for the Baidu and Google search indexes. If the Taiwan misfired missile incident is indeed an exogenous event, there should be very few or almost zero-related searches before the event date. Figure 1 shows that both the Baidu search index and Google search index are close to 0 before the event date 1 July 2016. Both search indexes spike on the event day, and then fall sharply in the following days. The pattern of search indexes indicates that there is no news leakage before the event, and this incident is a completely unexpected and exogenous event. In the following analysis, we use this exogenous event to examine the causal effect of the potential conflicts between mainland China and Taiwan on the stock market.

4.2 | Summary statistics

Panel A of Table 1 reports the descriptive statistics of all the variables, including observations, mean values, standard deviations, median values and so on. We have a total of 1810 A-share firms in the sample, including 144 Taiwan-related firms and 1666 non-Taiwan-

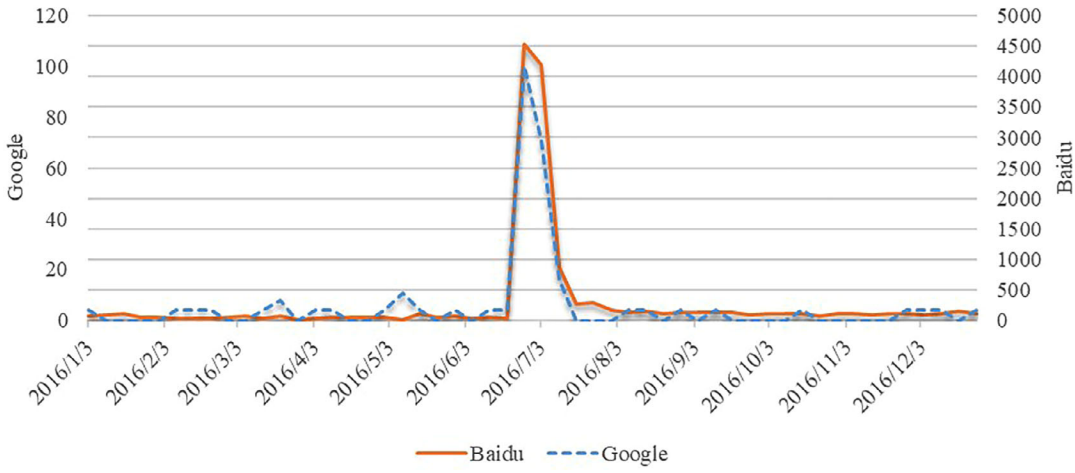

FIGURE 1 Search Intensity of 'Taiwan Missile' on Google and Baidu. This figure presents the pattern of Baidu and Google search indexes over the period from 1 January 2016 to 1 January 2017. To verify the exogeneity of this event, we use '台湾导弹' (which means Taiwan Missile in Chinese) and 'Taiwan Missile' as keywords for the Baidu and Google search indexes. [Color figure can be viewed at wileyonlinelibrary.com]

TABLE 1 Summary statistics and mean difference test of cumulative abnormal return (CAR).

Panel A: Summary statistics										
Variables	**Obs**	**Mean**	**Std**	**Min**	**P5**	**P25**	**Median**	**P75**	**P95**	**Max**
Relation	1810	0.08	0.27	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Rel_strength	1810	0.10	0.36	0.00	0.00	0.00	0.00	0.00	1.00	3.00
CAR	1810	0.00	0.07	−0.23	−0.09	−0.04	−0.01	0.03	0.11	0.90
Volfeps	1255	0.09	0.11	0.00	0.01	0.03	0.06	0.12	0.32	0.59
Dvol	1242	−0.02	0.01	−0.04	−0.03	−0.03	−0.02	−0.02	−0.01	0.00
Mtb	1810	0.43	0.22	0.09	0.14	0.27	0.39	0.57	0.89	1.01
Ana_cover	1810	2.89	3.48	0.00	0.00	0.00	2.00	5.00	10.00	23.00
Roe	1810	0.06	0.10	−0.42	−0.10	0.03	0.07	0.11	0.19	0.28
Asset Debt	1810	0.40	0.20	0.06	0.11	0.24	0.39	0.56	0.74	0.87
Lnsize	1810	23.08	0.96	21.22	21.70	22.45	22.94	23.57	25.04	26.17
Tobinq	1810	3.11	2.00	0.99	1.12	1.76	2.54	3.71	7.35	11.70
Pe	1810	150.00	289.60	−199.50	−38.52	35.06	69.96	137.90	613.40	1861.00

Panel B: Mean difference test of CAR						
	Relation = 0		**Relation = 1**			
	Obs (0)	**Mean (0)**	**Obs (1)**	**Mean (1)**	**Mean-Diff**	**T-stat**
CAR	1666	0.003	144	−0.019	−0.022***	−4.273

Note: Panel A provides summary statistics for all the variables used in this paper. Panel B presents the mean difference test of the CAR between Taiwan-related and not-related groups over the 10 trading days after the event. ***, ** and * represent statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed definition of variables is presented in Supporting Information: Table OA1.

related firms (we list the stock ID, firm name in English and state ownership of these 144 Taiwan-related firms in the Supporting Information: Table OA2). The Taiwan-related firms account for 8.00% of the whole sample.

4.3 | Stock market reaction

Panel B of Table 1 presents the mean difference test of the CAR between Taiwan-related and not-related groups over the 10 trading days after the event. The *CAR* difference between the two groups is approximately 2.20%, which is significant at the 1% level. This result indicates that the Taiwan misfired missile event indeed caused a significant decline in the stock prices of Taiwan-related A-share firms.

TABLE 2 Regression results of cumulative abnormal return (CAR).

	(1) CAR	(2) CAR
Relation	−0.021***	
	(−4.394)	
Rel_strength		−0.015***
		(−4.025)
Mtb	0.043***	0.044***
	(4.889)	(4.908)
Ana_cover	−0.001	−0.001
	(−1.572)	(−1.616)
Roe	−0.001**	−0.001**
	(−1.975)	(−1.978)
Asset_Debt	−0.029***	−0.029***
	(−2.826)	(−2.821)
Lnsize	0.006***	0.006***
	(2.827)	(2.874)
Tobinq	0.000***	0.000***
	(15.386)	(15.506)
Pe	−0.000	−0.000
	(−1.489)	(−1.483)
Constant	−0.132**	−0.134***
	(−2.565)	(−2.613)
Observations	1810	1810
R-squared	0.042	0.041
Industry FE	YES	YES

Note: This table examines the relationship between Taiwan relation and the CAR over the 10 trading days after the event. Robust standard errors are clustered at the firm level and the corresponding *t*-statistics are reported in parentheses. ***, ** and * represent statistical significance at the 1%, 5% and 10% levels, respectively. 'Industry FE' stated 'YES' indicates the regression has controlled industry fixed effects.

In Table 2, we further examine the relationship between Taiwan relation and *CAR* using the regression method. Consistent with Hypothesis 1 and the result in Panel B of Table 1, both indicators measuring the relationship with Taiwan have significant negative impacts on *CAR*. The coefficients of *Relation* and *Rel_strength* are −0.021(*t*-stat = −4.394) and −0.015 (*t*-stat = −4.025), both are statistically significant at the 1% level. This result indicates that political uncertainty in Taiwan indeed causes a significant decline in the stock prices of Taiwan-related A-share firms, and this negative relationship is more pronounced if firms are more closed to Taiwan. This negative relationship between Taiwan relation and *CAR* is also economically significant. For example, the coefficient of *Relation* is −0.021, which means that a one-standard-deviation increase in the *Relation* (i.e., 0.27) is associated with a decrease of 8.10% (= −0.021*0.27/0.07) of a standard deviation in *CAR* (i.e., 0.07), ceteris paribus.

4.4 | Cash flow and volatility analysis

We have shown that the Taiwan misfired missile event indeed caused the stock price decline of Taiwan-related firms listed in the Chinese A-share market. We need to further test whether this negative effect comes from the decrease of cash flow or the increase of discount rate. Table 3 reports the regression results for the cash flow and volatility hypothesis. Columns (1)–(4) of Table 3 report the regression results for the cash flow hypothesis. If Hypothesis 2a or 2b hold, operating performance of Taiwan-related firms should deteriorate and analyst earnings forecast of Taiwan-related firms may be adjusted downward after the event. However, the coefficients of *Relation* and *Rel_strength* are both positively significant in columns (1)–(2) and both insignificant in columns (3)–(4), which means that Hypothesis 2a and Hypothesis 2b are contradicted. Columns (5)–(8) of Table 3 report the regression results for the volatility hypothesis. The coefficients of *Relation* and *Rel_strength* are all positively significant at the 1% level in columns (5)–(6), which means that the stock price volatility of Taiwan-related firms indeed has larger increase than that of non-Taiwan-related firms after the event. The coefficients of *Relation* and *Rel_strength* are all positively significant at the 5% level in columns (7)–(8), which means that the volatility of analyst earnings forecast of Taiwan-related firms surrounding the event date is indeed larger than that of non-Taiwan-related firms. This evidence suggests that Hypothesis 3a and Hypothesis 3b hold and our baseline results are more consistent with the increase of discount rate explanation.

4.5 | SOEs versus non-SOEs

Following Liu et al. (2017), we also divide our sample into SOEs and non-SOEs. There is no clear theory about whether SOEs or non-SOEs are more susceptible to political uncertainty. On the one hand, all SOEs are owned by the government, and regardless of the political situation, these SOEs are an inseparable part of the authority. Therefore, the change of political uncertainty may not have significant impacts on SOEs. Since non-SOEs are more diversified and independent, they are more susceptible to changes in political risk. On the other hand, it is also possible that SOEs are more sensitive to political uncertainty because they are more connected with political event or political power, while non-SOEs are independent and may be less affected by the change of political risk.

To further investigate if state ownership plays a role in the impact of political uncertainty, we divide our sample into SOEs and non-SOEs. There are 611 A-share listed firms in the SOE

TABLE 3 Regression results for the cash flow and volatility hypothesis.

	Cash flow hypothesis				Volatility hypothesis			
	Deps		*Dfeps*		*Dvol*		*Volfeps*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Relation	0.561**		0.029		0.002***		0.027**	
	(2.159)		(0.582)		(2.604)		(2.112)	
Rel_strength		0.454**		0.000		0.001***		0.020**
		(2.337)		(0.002)		(2.617)		(2.185)
Mtb	−0.841*	−0.847*	0.244**	0.246**	0.007***	0.007***	0.018	0.018
	(−1.804)	(−1.815)	(2.542)	(2.564)	(5.555)	(5.539)	(1.058)	(1.032)
Ana_cover	0.037**	0.037**	−0.002	−0.002	0.000***	0.000***	0.006***	0.006***
	(2.058)	(2.095)	(−0.717)	(−0.739)	(3.951)	(3.985)	(6.581)	(6.607)
Roe	−0.053	−0.052	−0.666***	−0.668***	0.002*	0.002*	0.020	0.020
	(−1.588)	(−1.591)	(−2.819)	(−2.828)	(1.729)	(1.734)	(0.749)	(0.748)
Asset_Debt	0.139	0.142	−0.028	−0.031	−0.003**	−0.003**	0.038*	0.039*
	(0.250)	(0.255)	(−0.311)	(−0.344)	(−2.466)	(−2.460)	(1.945)	(1.952)
Lnsize	−0.156	−0.157	0.034**	0.033**	−0.000	−0.000	−0.008**	−0.008**
	(−1.603)	(−1.622)	(1.979)	(1.972)	(−1.388)	(−1.417)	(−2.117)	(−2.128)
Tobinq	0.025***	0.025***	0.001**	0.001**	−0.000	−0.000	0.000	0.000
	(6.897)	(6.900)	(2.521)	(2.488)	(−0.396)	(−0.398)	(1.480)	(1.439)
Pe	−0.000	−0.000	−0.000	−0.000	−0.000	−0.000	−0.000	−0.000
	(−0.473)	(−0.475)	(−0.642)	(−0.609)	(−0.423)	(−0.424)	(−1.215)	(−1.188)
Constant	4.495**	4.519**	−1.022**	−1.018**	−0.018***	−0.018***	0.283***	0.284***
	(1.995)	(2.005)	(−2.523)	(−2.515)	(−2.970)	(−2.949)	(3.019)	(3.026)

(Continues)

TABLE 3 (Continued)

	Cash flow hypothesis				Volatility hypothesis			
	Deps		*Dfeps*		*Dvol*		*Volfeps*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Observations	1810	1810	1112	1112	1242	1242	1255	1255
R-squared	0.043	0.043	0.071	0.070	0.111	0.111	0.062	0.062
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES

Note: This table reports the regression results for the Cash Flow and Volatility Hypothesis. Columns (1)–(4) report the regression results for the cash flow hypothesis. Columns (5)–(8) report the regression results for the volatility hypothesis. Robust standard errors are clustered at the firm level and the corresponding *t*-statistics are reported in parentheses. ***, ** and * represent statistical significance at the 1%, 5% and 10% levels, respectively. 'Industry FE' stated 'YES' indicates the regression has controlled industry fixed effects.

TABLE 4 Regression results of cumulative abnormal return (CAR) with different ownership.

	SOEs		Non-SOEs	
	(1) *CAR*	(2) *CAR*	(3) *CAR*	(4) *CAR*
Relation	−0.016*		−0.023***	
	(−1.949)		(−3.820)	
Rel_strength		−0.012		−0.015***
		(−1.632)		(−3.498)
Mtb	0.017	0.018	0.058***	0.059***
	(1.518)	(1.536)	(4.233)	(4.257)
Ana_cover	−0.000	−0.000	−0.001	−0.001
	(−0.167)	(−0.143)	(−0.942)	(−0.998)
Roe	−0.010***	−0.010***	−0.001***	−0.001***
	(−3.426)	(−3.476)	(−3.172)	(−3.185)
Asset_Debt	−0.027**	−0.027**	−0.036***	−0.036***
	(−1.970)	(−1.976)	(−2.617)	(−2.611)
Lnsize	0.007**	0.007**	0.005	0.005
	(2.336)	(2.342)	(1.393)	(1.461)
Tobinq	0.000	0.000	0.000***	0.000***
	(0.664)	(0.678)	(17.072)	(17.205)
Pe	−0.000	−0.000	−0.000*	−0.000*
	(−0.136)	(−0.073)	(−1.669)	(−1.690)
Constant	−0.156**	−0.155**	−0.060	−0.066
	(−2.407)	(−2.402)	(−0.796)	(−0.882)
Observations	611	611	1199	1199
R-squared	0.044	0.043	0.045	0.044
Industry FE	YES	YES	YES	YES

Note: This table shows the regression results of the CAR over the 10 trading days after the event for SOEs and non-SOEs. Robust standard errors are clustered at the firm level and the corresponding *t*-statistics are reported in parentheses. ***, ** and * represent statistical significance at the 1%, 5% and 10% levels, respectively. 'Industry FE' stated 'YES' indicates the regression has controlled industry fixed effects.

group, among which 38 firms (or 6.22%) are related to Taiwan. We have 1199 listed firms in the non-SOE group, among which 106 firms (or 8.84%) are related to Taiwan. Table 4 shows the regression results of *CAR* with different ownership. The coefficients of *Relation* and *Rel_strength* are both positively significant at the 1% level, which means that the negative relationship between Taiwan relation and *CAR* is more pronounced in the non-SOEs.

The results in Table 3 show that the impact of political uncertainty on asset prices is mainly driven by the discount rate explanation. We further investigate whether the volatility of stock prices and the volatility of analyst earnings forecasts have differences in SOE and non-SOE groups. Panel A of Table 5 reports results for stock price volatility (*Dvol*), while Panel B of Table 5 presents results for the analyst EPS forecast volatility (*Volfeps*). The subsample results

TABLE 5 Regression results of Dvol and Volfeps with different ownership.

Panel A: *Dvol*	**SOEs**		**Non-SOEs**	
	(1) ***Dvol***	**(2)** ***Dvol***	**(3)** ***Dvol***	**(4)** ***Dvol***
Relation	−0.001		0.003***	
	(−0.593)		(3.193)	
Rel_strength		−0.001		0.002***
		(−0.662)		(3.000)
Mtb	0.007***	0.007***	0.008***	0.008***
	(3.917)	(3.937)	(3.906)	(3.881)
Ana_cover	0.000***	0.000***	0.000	0.000
	(4.277)	(4.302)	(1.475)	(1.523)
Roe	0.002	0.002	0.001	0.001
	(1.324)	(1.320)	(0.508)	(0.535)
Asset_Debt	−0.005**	−0.005**	−0.001	−0.001
	(−2.157)	(−2.177)	(−0.745)	(−0.742)
Lnsize	−0.001*	−0.001*	−0.000	−0.000
	(−1.875)	(−1.876)	(−0.660)	(−0.712)
Tobinq	0.000	0.000	−0.000	−0.000
	(1.384)	(1.387)	(−0.868)	(−0.872)
Pe	−0.000	−0.000	−0.000	−0.000
	(−1.497)	(−1.446)	(−0.393)	(−0.364)
Constant	−0.012	−0.012	−0.020**	−0.019**
	(−1.375)	(−1.376)	(−2.061)	(−2.012)
Observations	487	487	755	755
R-squared	0.142	0.142	0.135	0.133
Industry FE	YES	YES	YES	YES
Panel B: Volfeps	**SOEs**		**Non-SOEs**	
	(1) **Volfeps**	**(2)** **Volfeps**	**(3)** **Volfeps**	**(4)** **Volfeps**
Relation	−0.027		0.036**	
	(−0.699)		(2.324)	
Rel_strength		−0.025		0.025**
		(−0.818)		(2.399)
Mtb	−0.010	−0.008	0.030	0.029
	(−0.273)	(−0.234)	(0.882)	(0.861)
Ana_cover	0.001	0.001	0.007***	0.007***
	(0.259)	(0.267)	(3.767)	(3.796)
Roe	0.008	0.008	0.055	0.056
	(0.375)	(0.382)	(1.152)	(1.168)

TABLE 5 (Continued)

Panel B: Volfeps	SOEs		Non-SOEs	
	(1) Volfeps	(2) Volfeps	(3) Volfeps	(4) Volfeps
Asset_Debt	−0.085	−0.086	0.032	0.033
	(−0.525)	(−0.532)	(1.185)	(1.214)
Lnsize	−0.005	−0.005	−0.004	−0.004
	(−0.807)	(−0.803)	(−0.621)	(−0.655)
Tobinq	−0.005	−0.005	0.000	0.000
	(−0.550)	(−0.549)	(0.797)	(0.699)
Pe	−0.000	−0.000	−0.000	−0.000
	(−1.183)	(−1.139)	(−0.651)	(−0.570)
Constant	0.258	0.257	0.278	0.283
	(1.571)	(1.567)	(1.506)	(1.527)
Observations	372	372	883	883
R-squared	0.012	0.012	0.060	0.060
Industry FE	YES	YES	YES	YES

Note: This table reports the regression results of *Dvol* and *Volfeps* with different ownership. Panel A reports results for stock price volatility (*Dvol*), while Panel B presents results for the analyst EPS forecast volatility (*Volfeps*). Robust standard errors are clustered at the firm level and the corresponding *t*-statistics are reported in parentheses. ***, ** and * represent statistical significance at the 1%, 5% and 10% levels, respectively. 'Industry FE' stated 'YES' indicates the regression has controlled industry fixed effects.

are similar in these two panels. The coefficients of *Relation* and *Rel_strength* are both positively significant in the non-SOEs and insignificant in the SOEs, which means that the positive relationship between Taiwan relation and volatility is more pronounced in the non-SOEs. This evidence suggests the impact of political uncertainty on the stock prices of Taiwan-related A-share firms is mainly driven by non-SOEs, and our results are consistent with the discount rate explanation.

4.6 | Robustness check

We conduct two robustness tests. First, we use a placebo test to exclude the confounding effect on the event date. The event date, 1 July 2016, is the CPC Founding Day. Our findings in the previous section may be caused by the CPC Founding Day, rather than by the misfired missile event from Taiwan. If our findings are indeed caused by the misfired missile from Taiwan, our main results for the Taiwan-related measure (*Relation* and *Rel_strength*) should not be significant on other dates. We conduct a placebo test and take 1 July 2015 and 1 July 2017 as the event dates, then collect data from relevant annual reports and do the same regression tests. The results of robustness tests can be found in the Supporting Information: Table OA3. *Relation* and *Rel_strength* are all insignificant in the Supporting Information: Table OA3. Second, we also use the same method to construct two measures (*Relation_US* and *Rel_strength_US*) to indicate US-related

firms listed in A-shares. We repeat our main test and cannot find a significant negative relationship between *CAR* and US-related measures in the Supporting Information: Table OA3. Our robustness check suggests that our findings are indeed driven by the Taiwan misfired missile event.

5 | CONCLUSION

By using the Taiwan misfired missile event on 1 July 2016 as an exogenous shock, we identify the causal effect of potential military risk on the Chinese A-share market. We find that political uncertainty related to Taiwan will have a significant negative impact on the stock prices of Taiwan-related A-share firms, especially for firms that have stronger relationship with Taiwan. Further analysis shows that the increased required rate of return due to higher political uncertainty is the main driving force of the stock price decline and the impact of political uncertainty on the stock prices of Taiwan-related firms is more pronounced in non-SOEs. These findings provide us with a better understanding of how political risk may affect the stock market.

In terms of practical implications, our study contributes to the literature by highlighting the negative impact of political risk on stock market performance, particularly in the context of the potential conflicts between mainland China and Taiwan. Our findings suggest that investors should pay attention to political events and adjust their investment strategies accordingly to minimise the risk of financial losses. Practitioners in the finance industry, such as fund managers and analysts, could also use our results to better understand the relationship between political risk and stock market performance and incorporate political risk assessments in their investment decisions. Since our paper mainly focuses on military risk, future studies could explore the impact of other types of political risk and examine their effects on other financial markets or other regions such as the South Asia and Southeast Asia regions. Additionally, we suggest that future research could extend our study by examining the impact of political risk on other economic variables, such as trade and investment flows. It would also be interesting to investigate the impact of political risk on firms' performance and their decisions regarding investment and financing activities.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from CSMAR Database (Shenzhen CSMAR Data Technology Co., Ltd). Restrictions apply to the availability of these data, which were used under license for this study. Data are available from https://www.gtarsc.com/ with the permission of CSMAR Database (Shenzhen CSMAR Data Technology Co., Ltd).

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REFERENCES

An, H., Chen, Y., Luo, D., & Zhang, T. (2016). Political uncertainty and corporate investment: Evidence from China. *Journal of Corporate Finance*, *36*, 174–189.

Badshah, I., Demirer, R., & Suleman, M. T. (2019). The effect of economic policy uncertainty on stock-commodity correlations and its implications on optimal hedging. *Energy Economics*, *84*, 104553.

Bahmani-Oskooee, M., & Xi, D. (2011). Economic uncertainty, monetary uncertainty and the demand for money in Australia. *Australian Economic Papers*, *50*(4), 115–128.

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The Quarterly Journal of Economics*, *131*(4), 1593–1636.

Banerjee, P., & Dutta, S. (2022). The effect of political risk on investment decisions. *Economics Letters*, *212*, 110301.

Caldara, D., & Iacoviello, M. (2022). Measuring geopolitical risk. *American Economic Review*, *112*(4), 1194–1225.

Chau, F., Deesomsak, R., & Wang, J. (2014). Political uncertainty and stock market volatility in the Middle East and North African (MENA) countries. *Journal of International Financial Markets, Institutions and Money*, *28*, 1–19.

Darby, J., & Roy, G. (2019). Political uncertainty and stock market volatility: New evidence from the 2014 Scottish Independence Referendum. *Scottish Journal of Political Economy*, *66*(2), 314–330.

Doan, A. T., Le, A. T., & Tran, Q. (2020). Economic uncertainty, ownership structure and small and medium enterprises performance. *Australian Economic Papers*, *59*(2), 102–137.

Gao, X., Ren, Y., & Li, X. (2019). The interdependence of global oil price, ChinaChina's stock price and economic policy uncertainty. *Australian Economic Papers*, *58*(4), 398–415.

Gonçalves, T., Barros, V., & Serra, G. (2022). Political elections uncertainty and earnings management: Does firm size really matter? *Economics Letters*, *214*, 110438.

Graham, R. C., Jr., Morrill, C. K., & Morrill, J. B. (2005). The value relevance of accounting under political uncertainty: Evidence related to Quebec's independence movement. *Journal of International Financial Management & Accounting*, *16*(1), 49–68.

He, C., Li, Y., & Zhu, J. (2022). The effect of firm-level perception of uncertainty on innovation: Evidence from ChinaChina's listed firms. *Economics Letters*, *221*, 110886.

Hillier, D., & Loncan, T. (2019). Political uncertainty and stock returns: Evidence from the Brazilian political crisis. *Pacific-Basin Finance Journal*, *54*, 1–12.

Ifwarsson, E. J. V., Kleiven, L. E., Sendstad, L. H., & Hagspiel, V. (2021). Policy uncertainty in Scandinavian countries. *Economics Letters*, *209*, 110121.

Kelly, B., Pastor, L., & Veronesi, P. (2016). The price of political uncertainty: Theory and evidence from the option market. *The Journal of Finance*, *71*(5), 2417–2480.

Liu, L. X., Shu, H., & Wei, K. J. (2017). The impacts of political uncertainty on asset prices: Evidence from the Bo scandal in China. *Journal of Financial Economics*, *125*(2), 286–310.

Luo, J. H., Gong, M., Lin, Y., & Fang, Q. (2016). Political connections and stock price crash risk: Evidence from China. *Economics Letters*, *147*, 90–92.

Pastor, L., & Veronesi, P. (2012). Uncertainty about government policy and stock prices. *The Journal of Finance*, *67*(4), 1219–1264.

Pastor, L., & Veronesi, P. (2013). Political uncertainty and risk premia. *Journal of Financial Economics*, *110*(3), 520–545.

Smales, L. A. (2016). The role of political uncertainty in Australian financial markets. *Accounting & Finance*, *56*(2), 545–575.

Tang, W., Ding, S., & Chen, H. (2021). Economic uncertainty and its spillover networks: Evidence from the Asia-Pacific countries. *Pacific-Basin Finance Journal*, *67*, 101539.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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