Geo-political Risks and Foreign Institutional Investors: Evidence from the Taiwan Stock Market

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WARREN BUFFETT

Warren Buffett says the threat of war was a 'consideration' in his decision to dump the bulk of his $4 billion stake in chipmaker giant TSMC

BY CHRISTIAAN HETZNER
April 13, 2023 at 2:47 AM GMT+8

Warren Buffett liquidated the bulk of his $4 billion stake in TSMC over fears of a possible war engulfing Taiwan.
JOHANNES EISELE—AFP/GETTY IMAGES

https://fortune.com/europe/2023/04/12/warren-buffett-tsmc-taiwan-chipmaker-china-war-foxconn-terry-gou-emmanuel-macron/

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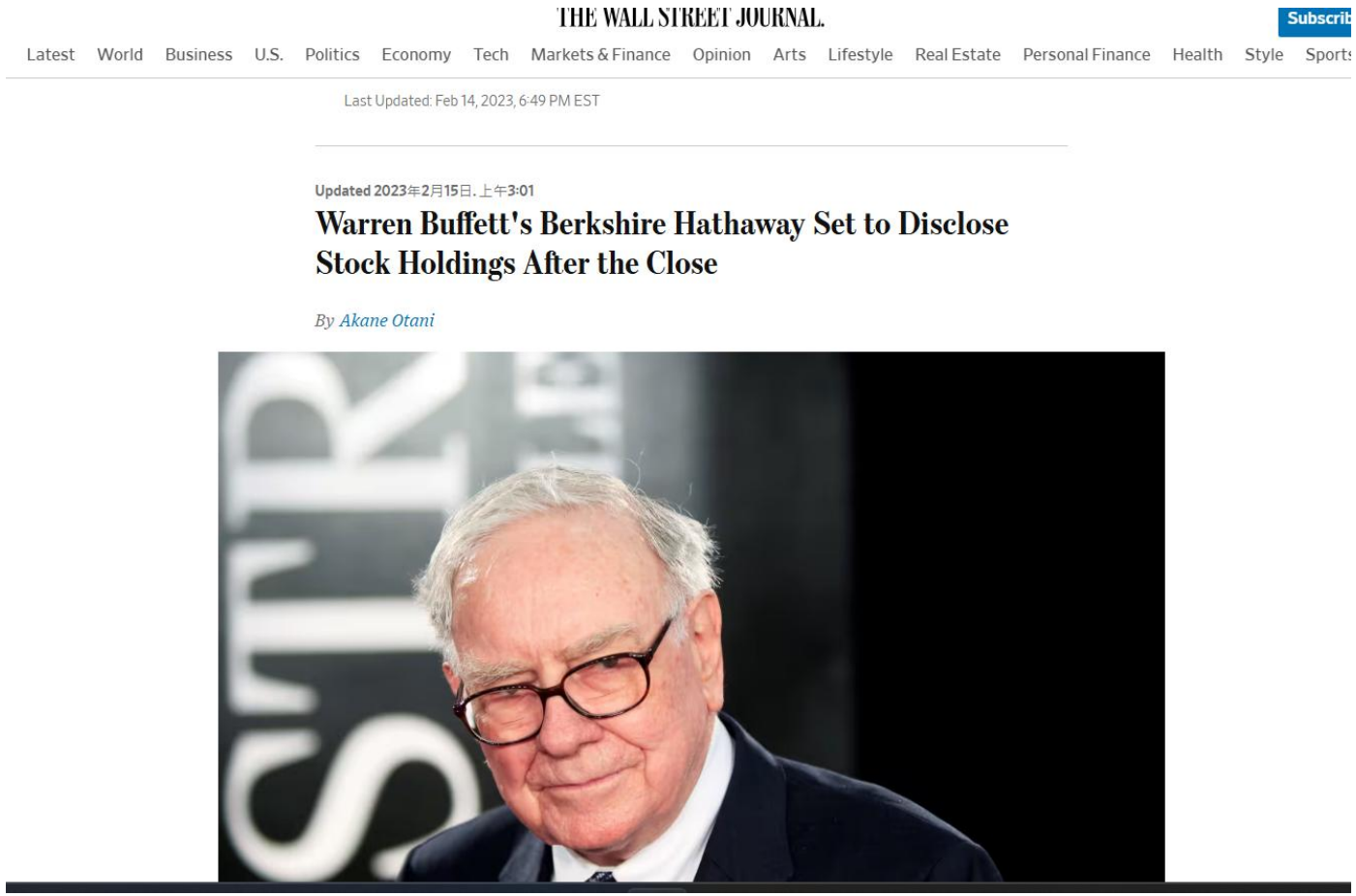
TECH · TSMC

Warren Buffett sold his $5bn stake in Taiwan's TSMC in 2022, citing geopolitical tensions. But it's soaring, with a 90% share in advanced chips made for AI

BY JOHN CHENG, BETTY HOU AND BLOOMBERG
March 18, 2024 at 6:56 PM GMT+8

The factory of Taiwan Semiconductor Manufacturing Company (TSMC) in Nanjing, Jiangsu province, China, on August 1, 2023.
COSTFOTO/NURPHOTO VIA GETTY IMAGES

https://fortune.com/asia/2024/03/18/warren-buffett-sold-5bn-stake-taiwans-tsmc-2022-citing-geopolitical-tensions-soaring-90-share-advanced-chip-ai/



https://www.wsj.com/livecoverage/stock-market-news-today-02-14-2023/card/warren-buffett-s-berkshire-hathaway-set-to-disclose-fourth-quarter-equity-holdings-SYTwcatTAnWNGxdQfGlw

Background

- Financial markets have suffered from sequential exogenous shocks, such as the Sino-U.S. trade war, the Covid-19 pandemic, and the Russo-Ukrainian War.
- For institutional investors, the political ideological alignment between them and local government becomes the important decision indicator (Kempf et al. (2023)).
- Mapping to the East Asia area, the geo-political risk between Taiwan and China also attracted great attention from investors since the Russo-Ukrainian War outbreak.
- Therefore, disentangling the potential nexus between the stock market and the geo-political risk, caused by the war, provides important implications for investors, practitioners, and academics.

Political Risk and Stock Market (Negative Impact)

Kim and Mei (2001, JIMF)	Political developments in Hong Kong have a significant impact on its market volatility and return after filter the potential volatility jumps.
Perotti and Van Oijen (2001, JIMF)	Changes in political risk in general tend to have a strong effect on local stock market development and excess returns in emerging economies.
Frijns et al. (2012, JBF)	Assess how political crisis impacts on the stock market integration in South and East Asia, Latin America, and Central and Eastern Europe and find that political risk reduces the level of stock market integration

Political Risk and Firm-Investment (Negative Impact)

Julio & Yook, (2012, JF)	During national election years around the world, firms reduce investment expenditures by an average of 4.8% relative to nonelection years.
Julio & Yook (2016, Journal of International Economics)	FDI flows from US companies to foreign affiliates drop significantly during the period just before an election and increase after the uncertainty is resolved.
Pástor & Veronesi (2012, JF): Theoretical model.	The price decline should be large if uncertainty about government policy is large, and also if the policy change is preceded by a short or shallow economic downturn.
Pástor & Veronesi (2013 JFE): Theoretical model.	Political uncertainty reduces the value of the implicit put protection that the government provides to the market. It also makes stocks more volatile and more correlated, especially when the economy is weak.

How Important of Geo-Political Risk is?

https://www.msci.com/www/blog-posts/understanding-geopolitical-risk/04906200027

Some Geo- or Political- Risk Measures

Hassan et al. (2019, QJE): Political Risk	Use computational linguistics to construct a new measure of political risk faced by individual U.S. firms: the share of their quarterly earnings conference calls that they devote to political risks
Caldara & lacoviello (2022, AER):Geo-Political Risk	We present a news-based measure of adverse geopolitical events and associated risks.
Kempf et al. (2023, JFE): Geo-Political Risk.	Investors political Ideological distance between countries explains not only variation in bilateral investment.

Motivation 1: Potential Black Swan Event

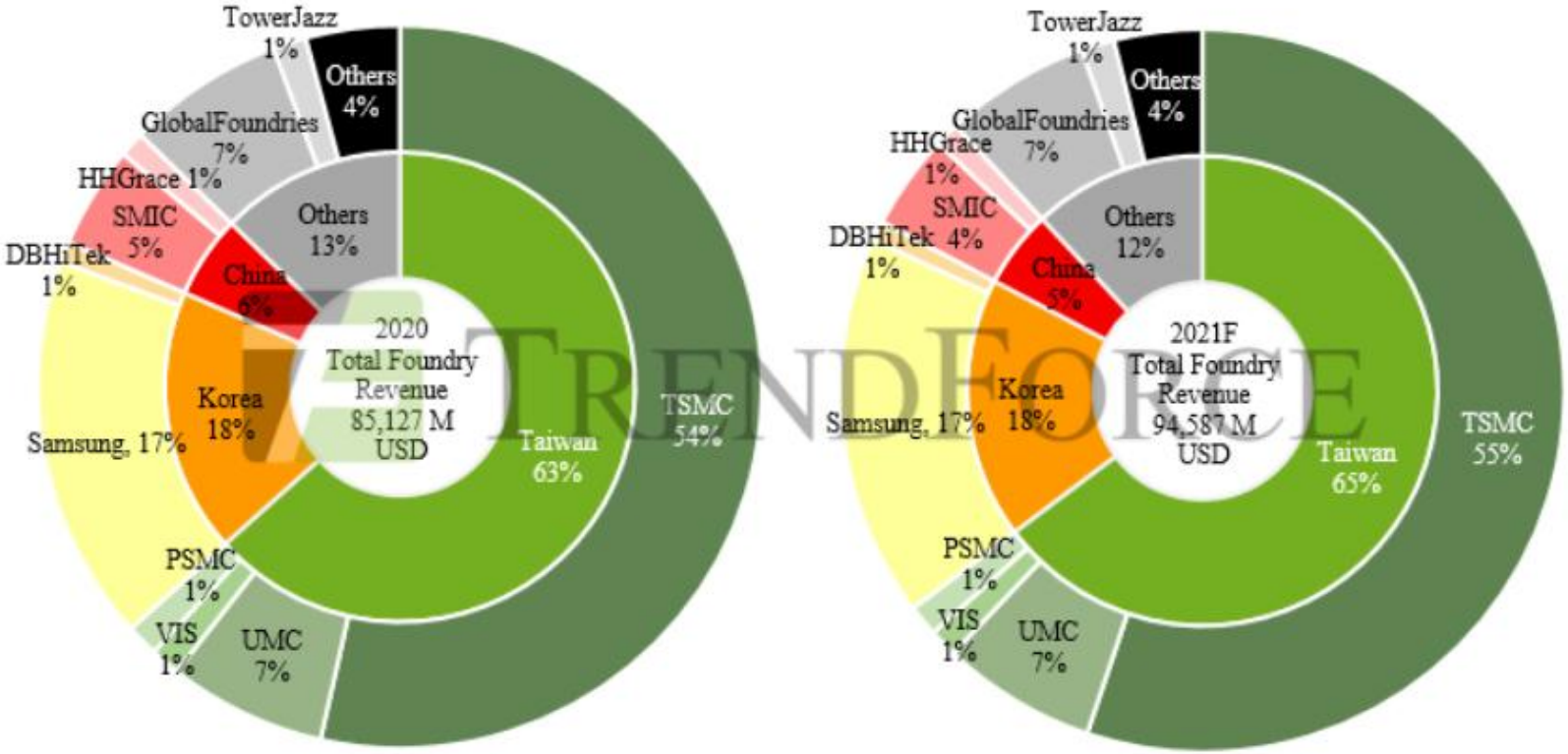
- 1. Long historical relationship present in East Asia:
- Greenspan: The increasing geo-political risk surrounding East Asia. Specifically, there is a certain probability that China will start to exert special military operations in Taiwan."
- https://markets.businessinsider.com/news/stocks/china-taiwan-war-alan- greenspan-federal-reserve-chair-xi-jinping-2023-1#:~:text=Investors%20should%20start%20worrying%20more%20about%20China%20%E2%80%93,%22black%20swan%22%20risk%20to%20financial%20markets%20right%20now.
- 2. The Impact of geo-political risk on the chips supply chain
- Warren Buffett: Geo-political tensions were a consideration in the decision to sell most of Berkshire Hathaway's shares in global chip giant TSMC, which is based in Taiwan
- *NASDAQ:* The biggest yellow flag for investing in TSMC is undoubtedly the geopolitical risk surrounding the company. Tensions between China and Taiwan, as well as U.S.-China relations, pose potential risks that could disrupt production and supply chains and lead to export restrictions, sanctions, and other barriers affecting TSMC.

Motivation 1

- 1. In East Asia, increasing geo-political risk spikes attention around the world. The historical relationship between Taiwan and China deduces the current intensive political atmosphere.
- European Council on Foreign Relations (2023) mentions that "Ukraine today, Taiwan tomorrow" is an oft-heard phrase nowadays on the island of Taiwan. https://ecfr.eu/article/how-tomorrow-never-comes-russias-war-against-ukraine-and-its-impact-on-taiwan/
- Reuters (2023) assert that the 5-year credit default swap spread significantly arises 176 basis points since following by the war outbreaks. https://www.reuters.com/markets/asia/investors-consider-battle-plans-amid-risk-china-taiwan-conflict-2023-02-28/
- CNN (2022) posit that foreign institutional investor divest about480 billion Taiwanese dollars ($16.9 billion) since the war outbreaks. https://edition.cnn.com/2022/03/23/investing/taiwan-investment-jitters-russia-ukraine-intl-hnk/index.html
- 2. The negative impacts of invasion from China on the Taiwan is conjectured.
- The Taiwan Semiconductor Manufacturing Co. (TSMC) itself churns out 54% of the global semiconductors. This clears the picture of why the U.S. and China are so focused on Taiwan

Share of Chip supply chain: Taiwan Semiconductor Manufacturing Company (TSMC)

Figure 1: Foundry Market Share, 2020-2021

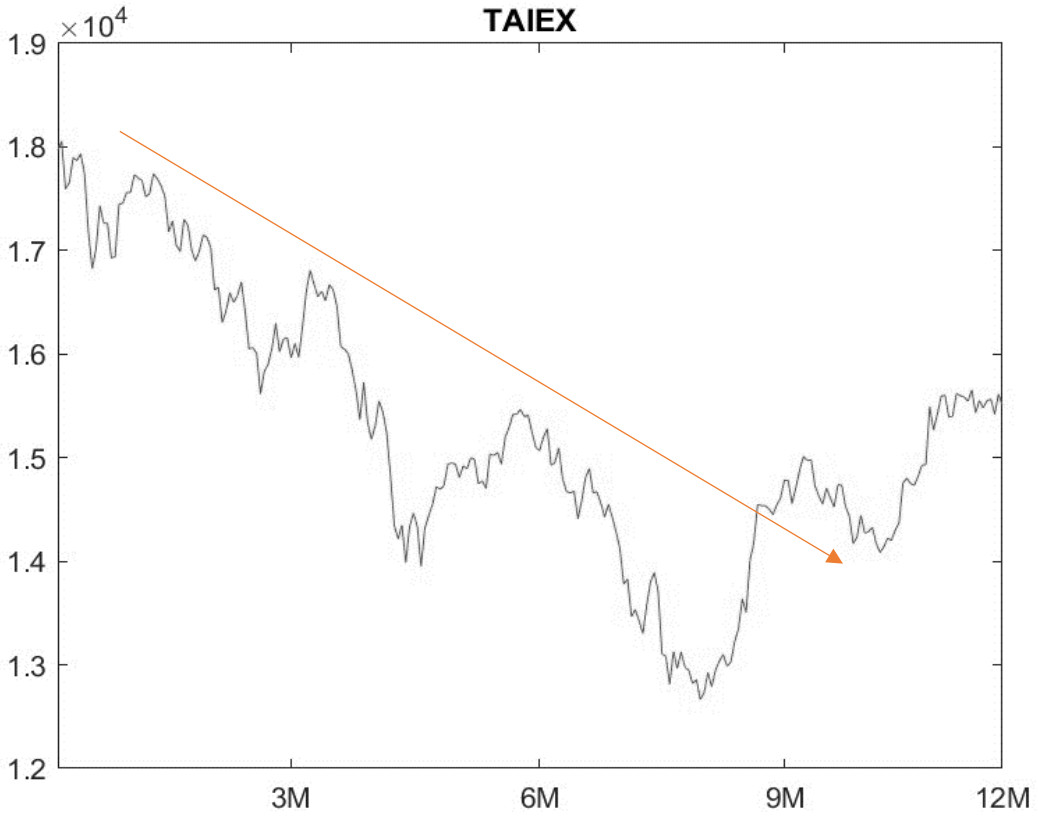


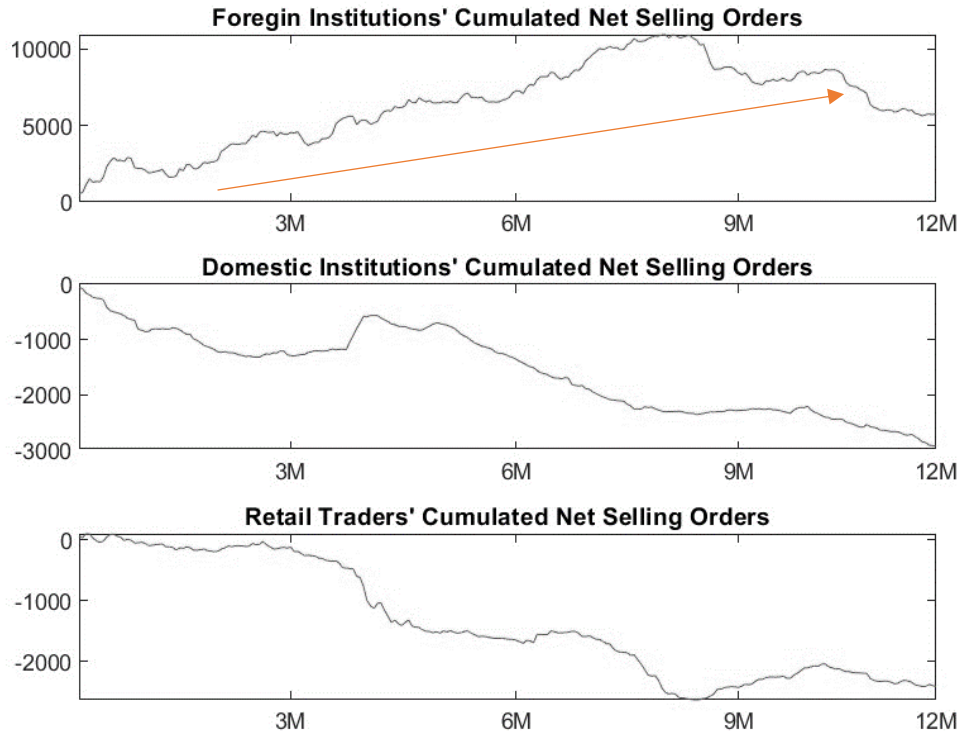
Source: TrendForce, Mar., 2021

Motivation 2

- 1. The USA attitude toward the China
- The 2017 National Security Strategy of the United States of America (NSS) exhibits that China challenge American power, influence, and interests, attempting to erode American security and prosperity.
- https://trumpwhitehouse.archives.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf
- 2. The reaction of the stock market on the geo-political risk
- During the outbreak of unfavorable events, investors' negative sentiment compels significant selling pressure in the market.
- Notably, the manifestly declining trend of Taiwan stock market index could be observed since the war broke out. Besides, the increasing net selling order for the foreign institutional investors is obtained (Next Slide).

Motivation





Net_Selling= Selling_Volumn-Buying_Volumn

What is the extent of the loss of the Taiwan stock market when facing the threat from China after the Russo-Ukrainian War, and what is the behavior of the foreign institutional investors adopt?

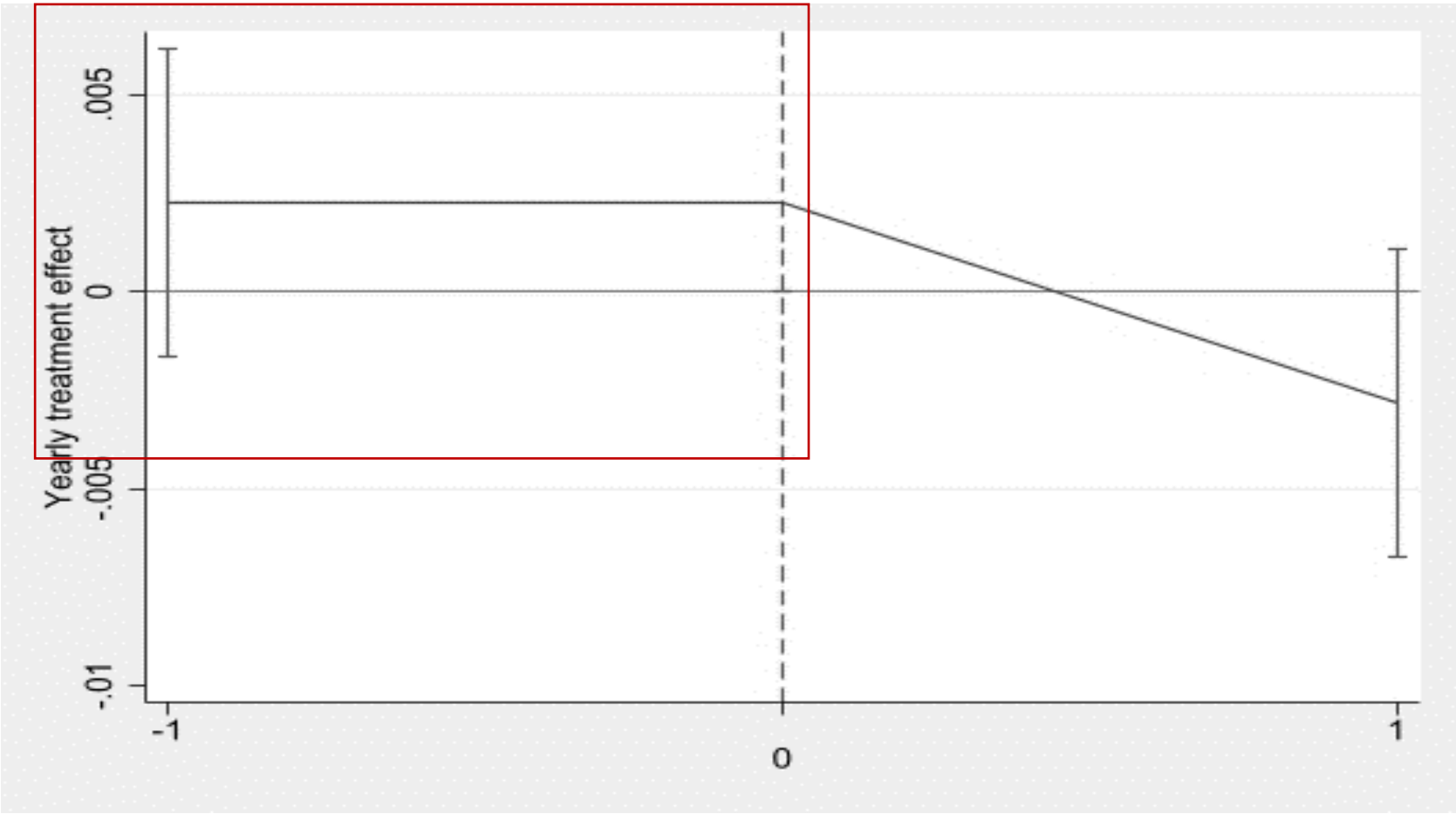
Data and Method

- 1. Data
- Our data is collected from the Taiwan Economic Journal (TEJ).
- The data period spans from Febuarary-22 2022 to February-24 2023.
- The day of the Russo-Ukrainian War is February-24 2022, defined as the event day. One day before and after the war are regarded as pre- and post-events, respectively.
- Meanwhile, the firm with foreign institutional exposure in top (bottom) 30% is defined as the treatment (control).
- Initially, we investigate whether the treated firms suffer more than the control when the war outbreak by applying a Difference-in-Difference approach.

Summary Statistics

	Treated firms		Control firms	
	Mean	Std	Mean	Std
Panel (a): Pre-Event (*t*=-1)				
Return	0.0088	0.0146	0.0077	0.0135
Volume	0.7357	2.0603	0.0251	0.1639
Parkinson volatility	0.8050	1.5986	0.3289	1.8550
Turnover_Ratio	1.4642	2.0258	0.4460	0.7966
Panel (b): Event Day (*t*=0)				
Return	-0.0212	0.0156	-0.0196	0.0210
Volume	0.9779	2.4546	0.0375	0.2169
Parkinson volatility	1.1991	2.3675	0.4967	2.3045
Turnover_Ratio	1.9592	2.3365	0.7278	1.0032
Panel (c): Post Event (*t*=+1)				
Return	0.0046	0.0175	0.0069	0.0156
Volume	1.0637	2.9090	0.0269	0.1455
Parkinson volatility	1.1989	2.7325	0.3636	1.5656
Turnover_Ratio	1.7436	2.2745	0.5464	0.7784

Parallel Trend Tests (Return)



Methodology (Return)

$$Ret_{i,t} = \alpha_{i,t} + \beta_1 Treat_{t-1} \times War\_outbreaking_{t-1} + \beta X_{t-1} + \eta_{Firm} \quad (1)$$
$$+ \eta_{Time} + \varepsilon_{it},$$

1. $War\_Outbreak$ is a dummy variable that is equal to one after the war breaks out.

2. $Treat$ is a dummy variable that is equal to one if the foreign institutional ownership is in the top 30% and zero otherwise before the outbreak of the war.

3. X: market-to-book equity (*MB*), *Cash, Foreign Institutional Ownership Ratio (FIO), PPE_Ratio,* systemic risk (*Rolling_Beta*), idiosyncratic risk (*Rolling_IVOL*), and market crash risk *(Rolling_NCSKEW*),

Main Results 1

Table 2. Geopolitical Risks and Stock Returns

	(1)	(2)
	Return	*Return*
$Treat_{t-1} \times War\_outbreak_{t-1}$	-0.0043***	-0.0041***
	(-2.59)	(-2.59)
Fixed Effect		
Time	Y	Y
Firm	Y	Y
Controls	Y	Y
Adj. R^2	0.4619	0.4694
Obs.	1503	1503

This table presents the regression results for the outbreak of the Russian-Ukrainian War on stock returns. The dependent variable is the stock return during one day before and after the outbreak. The *Treat* is a dummy variable that equals one if the holdings of foreign institutional ownership are in the top 30% and zero otherwise. The *War_outbreak* is a dummy variable that equals one if after the outbreak date and zero otherwise. The time and firm fixed effects are controlled in the regression. The standard error is clustered at the firm level. The ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Main Results 2

Table 3. Geopolitical Risks and Trading Volume

	(1)	(2)
	Trading_Volume	*Trading_Volume*
$Treat_{t-1} \times War\_outbreak_{t-1}$	0.2863***	0.2830***
	(3.61)	(3.56)
Fixed Effect		
Time	Y	Y
Firm	Y	Y
Controls	Y	Y
Adj. R^2	0.8915	0.8915
Obs.	1503	1503

This table presents the regression results of the outbreak of the Russian-Ukrainian War on trading volume The dependent variable is the market-based trading volume during one day before and after the outbreak. The *Treat* is a dummy variable that equals one if the holdings of foreign institutional ownership are in the top 30% and zero otherwise. The *War_outbreak* is a dummy variable that equals one if after outbreak date and zero otherwise. The time and firm fixed effects are controlled in the regression. The standard error is clustered at the firm level. The ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Main Results 3

Table 4. Geopolitical Risks and Parkinson Volatility

	(1)	(2)
	Parkinson	*Parkinson*
$Treat_{t-1} \times War\_outbreak_{t-1}$	0.2092***	0.2166***
	(3.09)	(3.19)
Fixed Effect		
Time	Y	Y
Firm	Y	Y
Controls	Y	Y
Adj. R^2	0.9059	0.9061
Obs.	1503	1503

This table presents the regression results for the outbreak of the Russian-Ukrainian War on Parkinson volatility. The dependent variable is the stock return during one day before and after the outbreak. The *Treat* is a dummy variable that equals one if the holdings of foreign institutional ownership are in the top 30% and zero otherwise. The *War_outbreak* is a dummy variable that equals one if after the outbreak date and zero otherwise. The time and firm fixed effects are controlled in the regression. The standard error is clustered at the firm level. The ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Main Results 4

Table 5. Geopolitical Risks and Turnover Ratio

	(1)	(2)
	Turnover	*Turnover*
$Treat_{t-1} \times War\_outbreak_{t-1}$	0.3067**	0.3051**
	(2.23)	(2.21)
Fixed Effect		
Time	Y	Y
Firm	Y	Y
Controls	Y	Y
Adj. R^2	0.7570	0.7607
Obs.	1503	1503

This table presents the regression results for the outbreak of the Russian-Ukrainian War on turnover ratios. The dependent variable is the stock turnover ratio during one day before and after the outbreak. The *Treat* is a dummy variable that equals one if holdings of foreign institutional ownership are in the top 30% and zero otherwise. The *War_outbreak* is a dummy variable that equals one if after the outbreak date and zero otherwise. The time and industry fixed effects are controlled in the regression. The standard error is clustered at the Time level. The ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Mechanism:
The Characteristics of Divested Firms

- 1. Frim with lower operation performances: Following Liao & Chou (1995) and Dut & Humphery-Jenner (2013), firms with lower sale-to-price, inventory turnover, and total asset turnover ratios are prone to have lower future returns or poor profitability.

- 2. Firm with higher volatility: According to Ang et al. (2009) and Feng et al. (2015) assert that the higher volatility and idiosyncratic risk induce lower future returns.

- 3. Firm with higher liquidity: Ben-Daivd et al. (2021) point out that stock prices of the firm with higher institutional ownership prone possess the manifestly noise, resulting in creating higher trading volume. Barinov (2014) shows that high turnover firms have low expected returns because they have high uncertainty, and the high uncertainty makes them a hedge against aggregate volatility risk.

Mechanism: Lower Operation Performance

Table 6. Geopolitical Risks and Stock Returns: Operating Performances

	(1)	(2)	(3)
	Return	*Return*	*Return*
$Treat_{t-1} \times War\_outbreak_{t-1}$	-0.0008	-0.0012	-0.0015
	(-0.46)	(-0.69)	(-0.87)
$Sale/Market50 \times Treat_{t-1} \times War\_outbreak_{t-1}$	-0.0067***		
	(-2.93)		
$INVTR50 \times Treat_{t-1} \times War\_outbreak_{t-1}$		-0.0071***	
		(-2.94)	
$DIV50 \times Treat_{t-1} \times War\_outbreak_{t-1}$			-0.0070***
			(-2.67)
Fixed Effect			
Time	Y	Y	Y
Firm	Y	Y	Y
Controls	Y	Y	Y
Adj. R^2	0.4729	0.4732	0.4729
Obs.	1503	1503	1503

The $Sale/Market50$ is a dummy variable that equals one if sale-to-market value of the firm is in the bottom 50% and zero otherwise. The $INVTR50$ is a dummy variable that equals one if the inventory turnover ratio of the firm is in the bottom 50% and zero otherwise. The $DIV50$ is a dummy variable that equals one if and only if the dividends yield of the firm is in the bottom 50% and zero otherwise. The time and firm fixed effects are controlled in the regression. The standard error is clustered at the firm level. The ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Mechanism: Higher Risk

Table 7. Geopolitical Risks and Stock Returns: Risk Factors

	(1)	(2)	(3)
	Return	*Return*	*Return*
$Treat_{t-1} \times War\_outbreak_{t-1}$	0.0026	0.0024	0.0023
	(1.65)	(1.46)	(1.62)
$Rolling\_Beta50 \times Treat_{t-1} \times War\_outbreak_{t-1}$	-0.0130***		
	(-5.81)		
$Rolling\_IVOL50 \times Treat_{t-1} \times War\_outbreak_{t-1}$		-0.0125***	
		(-5.67)	
$GK50 \times Treat_{t-1} \times War\_outbreak_{t-1}$			-0.0119***
			(-5.46)
Fixed Effect			
Time	Y	Y	Y
Firm	Y	Y	Y
Controls	Y	Y	Y
Adj. R^2	0.4838	0.4829	0.4814
Obs.	1503	1503	1503

The $Rolling\_Beta50$ is a dummy variable that equals one if the rolling beta of the firm is in the top 50% and zero otherwise. The $Rolling\_IVOL50$ is a dummy variable that equals one if the rolling idiosyncratic risk of the firm is in the top 50% and zero otherwise. The $GK50$is a dummy variable that equals one if the Garman Klass volatility of the firm is in the top 50% and zero otherwise. The time and firm fixed effects are controlled in the regression. The standard error is clustered at the firm level. The ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Mechanism: Higher Liquidity

Table 8. Geopolitical Risks and Stock Returns: Market Liquidity

	(1)	(2)	(3)
	Return	*Return*	*Return*
$Treat_{t-1} \times War\_outbreak_{t-1}$	0.0021	0.0020	0.0025
	(1.09)	(1.22)	(1.13)
$Volume50 \times Treat_{t-1} \times War\_outbreak_{t-1}$	-0.0081***		
	(-3.75)		
$Turnover50 \times Treat_{t-1} \times War\_outbreak_{t-1}$		-0.0096***	
		(-4.60)	
$Amihud50 \times Treat_{t-1} \times War\_outbreak_{t-1}$			-0.0085***
			(-3.54)
Fixed Effect			
Time	Y	Y	Y
Firm	Y	Y	Y
Controls	Y	Y	Y
Adj. R^2	0.4732	0.4767	0.4734
Obs.	1503	1503	1503

The $Volume50$ is a dummy variable that equals one if volume of the firm is in the top 50% and zero otherwise. The $Turnover50$ is a dummy variable that equals one if turnover ratio of the firm is in the top 50% and zero otherwise. The $Amihud50$ is a dummy variable that equals one if the Amihud illiquidity of the firm is in the bottom 50% and zero otherwise. The time and firm fixed effects are controlled in the regression. The standard error is clustered at the firm level. The ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Theory of Stochastic Dominance

The Definition of Three Orders Stochastic Dominance

The cumulative distributions of the returns of two risky options *X* and *Y* are denoted by G_x and H_y. Let $Q_G(p)$ and $Q_{\mathrm{H}}(p)$ denote the p^{th} order quantiles of the distributions *G* and *H*. Let U_1 be the set of all non-decreasing utility functions, U_2 be the set of all non-decreasing concave utility functions, and U_3 be the set of all non-decreasing concave positive skewness function. This study defines that *G* dominates *H* in U_i, (for $i = 1, 2, 3$) or GD_iH, if for every $u \in U_i$, $E_{\mathrm{G}}u(x) \geq E_H u(y)$. The first-, second-, and third- order stochastic dominance (FSD, SSD, and TSD) rules are written as follows.

Theorem 1 (FSD): $G_x D_1 H_y$ if and only if, $Q_G(p) \geq Q_H(p)$, $\forall p$ with a strict inequality for at least one *p*.

Theorem 2 (SSD): $G_x D_2 H_y$ if and only if $\int_0^p [Q_G(t) - Q_H(t)]dt \geq 0$, $\forall p$ with a strict inequality for at least one *p*.

Theorem 3 (TSD): $G_x D_3 H_y$ if and only if $\int_0^x \int_0^p [Q_G(z) - Q_H(z)]dzdp \geq 0$, $\forall p$ with a strict inequality for at least one *p*.

Linton-Maasoumi-Whang (2005)

- Let $G_x(r)$ and $H_y(r)$ be the CDF of the random variables X and Y, respectively.
  - Let $G_x^{(J)}(r) = \int_{-\infty}^{r} G_x^{(J-1)}(u)\,du$ and $H_y^{(J)}(r) = \int_{-\infty}^{r} H_y^{(J-1)}(u)\,du$, J = 1,2, ….
    - H_0: $G_x^{(J)}(r) \leq H_y^{(J)}(r)$ for all r (i.e., A$\succ_J$B)
    - H_1: $G_x^{(J)}(r) > H_y^{(J)}(r)$ for some r (i.e., A$\not\succ_J$B)
- where $\succ_J$ indicates stochastic dominance at the J-th order. Let $\{(r_{Ai}, r_{Bi}) : i = 1,\ldots, n\}$ be buy-and-hold return of A and B.

Linton-Maasoumi-Whang (2005)

- The test statistic proposed by LMW is:
  - $\overline{LMW}^{(J)} = \sup_r \sqrt{n}\{\widehat{F_A}^{(J)}(r) \leq \widehat{F_B}^{(J)}(r)\},$
- where the operator $\hat{F}^{(J)}$ can be shown as:
  - $\widehat{F_A}^{(J)}(r) = \frac{1}{n(J-1)!}\sum_{i=1}^{n}(r - r_{Ai})^{J-1} I(r_{Ai} \leq r),$
  - $\widehat{F_B}^{(J)}(r) = \frac{1}{n(J-1)!}\sum_{i=1}^{n}(r - r_{Bi})^{J-1} I(r_{Bi} \leq r),$
- where $I(\cdot)$ is the indicator function.
- Test statistic for a sub-sample of size b given the data sample.
  - $\overline{LMW}_k^{(J)} = \sup_r \sqrt{n}\left\{\widehat{F_{A,k}}^{(J)}(r) \leq \widehat{F_{B,k}}^{(J)}(r)\right\} for\ k = 1, \dots, n - b + 1$
    - $\hat{p} = \frac{1}{n-b+1}\sum_{k=1}^{n-b+1} I(\overline{LMW}_k^{(J)} - \overline{LMW}^{(J)} > 0)$

Some Application Papers

- 1. Annaert, J., Van Osselaer, S., & Verstraete, B. (2009). Performance evaluation of portfolio insurance strategies using stochastic dominance criteria. *Journal of Banking & Finance*, *33*(2), 272-280.
- 2. Linton, O., Maasoumi, E., & Whang, Y. J. (2005). Consistent testing for stochastic dominance under general sampling schemes. *Review of Economic Studies*, *72*(3), 735-765.
- 3. Fong, W. M. (2010). A stochastic dominance analysis of yen carry trades. *Journal of Banking & Finance*, *34*(6), 1237-1246.
- 4. Chang, C. L., Jiménez-Martín, J. Á., Maasoumi, E., & Pérez-Amaral, T. (2015). A stochastic dominance approach to financial risk management strategies. *Journal of Econometrics*, *187*(2), 472-485.

The Comparisons of Buy-and-Hold-Return (BHR): Stochastic Dominance Approach

Table 9. The Results of Comparison of Buy-and-Hold Return Between the Treated and Control Firms

Buy-and-Hold Return	3 Months		6 Months	
	$H_0^1: Treat \succ Control$	$H_0^2: Control \succ Treat$	$H_0^1: Treat \succ Control$	$H_0^2: Control \succ Treat$
FSD	0.0000***	1.0000	0.0000***	0.5000
SSD	0.0000***	1.0000	0.0000***	1.0000
TSD	0.0000***	0.6667	0.0000***	1.0000

Treat and Control represents the BHR of treated firms and that of corresponding control firms, respectively. Applying the LMW test, proposed by Linton et al. (2005), the p-values are shown on panel (b). Two null hypotheses, including the $H_0^1: Treat \succ Control$ and the $H_0^2: Control \succ Treat$, are respectively shown above. Standing for the SD decision rule, three possible conclusions are as follows: First, no dominant relationship can be obtained while both null hypotheses are accepted or rejected. Next, treated firms outperform the control firms while the $H_0^1: Treat \succ Control$ is accepted and $H_0^2: Control \succ Treat$ is rejected. Finally, the observation that accepting $H_0^2: Control \succ Treat$ and rejecting the $H_0^1: Treat \succ Control$ occurs, indicates that the control firms dominate the treated firms. The ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Robustness Check.

Table 10. The Results of Robustness Checks

	Panel (a): Alternative Treat Firms		Panel (b): Different Events		Panel (c): Exclude the Financial Institution		Panel (d): Falsification Tests	
	Top 20%	Top 10%	Date: 20220311	Date: 20220407			Date: 20190224	Date: 20200224
	Return	*Return*	*Return*	*Return*	*Return*	*Return*	*Return*	*Return*
$Treat_{t-1} \times War\_outbreak_t$	-0.0046**	-0.0085***	-0.0036*	-0.0053**	-0.0042**	-0.0040**	-0.0008	0.0004
	(-2.44)	(-3.08)	(-2.14)	(-3.33)	(-2.56)	(-2.56)	(-0.58)	(0.35)
Fixed Effect								
Time	Y	Y	Y	Y	Y	Y	Y	Y
Firm	Y	Y	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Adj. R^2	0.4762	0.4107	0.3931	0.4581	0.4618	0.4693	0.2791	0.2033
Obs.	993	504	1503	1503	1497	1497	1437	1476

We implement several robustness checks, including different splitting criterions, different events, exclusion of financial institutions, and falsifications tests, we also get the consistently results with previous, showing that the foreign institutional investors indeed are threaten by the increasing geo-political risk in the Taiwan Strait caused by the Russo-Ukrainian War.

Additional Evidence: Mainland China Investment

Table 11: The Results of Mainland China Investment Ratio Multivariate Regression

	(1)	(2)
	Return	Return
$Treat_{t-1} \times War\_outbreak_{t-1}$	-0.0043***	-0.0039**
	(-2.69)	(-2.49)
Fixed Effect		
Time	Y	Y
Firm	Y	Y
Controls	Y	Y
Adj. R-squared	0.5134	0.5233
Obs.	1494	1494

This table presents the results of the multivariate regression on the investment ratio of mainland China. The dependent variable is the stock return during one before and after the outbreak of the Russian-Ukrainian War outbreak. The *Treat* is a dummy variable that equals one if the investment ratio by mainland China in the firm is within the top 30% of all samples and zero otherwise. The *War_outbreak* is a dummy variable that equals one if after the outbreak date and zero otherwise. The time and firm fixed effects are controlled in the regression. The standard error is clustered at the firm level. The ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Conclusions

- 1. We use this exogenous shock as an event study to analyze how these investors respond to the increasing geopolitical risk. The splitting criterion for treated (control) firms is in the top (bottom) 30% of foreign institutional ownership. We initially find that the foreign institutional ownership of treated declines by about 14.65 percent.

- 2. First, triggered by the increasing geopolitical risk, foreign institutional investors sell their holdings, resulting in larger losses for the treated firms than for the control firms. Meanwhile, the trading volume, volatility, and turnover ratio of the treated firms sharply increase.

- 3. the characteristics of the treated firms whose holdings the foreign institutional investors sold are specific to poor operating performance, higher risk, and higher market liquidity.

- 4. we compare the patterns between the BHR of the treated and control firms for 3 and 6 months by using the SD; the results overall show that treated firms underperform control firms.
- 5. Finally, we also explore the impact of geopolitical risk on the firms with investments in mainland China and show that firms with higher ratios suffer larger losses during the outbreak of the Russian-Ukraine War.

Thank for Your Time and Listening