

Artificial Intelligence and the Law of One Price: Evidence from the Chinese A-H Premium

Zhi Da
University of Notre Dame

Xinyi Peng
Southwestern University of Finance and Economics

Yongxin Xu
Monash University

Gaoping Zheng
RMIT University

April 2025

Abstract

Using the unique setting of Chinese firms with dual-class shares—A-shares traded in mainland China by local investors and H-shares traded in Hong Kong by foreign investors—we provide the first evidence that artificial intelligence (AI) helps to reduce information asymmetry and reinforce the law of one price. Following the introduction of Chinese AI tools accessible to local investors, the A-H share price premium for firms with substantial overseas operations declines relative to that of domestically-focused firms, particularly around earnings announcements. A closer analysis reveals that these AI tools facilitate the timely and efficient incorporation of negative information into prices at such announcements, thereby mitigating the post-earnings announcement drift.

JEL classifications: G12, G14, G15, G18, G50

Key Words: Artificial Intelligence, Law of One Price, Censorship, A-H Share Premium.

1. Introduction

Classical asset pricing theory rests on the law of one price: in a frictionless market, securities offering identical payoffs should trade at identical prices. Yet reality often contradicts this principle, particularly when identical securities are traded by different investor groups. For instance, studies by Froot and Dabora (1999) and Lamont and Thaler (2003) document significant price divergences between securities with the same underlying fundamentals when traded by domestic versus foreign investors. Market segmentation and diverse investor preferences partially explain these price discrepancies.¹

The market segmentation could take the form of an information barrier, as in the case of China. Due to the Chinese *Great Firewall*, domestic investors often do not have access to foreign information and domestic negative information is subject to censorship, and the resulting information asymmetry is more severe among Chinese firms with significant foreign operations (e.g., Qin, Strömberg, and Wu 2018; Chen and Yang 2019; Xu, Xuan, and Zhang 2021; Wang, Yu, and Zhang 2023). In this paper, we provide the first evidence that Chinese artificial intelligence (AI) tools, trained using foreign and less biased information with superior information aggregation capability that is less subject to censorship, help to reduce such information asymmetry and reinforce the law of one price.

The setting we examine is the market for Chinese A-H dual-class shares—A-shares traded in mainland China by domestic investors and H-shares traded in Hong Kong by foreign investors. Historically, the prices of the A shares have exceeded those of H shares by 60% or more on average.

¹ Examples of explanations for one-price violations in the literature include the following: capital controls (Gultekin, Gultekin, and Penati 1989), liquidity (Amihud and Mendelson 1986, Kadlec and McConnell 1994), investor risk preferences (Bailey and Jagtiani 1994, Fernald and Rogers 2002), demand elasticities (Stulz and Wasserfallen 1995, Domowitz, Glen, and Madhavan 1997), and social connections between analysts and investors (Jia, Wang, and Xiong 2017).

Information asymmetry between the two groups of investors could contribute to the A-H price premium. Li, Shen, Wang, and Zhang (2021) document that both A-share and H-share investors tend to have stronger reactions to their own local media than to overseas media (referred to as local media preference). Jia, Wang, and Xiong (2017) show that because of the investors' differential reactions, analyst recommendations may exacerbate, rather than attenuate, the market segmentation between the two share classes.

In order to keep up with the AI developments in the US, on August 31, 2023, Chinese regulatory authorities granted initial approvals to 12 Chinese AI firms, allowing them to offer their chatbots to the general public. Within the next months, Alibaba, Tencent and a startup company Moonshot AI launched chatbots based on their own large language models (LLM). Anecdotal evidence (detailed in the Appendix) suggests that popular Chinese LLMs provide more balanced information to domestic investors on A-H dual-listed firms with substantial foreign operation. This is either because of their reliance on social media posts which are less biased (as in the case of ERNIE, developed by Baidu), or because of their ability to access foreign information (as in the case of Kimi, developed by Moonshot AI).

Motivated by the anecdotal evidence, we study the impact of the introduction of Chinese LLM on the A-H share price premium using an event study approach. Specifically, we examine 120 trading days before August 21, 2023 (the pre-period) and 120 trading days afterwards (the post-period). The treatment group includes 35 A-H dual-listed firms whose fractions of overseas revenue exceed the sample median and the control group includes 35 matched A-H dual-listed firms, except that their fractions of overseas revenue are below the sample median. Our regressions also control for an array of stock characteristics to account for factors identified in prior research as potential

determinants of the A-H price premium. We find that after Chinese LLMs became available to local investors, the A-H premium on the treatment firms declines by 5.2%, relative to that on the control firms, consistent with the notion that Chinese LLMs expose local investors to more negative information on the treated firms. The result is robust to different event window lengths and definitions of the treatment group.

To further validate our findings, we examine how the A-H price premium changes around earnings announcements after the introduction of Chinese LLMs. We find that the average A-H price premium around earnings announcements declines by 5.7% for firms with significant foreign operations after Chinese LLMs became available to domestic investors. Notably, this effect is more pronounced for negative earnings surprises (7.6%) compared to positive ones (5.4%), suggesting that Chinese LLMs help mainland investors process negative information more effectively.

We also investigate how Chinese LLMs influence the information environment by examining three aspects of price discovery: future earnings response coefficients (FERC), earnings response coefficients (ERC), and post-earnings announcement drift (PEAD). Prior to the release of Chinese LLMs, A-shares exhibited less predictability for negative earnings surprises compared to H-shares. After their release, this relationship reversed significantly, with A-shares showing greater price predictability of upcoming negative earnings. Similarly, before Chinese LLMs were available, domestic investors were less responsive to negative earnings surprises than foreign investors, but this differential response diminished after LLMs became accessible. Consistent with the enhanced information acquisition before earnings announcements and increased reactions to earnings announcements, we document a substantial reduction in post-earnings announcement drift following negative surprises in the A-share market relative to H-shares after the introduction of Chinese LLMs.

These findings collectively suggest that Chinese LLMs enhance mainland investors' ability to incorporate previously inaccessible negative information, thereby improving market efficiency and reducing the A-H price premium for firms with substantial foreign operations.

The rise of AI has changed many aspects of the society (e.g., Capraro et al. 2024; Handa et al. 2025). While a large literature examines the usefulness of large language models (also referred to as generative AIs), as predictive tools (Jha, Qian, Weber, and Yang 2024; Lopez-Lira and Tang 2024; Sarkar and Vafa 2024; Chen, Tang, Zhou, and Zhu 2025) or information summarization mechanisms (Kim, Muhn, and Nikkolaev 2025a and 2025b; Li, Mai, Shen, Yang, and Zhang 2025; Fedyk, Kakhbod, Li, and Malmendier 2025), relatively few studies investigate the real impact of generative AIs on financial markets. For example, Eisfeldt, Schubert, Taska, and Zhang (2025) show that firms whose workforce exposure to generative AI is high earn higher returns than firms with low exposure. Bertomeu, Lin, Liu, and Ni (2025) show that the ChatGPT ban in Italy is followed by reduced AI usage by domestic financial analysts and fewer earnings forecasts issued. Cheng, Lin, and Zhao (2025) document a significant decline in stock trading during ChatGPT outages. We contribute to the understanding of AI's real impacts by documenting a side benefit of AI as an information equalization mechanism. A successful LLM model requires comprehensive and unbiased information to train, and the resulting AI tools help to break down informational barrier and enhance price efficiency by alleviating information asymmetry across different investor groups.

Relatedly, this study further contributes to the political science literature regarding government control of information environment. Chen and Yang (2019) demonstrate that Chinese internet censorship suppresses not just access but also demand for sensitive information. Qin, Strömberg, and Zhang (2021) document that media censorship in China leads to product differentiation in news

coverage, where state-controlled outlets focus on propaganda while commercial outlets emphasize market-oriented content. For financial markets, Xu, Xuan, and Zheng (2021) show that restricted access to international information following Google’s exit from China increased stock price crash risk for firms, while Wang, Yu, and Zhang (2023) find that firms strategically alter disclosures when investors face such barriers to information access. Hope et al. (2021) show that newspaper censorship in China blocks informative tunneling news and delays incorporation of financial reporting into prices. While Beraja, Kao, Yang, and Yuchtman (2023) demonstrate how AI can strengthen autocratic control, we provide novel evidence of a countervailing benefit: technological innovations like AI can help reduce—though not eliminate—the financial market distortions caused by information control regimes.

Our paper also speaks to a large literature studying the violations of law of one price, and more specifically, the drivers of dual-class share price gaps in China. For example, A-B premium may be explained by information asymmetry (Chan, Menkveld and Yang 2008), political risk (Karolyi, Li and Liao 2009), speculative bubbles (Mei, Scheinkman, and Xiong 2003), and liquidity (Chen, Lee, and Rui 2001).² Carpenter, Whitelaw, and Zou (2020) argue that barriers to convergence and home bias contribute to the A-H premium.³ The evidence in our paper highlights the information asymmetry as an important contributing factor to the violation of the law of one price.

The rest of the paper is organized as follows. Section 2 introduces the institutional background of Chinese LLMs and our research design, including how we define treatment and control firms and measure the A-H price premium. Section 3 presents our main empirical findings on how Chinese

² Chui, Subrahmanyam, and Titman (2022) use A-B dual listing firms to examine how investor clienteles affect momentum and short-term reversals

³ Bian, Chan, Han, and Shi (2023) find that southbound (northbound) investors’ net purchases positively predict returns of connected Hong Kong (Shanghai) stocks. Zhang, Qi and Chung (2021) shows that A-H premium increases after the stock connect.

LLMs affect the A-H price premium, including baseline results, robustness tests, and analysis around earnings announcements. Section 4 explores the mechanisms through which Chinese LLMs influence market efficiency by examining changes in future earnings response coefficients, earnings response coefficients, and post-earnings announcement drift. Finally, Section 5 concludes with a discussion of our findings and their implications for market integration and information barriers.

2. Institutional background and research design

2.1 Institutional background

While transformer architecture has been used in artificial intelligence (AI) since 2017 (Vaswani et al. 2017), the recent proliferation of generative AI based on transformer models has been remarkably sudden and widespread. On November 30, 2022, OpenAI, released GPT 3.5 to the public, which rapidly gained adoption, attracting one million users in less than a week.⁴ Microsoft, a strategic partner of OpenAI, subsequently incorporated GPT 3.5 into its search engine and office productivity suite, Microsoft 365. The significant success of GPT 3.5 catalyzed the development and release of comparable generative AI products. For example, concerned about potential market share erosion, Google expeditiously announced its competing product on February 6, 2023, initially labeled Bard and later rebranded as Gemini. Concurrently, Meta (Facebook's parent company) adopted an alternative competitive strategy by open-sourcing its generative AI model, Llama.

In China, major internet conglomerates and numerous venture-backed startups rapidly developed domestic chatbot alternatives following ChatGPT's emergence. Baidu unveiled the first demonstration of its ERNIE Bot in March 2023, positioning it as China's earliest declared ChatGPT

⁴ https://www.theguardian.com/commentisfree/2023/dec/09/chatgpt-ai-pearl-harbor-moment-sam-altman?utm_source=chatgpt.com

competitor.⁵ Alibaba followed with Tongyi Qianwen, releasing it in closed beta testing that April.⁶ Chinese regulatory authorities maintained pace with these developments; on August 31, 2023, they granted initial approvals to 12 Chinese AI firms, including Baidu, SenseTime, Zhipu AI, and Baichuan, permitting them to offer their chatbots to the general public.⁷ Our research design specifically examines this August 31 regulatory approval to investigate how AI adoption influences the A-H premium for Chinese dual-listed stocks.

Following the authorization of the first cohort of Chinese large language models (LLMs), additional companies introduced their generative AI offerings. Alibaba's Tongyi Qianwen became publicly accessible on September 13, 2023. Tencent launched its 100-billion-parameter Hunyuan foundation model for enterprise clients on September 7, 2023.⁸ Notably, startup Moonshot AI entered the market in October 2023 with Kimi, whose context window expanded from 200,000 to an unprecedented two million Chinese characters by March 2024, enabling comprehensive prospectus analysis within a single prompt.⁹ Economic scaling dynamics subsequently shifted when hedge-fund-backed DeepSeek open-sourced a 671-billion-parameter model on December 26, 2024, at a computational cost of merely US\$6 million, demonstrating that frontier-level performance could be achieved economically.¹⁰ The outcome is China's highly competitive landscape, in which Baidu's Ernie accumulated over 200 million users by April 2024.¹¹

Prior to the availability of Chinese LLMs for mainland investors, these individuals

⁵ <https://www.reuters.com/technology/baidu-says-ai-chatbot-ernie-bot-has-amassed-200-million-users-2024-04-16/>

⁶ <https://www.scmp.com/tech/big-tech/article/3234385/alibaba-opens-ai-model-tongyi-qianwen-public-competition-baidu-tencent-and-other-chinese-big-tech>

⁷ <https://www.scmp.com/tech/tech-trends/article/3232982/baidu-sensetime-open-ai-chatbots-public-after-china-grants-first-approvals-such-services>

⁸ <https://www.scmp.com/tech/big-tech/article/3233753/tencent-unveils-hunyuan-foundation-ai-model-enterprises-public-debut-internet-giants-chatbot-remains>

⁹ <https://www.scmp.com/tech/big-tech/article/3256109/alibaba-backed-moonshot-ai-claims-breakthrough-expanded-chinese-character-prompt-kimi-chatbot>

¹⁰ <https://techcrunch.com/2024/12/26/deepseeks-new-ai-model-appears-to-be-one-of-the-best-open-challengers-yet/>

¹¹ <https://www.reuters.com/technology/baidu-says-ai-chatbot-ernie-bot-has-amassed-200-million-users-2024-04-16/>

predominantly relied on Baidu's search engine to collect and analyze information (Xu, Xuan, and Zheng 2021). To investigate how the adoption of generative AI influences investor information collection and processing capabilities, we conducted a comparative analysis detailed in the Appendix. Specifically, we posed an identical question regarding a dual-listed company's overseas operations ("What risks and difficulties has COSCO Shipping Holdings (601919.SS/1919.HK) encountered recently in its overseas operations? Before answering this question, please search for relevant reports about COSCO Shipping Holdings from well-known international financial news websites, such as Financial Times, Reuters, Yahoo Finance, Bloomberg, The Wall Street Journal, and Google Finance.") via the Baidu search engine and three mainstream Chinese LLMs: ERNIE, Kimi, and DeepSeek.

Our comparative analysis revealed several significant patterns. First, although our question explicitly requests information about risks and difficulties, a substantial portion of the results from Baidu search present positive news. Specifically, in the 20 results from the first two pages of Baidu search, there are 8 positive news stories, 10 negative news stories, and 2 neutral news stories. If we focus on the first page, there are more positive results than negative ones: 5 positive news stories, 4 negative news stories, and 1 neutral news story. In contrast, all three LLMs, including ERNIE, predominantly highlight the negative challenges COSCO encountered in its overseas operations. This suggests that Baidu, the traditional information tool predominantly used by mainland investors, forces mainland investors to digest positive news despite explicit queries about risks, whereas Chinese LLMs appear more responsive to the specific nature of risk-oriented queries. So, the emergence of Chinese LLMs potentially exposes mainland investors to more comprehensive negative information.

Second, websites from Baidu search results differ substantially from those utilized by Chinese LLMs. Baidu search exclusively returns results from Chinese-language websites located in mainland China, which are under content scrutiny in China. Similarly, ERNIE, developed by Baidu, also exclusively relies on mainland Chinese websites. In contrast, Kimi retrieves information entirely from English-language websites (17 websites in total), with only one located in China. DeepSeek demonstrates a hybrid approach, utilizing 48 different websites, including 9 English-language sources.

When comparing ERNIE and Baidu search results, we find that ERNIE relies more heavily on Xueqiu (4 out of 9 websites ERNIE referenced), while Baidu search incorporates no social media sources whatsoever. Xueqiu stands as one of China's largest investment social media platforms (Sui and Wang 2023; Xu, Xuan, Ye, and Zheng 2025). Prior research suggests that in environments where Google is unavailable, Chinese social media platforms help surface negative news that might otherwise receive less prominence (Xu et al. 2021).

Third, we observed that several sources utilized by these LLMs, such as Yahoo Finance (referenced by Kimi in 8 out of 17 websites) and Malay Mail (referenced by DeepSeek), are typically inaccessible in mainland China due to restrictions imposed by the Great Firewall (Wang, Yu, and Zhang 2023). This reveals an unintended consequence of generative AI adoption: mainland investors can now indirectly access information sources that would otherwise be unavailable to them through conventional means.

These findings indicate that, following the widespread availability of Chinese LLMs, mainland investors gain increased exposure to negative information regarding dual-listed firms with substantial overseas operations. This significant shift in the information environment that mainland

investors encounter may influence their valuation of A-shares relative to the corresponding H-shares for dual-listed firms, potentially resulting in a reduction in the A-H premium.

2.2 Research design

Our sample consists of all dually listed stocks with twin listings of A-shares in mainland China and H-shares in Hong Kong.¹² The sample period extends from 120 trading days before August 31, 2023 (the day when the first batch of Chinese LLMs became publicly available) to 120 trading days after, spanning from March 2, 2023 to March 12, 2024.¹³ We selected our sample period to begin 120 trading days prior to August 31, 2023, based on the assumption that the initial market enthusiasm surrounding ChatGPT had stabilized by March 2023, thereby minimizing potential confounding effects on our empirical findings. We obtain daily closing stock prices and other stock level data from CSMAR for A-shares and WIND for H-shares. We obtain overseas revenue data from WIND, and other accounting and financial statement variables from CSMAR. The earnings announcement date and time for A and H-shares are from the Shanghai Stock Exchange, Shenzhen Stock Exchange, and Hong Kong Stock Exchange. We exclude observations with missing values for variables used in our empirical analysis. Our final sample consists of 35,296 observations from 147 distinct A-H dual-listed firms before matching.

¹² We exclude one firm that listed on A-share market on August 7, 2023 with limited pre-event observations (18 observations). This exclusion was necessary as the A-share price dynamics for this recently listed security may have been substantially influenced by IPO-related factors rather than the effects of Chinese LLMs.

¹³ The *Interim Measures for the Management of Generative Artificial Intelligence Services* are formally implemented in China on August 15, 2023, signifying China has stepped into the public application phase of LLMs. On August 31, 2023, China's first batch of LLMs is officially available to the public after completing regulatory filing requirements. This initial cohort of approved LLMs includes ERNIE developed by Baidu, Skylark developed by ByteDance, SenseChat developed by SenseTime, Zidong Taichu Model developed by CAS, Baichuan Model developed by Baichuan Intelligence, GLM Model developed by Zhipu AI, ABAB Model developed by MiniMax, and Internlm Model developed by Shanghai AI Laboratory.

2.2.1 Defining treatment firms and control firms

When firms engage in substantial overseas operations, mainland domestic investors encounter heightened information disadvantage due to their inability to access foreign information (Xu, Xuan, and Zheng 2021). The information environment for domestic investors can be disproportionately optimistic, as documented by Wang, Yu, and Zhang (2023).¹⁴ Consequently, firms with more overseas operations would likely experience greater effects from the public release of Chinese LLMs. Based on this reasoning, we categorize our treatment and control groups according to firms' overseas revenue exposure. Specifically, we define the variable *Treat* as an indicator that equals one if a firm's proportion of overseas revenue to total revenue exceeds the sample median value in 2022, and zero otherwise. In our robustness tests, we employ an alternative classification method based on whether a firm's overseas revenue exceeds 10% of total revenue in 2022.¹⁵

Table 1 Panel A summarizes the proportion of overseas revenue to total revenue in 2022. The median value of the proportion of overseas revenue in our sample is 5.710%. The second and third rows show that our sample contains 74 firms in the treatment group with an average proportion of overseas revenue of 27.541%, and 73 firms in the control group with an average proportion of overseas revenue of 1.349%.

To ensure comparability of firm characteristics between treatment and control groups prior to the release of Chinese LLMs, we implemented a one-to-one nearest neighbor propensity score matching procedure without replacement, using a 0.05 caliper. The matching process utilized all

¹⁴ Their study shows that Chinese firms' disclosure on foreign transactions become more rosy, and domestic media and financial analysts are vulnerable to such favorable corporate disclosures when their access to foreign information is interrupted.

¹⁵ According to SSE and SZSE, when the transaction generates operating revenue exceeding 10% of the audited revenue from the most recent fiscal year, it is identified as a significant transaction requiring disclosure (see: https://www.sse.com.cn/lawandrules/sselawsrules/stocks/mainipo/c/c_20230804_5724639.shtml). Therefore, we consider overseas revenue exceeding 10% of total revenue to have substantial impact on a firm, and employ this threshold to identify our treatment and control firms in robustness test.

control variables from our main regression model as matching variables, with the additional inclusion of a dummy variable indicating state ownership status (*SOE*). Table 2 presents the matching results. Following the propensity score matching procedure, our final sample consists of 35 treatment firms and 35 control firms, with no statistically significant differences in means across all matching variables between the two groups. This matched sample forms the basis for our subsequent main regression analyses.

2.2.2 A-H share price premium

We calculate the A-H share price premium for firm i on day t as the ratio of the closing A-share price (P_A) to the closing H-share price (P_H), adjusted for currency exchange rates (Carpenter, Whitelaw, and Zou, 2020). Figure 1 illustrates the temporal evolution of the average A-H share price premium for both the matched treatment and control groups throughout our sample period. Notably, firms in the control group exhibit a significant upward trend in their A-H price premium following August 31, 2023, whereas firms in the treatment group demonstrate no comparable increase during the same period. This preliminary comparison suggests that treatment firms—those with greater overseas revenue exposure—experience a relative decline in A-H premium after Chinese LLMs became accessible to mainland investors.

2.2.3 Control variables

We control for an array of stock characteristics to account for factors identified in prior research as potential determinants of the A-H price premium. Following Chan, Menkveld, and Yang (2008) and Carpenter, Whitelaw, and Zou (2020), we include firm size, book-to-market ratio, liquidity of

each share class, and risk premium of each share class. *Size* is the logarithm of the sum of the market capitalization of A- and H-shares outstanding on each trading day. We measure the book-to-market ratio, *BM*, by the total book value of equity over the sum of the market value of A- and H-shares outstanding. We measure A-share liquidity (*Illiq_A_Daily*) and H-share liquidity (*Illiq_H_Daily*) using Amihud's (2002) illiquidity measure, with units of 10^{-8} , calculated separately for each share class on each trading day. We also control risk premium measures for A-shares (*Beta_A*) and H-shares (*Beta_H*), computed using data from the preceding 120 trading days for each trading day and share class. To control for the impact of relative H-share supply on the A-H price premium, following Jia, Wang, and Xiong (2017), we include the ratio of outstanding H-shares to the total number of outstanding A- and H-shares (*Hfraction*). Additionally, we incorporate return momentum measures for A-shares (*Momentum_A*) and H-shares (*Momentum_H*), given Karolyi, Li, and Liao's (2009) evidence that firm size and past-return momentum are significant explanatory factors for B-share discounts. These momentum variables are calculated as the average monthly return during the three months preceding each trading date, computed separately for each share class.

2.4 Descriptive statistics

Panel B of Table 1 reports the summary statistics for our control variables before and after matching. There are 35,296 (16,842) observations before (after) matching. *AHprcratio* has an average value of 2.177 (2.126) across our pre-matching (post-matching) sample, suggesting that A-share prices are, on average, 2.177 (2.126) times their corresponding H-share prices. The standard deviation of *AHprcratio* is 0.917 (0.830), which indicates a relatively large variation in A-H price premium across firms. The mean value of *Size* is 24.701 (24.882), signifying that an average firm in

our sample has a total market capitalization of 148.743 (189.486) billion RMB. The mean *Hfraction* is 0.300 (0.294), indicating that H-shares on average contribute to 30% (29.4%) of the total number of outstanding A- and H-shares across all pairs. The average A-share Amihud illiquidity, *Illiq_A_Daily*, is 0.009 (0.008), while the average H-share Amihud illiquidity, *Illiq_H_Daily*, is 0.323 (0.379), which shows that A-shares are more liquid than H-shares. Furthermore, the mean return momentum for A-shares is -0.001 (0.003), and -0.007 (-0.004) for H-shares. Finally, the mean beta for A-shares is 1.005 (1.014), and 0.701 (0.658) for H-shares.

Table 2 presents the mean values of covariates for the treatment and control groups following propensity score matching (PSM), along with the mean differences between the two groups. *Treat* is an indicator variable equal to one if the proportion of overseas revenue to total revenue exceeds the sample median value (5.71%) in 2022, and zero otherwise. To find a matched control firm for a treatment firm, we implement a one-to-one nearest neighbor propensity score matching without replacement, using a 0.05 caliper, based on the control variables in Panel B of Table 1 plus *SOE*, an indicator variable equal to one if the firm is state-owned in 2022, and zero otherwise. After matching, treatment and control firms do not have significant differences in all the above dimensions. We omit the state ownership variable (*SOE*) from our regression specifications because this characteristic remains constant for all firms throughout our sample period. Consequently, the firm fixed effects in our model fully absorb this time-invariant attribute, as no firms transition between SOE and non-SOE status during our sample period.

3. Main results

In this section, we examine whether A-share prices would convert to the price of the

corresponding H-share prices after the Chinese LLMs become available for local mainland investors.

The first subsection presents evidence of the impact of the public release of Chinese LLMs on A-H price premium. The second subsection provides evidence to ensure our baseline results are robust. The third subsection further validates that the effect of Chinese LLMs is due to investor information processing by examining the change of A-H price premium around earnings announcements.

3.1 The effect of Chinese LLMs on A-H price premium

To test whether A-share prices would convert to the price of the corresponding H-share prices after Chinese LLMs became available, we estimate the following model:

$$AHprcratio_{i,t} = \beta Treat_i \times Post_t + \gamma Controls_{i,t} + \mu_i + \mu_t + \varepsilon_{i,t} \quad (1)$$

$AHprcratio_{i,t}$ is the A-H share price premium for firm i in day t . $Treat_i$ equals one if the firm is in the treatment group, and zero otherwise. $Post_t$ captures the public release of Chinese LLMs, assigned as 1 after August 31, 2023, and zero otherwise. $Controls_{i,t}$ consists of all the control variables as outlined in Section 2.3. μ_i and μ_t are firm and trading day fixed effects, respectively. These fixed effects absorb the standalone term for $Treat_i$ and $Post_t$. $\varepsilon_{i,t}$ is the residual of the model. Standard errors of regression coefficient estimates are clustered by firm and trading day. The coefficient of interest β captures the impact of Chinese LLMs on the A-H price premium.

Table 3 presents the main results. Column (1) shows the estimation of the impact of Chinese LLMs on the A-H price premium without control variables. Column (2) adds the control variables on the basis of Column (1). The results show that the coefficient estimates of $Treat \times Post$ are -0.108 (t -statistic = -2.808) and -0.110 (t -statistic = -3.131), and are significant at the 1% level in both columns. In column (3), we further restrict our sample to 60 trading days before and 60 trading days

after August 31, 2023. The coefficient estimate of $Treat \times Post$ becomes -0.082 (t -statistic = -2.690), and is still significant at the 1% level. These results show that the A-H price premium declines after Chinese AIs become available for local investors. The economic magnitude is nontrivial. In terms of column (2), the coefficient estimate suggests that compared with control firms, the A-H price premium of treatment firms decreases by 5.2% ($= 0.110/2.126$) after the release of Chinese LLMs, relative to the mean value of A-H premiums in the matched sample.

Among the control variables, the coefficients of $Illiq_A_Daily$ and $Illiq_H_Daily$ are both significantly negative. The coefficient of return momentum for A-shares ($Momentum_A$) is significantly positive, while it is significantly negative for H-shares ($Momentum_H$), consistent with Karolyi, Li, and Liao (2009). Furthermore, Beta for H-share ($Beta_H$) is positively related to A-H price premium, which aligns with Carpenter, Whitelaw, and Zou (2020).

Figure 2 depicts the dynamic effect of Chinese LLMs on the A-H price premium. We construct 240 dummies, 120 for trading days before the public release of Chinese LLMs and 120 for trading days after, taking a value of one on the j^{th} trading day relative to August 31, 2023, and zero otherwise. The trading day on August 31, 2023, is used as the omitted benchmark. Then we incorporate these dummies in Eq. (1) by multiplying them with $Treat$ and re-estimate the regression. The coefficient estimates before the release day predominantly exhibit significant positive values, with some insignificant negative estimates. However, the coefficient estimates decline following the release day, become significantly negative, and exhibit stable fluctuation patterns thereafter.

Taken together, our regression results indicate that A-share prices decline and converge toward the price of the corresponding H-share prices after Chinese LLMs became available to domestic investors. This observed pattern of price convergence is consistent with the explanation that the

adoption of AI helps mainland investors access negative information, which alleviates the violation of the law of one price.

3.2 Robustness test

In this subsection, we use an alternative measure, *Treat2*, to identify treatment (control) firms and re-estimate Eq. (1). Table 4 reports the results, which are consistent with Table 3. In column (1), the coefficient estimate of *Treat2* × *Post* is -0.115 (*t*-statistic = -3.010), and is significant at 1% level. In column (2), we further restrict our sample to 60 trading days before and after August 31, 2023. The coefficient estimate of *Treat2* × *Post* becomes -0.064 (*t*-statistic = -2.381), and is significant at the 5% level. The results obtained reinforce the robustness of our main findings.

3.3 The effect of Chinese LLMs on the A-H price premium around earnings announcement

In this subsection, we take advantage of earnings announcement events to further validate that Chinese LLMs facilitate mainland investors' information processing by exploring how the A-H price premium around the earnings announcement period changes after the release of Chinese LLMs. In this regression, our sample consists of earnings announcements issued between March 2, 2023, and August 31, 2024, by A-H dual-listed firms. We estimate the following model using firm-quarter observations:

$$AHprcratiomean[0, +1]_{i,t} = \beta_1 Treat_i \times Post_t + \beta_2 Post_t + \gamma Controls_{i,t} + \mu_i + \mu_t + \varepsilon \quad (2)$$

The dependent variable *AHprcratiomean*[0, +1]_{*i,t*} is the average of A-H price premium from the earnings announcement date to one day after for firm *i* quarter *t*. *Treat_i* equals one if the firm *i* is in

the treatment group, and zero otherwise. $Post_t$ is a dummy variable that takes the value of one if the quarterly earnings announcement is issued after August 31, 2023, and zero otherwise. $Controls_{i,t}$ is a set of firm characteristics, including *Size*, measured as the logarithm of the sum of the market capitalization of A- and H-shares outstanding at the last quarter-end. *BM*, measured as the total book value of equity over the sum of market value of A- and H-shares outstanding at the last quarter-end. $EPS_t - EPS_{t-4}$ is the current quarter EPS minus EPS from the corresponding quarter a year ago. *Turnover* is the average daily turnover rate in the prior 60 trading days. *Analyst_mean* is the average of the number of analysts covering A-share and H-share in the most recent fiscal year. *Inst_mean* is the average of the percentage of outstanding shares held by institutional investors in A-shares and H-shares at the end of the most recent calendar quarter. *EarningsVol* is the standard deviation of seasonal changes in EPS estimated over the four-year period ending on the fiscal-quarter end date. *EarningsPer* is the first-order autocorrelation coefficient of quarterly EPS during the past 4 years. We include firm and quarter fixed effects in Eq. (2). As we control for quarter fixed effects, $Post_t$ is not absorbed in our regressions. The standard errors of regression coefficient estimates are clustered by firm and the day of announcement.

Table 5 reports the results. Column (1) shows the result using the full sample. Subsequently, we cut our sample based on whether $EPS_t - EPS_{t-4}$ exceeds zero to examine the differential impacts of Chinese LLMs on A-H price premium around the earnings announcement period for positive and negative earnings surprises, and we separately present the results in columns (2) and (3). In column (1), the coefficient estimate of $Treat \times Post$ is -0.121 (t -statistic = -2.312), which implies that the average A-H price premium around the earnings announcement period declines significantly after Chinese LLMs are available to domestic investors. In columns (2) and (3), the coefficient estimates

of $Treat \times Post$ are -0.114 (t -statistic = -2.086) and -0.162 (t -statistic = -2.053), respectively, indicating that the average A-H premium decreases regardless of good or bad news. Notably, the coefficient is more negative in column (3), suggesting that the impacts of Chinese LLMs are more pronounced when mainland investors process bad news than good news.

4. The market response to earnings announcements before and after the release of Chinese LLMs

To better understand how Chinese LLMs influence domestic investors and subsequently A-share prices, we examine whether the release of Chinese LLMs impacts A-share price responsiveness to earnings announcements relative to H-shares. In the first subsection, we investigate whether Chinese LLMs accelerate the price discovery with respect to future quarter earnings for A-shares relative to H-shares. In the second subsection, we analyze the price responsiveness around the earnings announcement window for A-shares relative to H-shares. In the final subsection, we further examine post-earnings announcement drift for A-shares relative to H-shares. Our sample consists of earnings announcements issued between March 2, 2023 and August 31, 2024. We estimate the following model using firm-stock-quarter observations:

$$CAR_{i,s,t} = \beta_1 Treat_i \times Adummy_s \times SUE_{i,s,t} + \beta_2 Treat_i \times SUE_{i,s,t} + \beta_3 Adummy_s \times SUE_{i,s,t} + \beta_4 SUE_{i,s,t} + \gamma Controls_{i,s,t} + \tau Controls_{i,s,t} \times SUE_{i,s,t} + \mu_{is} + \mu_t + \varepsilon \quad (3)$$

The dependent variable $CAR_{i,s,q}$ is cumulative abnormal returns over day m to day n ($CAR[m, n]$) for firm i stock s in quarter t . For a dual-listed firm i , its stock can either be A-share or H-share. To calculate $CAR_{i,s,t}$, follow Jia, Wang, and Xiong (2017), the abnormal return is calculated as the raw return minus the predicted return from a market model in which raw stock returns are regressed

on the Shanghai/Shenzhen Composite Index and the Hong Kong Hang Seng Index returns. $SUE_{i,s,t}$ is the quarterly standardized unexpected earnings, measured as the EPS in quarter t minus EPS in quarter $t-4$ and scaled by stock price on day $t-60$ relative to the earnings announcement date (Lee and Zhong, 2022). $Treat_i$ equals one if the firm is in the treatment group, and zero otherwise. $Adummy_s$ takes the value of one for A-shares, and zero for H-shares.

Following Hirshleifer, Lim, and Teoh (2009), we include the following stock characteristics, as well as their interaction with $SUE_{i,s,t}$ in the model. *Size* is the logarithm of the sum of the market capitalization of A- and H-shares outstanding at the last quarter-end. *BM* is measured as the total book value of equity over the sum of market value of A- and H-shares outstanding at the last quarter-end. *Turnover* is the average daily turnover rate in the prior 60 trading days of each share class. *Analyst* is the number of analysts covering each share class in the most recent fiscal year (Jia, Wang, and Xiong 2017). *Institute* is the percentage of outstanding shares held by institutional investors in each share class at the end of the most recent calendar quarter. *EarningsVol* is the standard deviation of seasonal changes in EPS estimated over the four-year period ending on the fiscal-quarter end. *EarningsPer* is the first-order autocorrelation coefficient of quarterly EPS during the past 4 years. We include the firm's separate A-share and H-share fixed effect (stock fixed effect), which absorbs $Treat$, $Adummy$, and $Treat*Adummy$, and quarter fixed effect in Eq. (3). The coefficient of interest is β_1 , which captures the sensitivity of return responsiveness to earnings announcements of A-shares in treatment firms compared to their corresponding H-shares.

4.1 Future earnings response coefficient (FERC)

In this subsection, we first examine whether there is greater stock price predictability of the earnings information for A-shares relative to H-shares after the Chinese LLMs become available for domestic mainland investors. If Chinese LLMs effectively augment the ability of domestic investors to access foreign information, then we should expect, following the release of Chinese LLMs, the pre-announcement returns for A-shares of treatment firms to become relatively more predictive than H-shares with respect to future earnings news.

Given that domestic investors have a constrained ability to search foreign information, particularly negative information, we expect the effect of Chinese LLMs to differ for positive and negative earnings surprises. Therefore, we estimate Eq. (3) using firm-stock-quarter observations with positive and negative earnings surprises, respectively. Table 6 reports the results. The dependent variable $CAR[-60, -1]$ is the cumulative abnormal return over days $t-60$ to $t-1$ relative to the earnings announcement date. The abnormal return is calculated as the raw return minus the predicted return from a market model in which raw stock returns are regressed on the Shanghai/Shenzhen Composite Index and the Hong Kong Hang Seng Index returns. The market model is estimated using data from the period spanning 260 trading days to 70 trading days prior to each earnings announcement date. Columns (1) to (2) show the results before Chinese LLMs' public release, while columns (3) to (4) report the results post-release. Columns (1) and (3) present results of observation with negative future earnings surprises, and columns (2) and (4) use observations with positive future earnings surprises.

In columns (1) and (3), the coefficient estimates of $Treat \times Adummy \times SUE$ are -1.736 (t -statistic = -1.368, not significant at the conventional level) and 1.454 (t -statistic = 2.361, significant at 5% level), respectively. These results indicate that there is less stock price predictability (though

statistically insignificant) of upcoming negative earnings surprises for A-shares relative to H-shares before Chinese LLMs' release, but greater price predictability for A-shares afterward. Therefore, the sharp difference between the results in columns (1) and (3) indicates that mainland A-share investors collect more negative information before earnings announcements, once Chinese LLMs are available. In columns (2) and (4), the coefficient estimates of $Treat \times Adummy \times SUE$ are 0.045 (t -statistic = 0.042) and -0.148 (t -statistic = -0.353), respectively. The statistically insignificant coefficients demonstrate that there is no significant difference regarding stock price predictability between A-shares and H-shares for positive earnings surprises, both pre- and post-release of Chinese LLMs.

4.2 Earnings response coefficient (ERC)

We further investigate the impact of Chinese LLMs on the immediate investor response around the earnings announcement window for A-shares relative to H-shares. As evidenced by Wang, Yu, and Zhang (2023), domestic investors are unable to access foreign information, and thus face a positively biased information environment regarding firms' foreign operations. Then we expect investor reactions to be less sensitive to negative earnings surprises for our treatment firms in A-share market compared to H-share market prior to the release of Chinese LLMs, while the difference diminishes when Chinese LLMs are available to local investors.

We again estimate Eq. (3) using firm-stock-quarter observations with positive and negative earnings surprises separately. Table 7 reports the results. The dependent variable, $CAR[0, 1]$, is the abnormal 2-day earnings announcement return. The abnormal return is calculated as the raw return minus the predicted return from a market model in which raw stock returns are regressed on the

Shanghai/Shenzhen Composite Index and the Hong Kong Hang Seng Index returns. The market model is estimated using data from the period spanning 260 trading days to 10 trading days prior to each earnings announcement date. In columns (1) and (3), the coefficient estimates of $Treat \times Adummy \times SUE$ are -0.958 (t -statistic = -2.328, significant at 5% level) and 0.118 (t -statistic = 0.730, not significant), respectively. The results demonstrate that domestic investors are less likely to respond to negative earnings surprises in the A-share market relative to foreign investors in the H-share market before the release of Chinese LLMs, but differential price responses to negative earnings surprises between A-shares and H-shares diminish post-release.

Turning to positive earnings surprise, the coefficient estimates of $Treat \times Adummy \times SUE$ are 0.259 (t -statistic = 0.788, not significant) and 0.506 (t -statistic = 2.467, significant at 5% level), respectively. The presented results imply that prior to Chinese AIs becoming publicly available for local investors, there is no significant difference in immediate stock price reaction to positive earnings surprise between the A-share market and the H-share market. However, following the release of Chinese AIs, firms with more overseas operations exhibit a stronger initial stock price reaction to positive earnings surprises in the A-share market relative to the H-share market. When comparing this result with the one in Table 6, we find suggestive evidence that mainland investors somewhat reduce their information acquisition before positive earnings surprises following the release of Chinese LLMs, leading to an increase in the immediate reaction to earnings news, with a magnitude similar to the reduction in the FERC test.

4.3 Post-earnings announcement drift (PEAD)

The previous two subsections show that following the public release of Chinese LLMs, investors in the A-share market exhibit greater information predictability for negative earnings surprise relative to those in the H-share market, and the differential price reaction to negative earnings surprise between A-shares and H-shares converges during earnings announcement windows. In this final subsection, we explore the impact of Chinese LLMs on the price efficiency between A-share and H-share classes in the post-earnings announcement periods. If Chinese LLMs enhance domestic investors' incorporation of previously inaccessible negative information in A-shares price during pre-announcement periods and earnings announcement window, which means less underreaction to negative earnings news in the A-share market, then we expect to observe a diminished post-earnings announcement drift to negative earnings surprises in the A-share market relative to the H-share market following Chinese LLMs' release.

Table 8 reports the results. The dependent variable $CAR[2, 61]$ is the post-announcement cumulative abnormal return over a 60-day window starting 2 days after the earnings announcement date. The abnormal return is calculated as the raw return minus the predicted return from a market model in which raw stock returns are regressed on the Shanghai/Shenzhen Composite Index and the Hong Kong Hang Seng Index returns. The market model is estimated using data from the period spanning 260 trading days to 10 trading days prior to each earnings announcement date. In columns (1) and (3), the coefficient estimates of $Treat \times Adummy \times SUE$ are 3.543 (t -statistic = 2.354, significant at 5% level) and -3.003 (t -statistic = -2.683, significant at 5% level). These coefficients suggest that before Chinese LLMs become available, A-shares exhibit a significantly stronger post-announcement price reaction to negative earnings surprises, relative to H-shares. However, following the Chinese LLMs' release, this post-earnings announcement drift to negative earnings

surprises in the A-share market becomes smaller compared to the H-share market. Therefore, the results in Table 8 support the notion that A-share mainland investors experience an improvement in their information processing with the help of Chinese LLMs. When comparing this result with the ones in Tables 6 and 7, we find that most of the reduction in PEAD could be explained by the increase in FERC and ERC, meaning that A-share investors collect more negative information before earnings announcements and react more to negative information right after, which alleviates the underreaction to earnings news.

In contrast, the coefficient estimates of $Treat \times Adummy \times SUE$ in columns (2) and (4) are 0.895 (t -statistic = 0.907) and -0.397 (t -statistic = -0.466), indicating that the difference in PEAD to positive earnings between the A-share market and the H-share market is indistinguishable from zero.

5. Conclusion

This paper examines how the introduction of Chinese Large Language Models (LLMs) influences the A-H share premium for dual-listed Chinese firms by altering the information environment for mainland investors. Our findings reveal several important insights about the role of AI in financial markets.

First, we document that firms with substantial overseas operations experience a significant reduction in A-H price premium following the public release of Chinese LLMs. This effect is both statistically significant and economically meaningful, with the A-H premium of treatment firms decreasing by approximately 5.2% relative to control firms. The results remain robust to alternative specifications and sample periods, suggesting that AI adoption helps mainland investors access

previously unavailable information, particularly negative information about firms' overseas operations.

Second, our analysis of earnings announcements provides compelling evidence that Chinese LLMs facilitate information processing for mainland investors. The average A-H price premium around earnings announcement periods declines significantly after Chinese LLMs become available, with a notably stronger effect for negative earnings surprises. This finding supports our hypothesis that AI tools enable mainland investors to better process “unfavorable” information that was previously difficult to access due to information censorship.

Third, we find that the release of Chinese LLMs substantially changes the dynamics of information incorporation into stock prices. Following the introduction of these AI tools, A-shares exhibit: (1) greater price predictability of negative earnings surprises in pre-announcement periods, (2) convergence in price responsiveness to negative earnings news between A-shares and H-shares during announcement windows, and (3) reduced post-earnings announcement drift for negative earnings surprises. These patterns collectively indicate that Chinese LLMs enhance mainland investors' ability to incorporate previously inaccessible negative information into A-share prices, thereby improving market efficiency.

Our research contributes to the growing literature on the economic implications of AI by demonstrating how generative AI can mitigate information asymmetries in segmented markets. Our findings suggest that AI adoption serves as an information equalization mechanism that helps reduce the persistent A-H premium puzzle by enabling mainland investors to overcome information barriers imposed by restrictions such as the *Great Firewall*. As AI technologies continue to evolve and

proliferate, their potential to democratize access to information may have profound implications for price efficiency, market integration, and investor behavior globally.

Future research could explore how the differential impact of AI tools varies across investor types, how the quality and specificity of AI-generated information evolves over time, and whether similar effects manifest in other segmented markets worldwide. Additionally, investigating the regulatory implications of AI-enabled information access in markets with existing information barriers represents an important avenue for further inquiry.

Reference

- Amihud, Yakov, 2002, Illiquidity and stock returns: cross-section and time-series effects. *Journal of Financial Markets* 5: 31–56.
- Amihud, Yakov and Haim Mendelson, 1986, Asset pricing and the bid-ask spread. *Journal of Financial Economics* 17: 223-249.
- Bailey, Warren and Julapa Jagtiani, 1994, Foreign ownership restrictions and stock prices in the Thai capital market. *Journal of Financial Economics* 36: 57-87.
- Bertomeu, Jeremy, Yupeng Lin, Yibin Liu, and Zhenghui Ni, 2025, The Impact of Generative AI on Information Processing: Evidence from the Ban of ChatGPT in Italy. *Journal of Accounting and Economics*, 101782.
- Bian, Jiangze, Kalok Chan, Bing Han and Donghui Shi, 2023, Cross-border equity flows and information transmission: Evidence from Chinese stock markets. *Journal of International Financial Markets, Institutions and Money* 84, 101755.
- Capraro, Valerio, Austin Lentsch, Daron Acemoglu, Selin Akgun, Aisel Akhmedova, Ennio Bilancini, Jean-François Bonnefon, Pablo Brañas-Garza, Luigi Butera, Karen M Douglas, Jim A C Everett, Gerd Gigerenzer, Christine Greenhow, Daniel A Hashimoto, Julianne Holt-Lunstad, Jolanda Jetten, Simon Johnson, Werner H Kunz, Chiara Longoni, Pete Lunn, Simone Natale, Stefanie Paluch, Iyad Rahwan, Neil Selwyn, Vivek Singh, Siddharth Suri, Jennifer Sutcliffe, Joe Tomlinson, Sander van der Linden, Paul A M Van Lange, Friederike Wall, Jay J Van Bavel, and Riccardo Viale, 2024, The impact of generative artificial intelligence on socioeconomic inequalities and policy making. *PNAS Nexus* 3, pgae191.
- Carpenter, Jennifer N., Robert F. Whitelaw and Dacheng Zou, 2020, The A-H premium and implications for global investing in Chinese stocks. Working paper,

<https://www.dongchenzou.com/s/A-H.pdf>

Chan, Kalok, Albert J. Menkveld and Zhishu Yang, 2008, Information asymmetry and asset prices:

Evidence from the China foreign share discount. *Journal of Finance* 63: 159-196.

Chen, G.M., Bong-Soo Lee and Oliver Rui, 2001, Foreign ownership restrictions and market

segmentation in China's stock markets. *Journal of Financial Research* 24:133-155.

Chen, Jian, Guohao Tang, Guofu Zhou, and Wu Zhu, 2025, ChatGPT and Deepseek: Can They

Predict the Stock Market and Macroeconomy? Working paper,

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4660148

Cheng, Qiang, Pengkai Lin, and Yue Zhao, 2025, Does Generative AI Facilitate Investor Trading?

Evidence from ChatGPT Outages. Working paper,

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4872189

Chui, Andy C W, Avanidhar Subrahmanyam and Sheridan Titman, 2022, Momentum, reversals, and

investor clientele. *Review of Finance* 26: 217-255.

Domowitz, Ian, Jack Glen and Ananth Madhavan, 1997, Market segmentation and stock prices:

Evidence from an emerging market. *Journal of Finance* 52: 1059-1085.

Eisfeldt, Andrea L., Gregor Schubert, Miao Ben Zhang, and Bledi Taska, 2025, Generative AI and

Firm Values. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4436627

Fedyk, Anastassia, Ali Kakhbod, Peiyao Li, and Ulrike Malmendier, 2025, AI and Perception Biases

in Investments: An Experimental Study. Working Paper,

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4787249

Fernald, John and John H. Rogers, 2002, Puzzles in the Chinese stock market. *Review of Economics*

and Statistics 84: 416-432.

- Froot, Kenneth A. and Emil M. Dabora, 1999, How are stock prices affected by the location of trade? *Journal of Financial Economics* 53: 189-216.
- Gultekin, Mustafa N., N. Bulent Gultekin and Alessandro Penati, 1989, Capital controls and international capital market segmentation: The evidence from the Japanese and American stock markets. *Journal of Finance* 44: 849-869.
- Handa, Kunal, Alex Tamkin, Miles McCain, Saffron Huang, Esin Durmus, Sarah Heck, Jared Mueller, Jerry Hong, Stuart Ritchie, Tim Belonax, Kevin K. Troy, Dario Amodei, Jared Kaplan, Jack Clark, and Deep Ganguli, 2025, Which Economic Tasks are Performed with AI? Evidence from Millions of Claude Conversations. *arXiv.org*.
- Hirshleifer, David, Sonya Seongyeon Lim, and Siew Hong Teoh, 2009, Driven to Distraction: Extraneous Events and Underreaction to Earnings News. *The Journal of Finance* 64: 2289–2325.
- Hope, Ole-Kristian, Yi Li, Qiliang Liu and Han Wu, 2021, Newspaper Censorship in China: Evidence from Tunneling Scandals. *Management Science* 67: 6629-7289.
- Jha, Manish, Jialin Qian, Michael Weber, and Baozhong Yang, 2024, ChatGPT and Corporate Policies. Working paper, <https://www.nber.org/papers/w32161>
- Jia, Chunxin, Yaping Wang and Wei Xiong, 2017, Market segmentation and differential reactions of local and foreign investors to analyst recommendations. *Review of Financial Studies* 30: 2972-3008.
- Kadlec, Gregory B. and John J. McConnell, 1994, The effect of market segmentation and illiquidity on asset prices: Evidence from exchange listings. *Journal of Finance* 49: 611-636.
- Karolyi, G. Andrew, Lianfa Li and Rose Liao, 2009, A (partial) resolution of the Chinese discount

- puzzle: The 2001 deregulation of the B-share market. *Journal of Financial Economic Policy* 1: 80-106.
- Kim, Alex, Maximilian Muhn, and Valeri Nikolaev, 2025a, Financial Statement Analysis with Large Language Models. Working paper, <https://arxiv.org/abs/2407.17866>
- Kim, Alex, Maximilian Muhn, and Valeri Nikolaev, 2025b, Bloated Disclosures: Can ChatGPT Help Investors Process Information?. Working paper, <https://arxiv.org/abs/2306.10224>
- Lamont, Owen A. and Richard H. Thaler, 2003, Anomalies: The law of one price in financial markets. *Journal of Economic Perspectives* 17: 191-202.
- Lee, Charles M.C., and Qinlin Zhong, 2022, Shall we talk? The role of interactive investor platforms in corporate communication. *Journal of Accounting and Economics* 74: 101524.
- Li, Kai, Feng Mai, Rui Shen, Chelsea Yang, and Tengfei Zhang, 2025, Dissecting Corporate Culture Using Generative AI. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4558295
- Li, Yi, Dehua Shen, Pengfei Wang, and Wei Zhang, 2021, Investor reactions to local and overseas news: Evidence from A- and H-shares in China. *International Journal of Finance and Economics* 26: 4190-4225.
- Lopez-Lira, Alejandro, and Yuehua Tang, 2024, Can ChatGPT Forecast Stock Price Movements? Return Predictability and Large Language Models. Working paper, <https://arxiv.org/abs/2304.07619>
- Mei, Jianping, Jose A. Scheinkman and Wei Xiong, 2008, Speculative trading and stock prices: An analysis of Chinese A-B share premia. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1298841

- Piotroski, Joseph D., T.J. Wong and Tianyu Zhang, 2015, Political incentives to suppress negative information: Evidence from Chinese listed firms. *Journal of Accounting Research* 53: 405-459.
- Qin, Bei, David Stromberg and Yanhui Wu, 2018, Media bias in China. *American Economic Review* 108: 2442-2476.
- Qin, Bei, David Stromberg and Yanhui Wu, 2024, Social media and collective action in China. *Econometrica* 92: 1993-2026.
- Wang, Kemin, Xiaoyun Yu, and Bohui Zhang, 2023, Panda Games: Corporate Disclosure in the Eclipse of Search. *Management Science* 69: 3157-3758.
- Sarkar, Suproteem K., and Keyon Vafa, 2024, Lookahead Bias in Pretrained Language Models. Working paper, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4754678
- Sui, Pengfei, and Baolian Wang, 2023, Stakes and Investor Behaviors. *Journal of Financial Economics*, forthcoming.
- Stulz, Rene M. and Walter Wasserfallen, 1995, Foreign equity investment restrictions, capital flight, and shareholder wealth maximization: Theory and evidence. *Review of Financial Studies* 8: 1019-1057.
- Xu, Yongxin, Yuhao Xuan, and Gaoping Zheng, 2021, Internet searching and stock price crash risk: Evidence from a quasi-natural experiment. *Journal of Financial Economics* 141, 255–275.
- Xu, Yongxin, Yuhao Xuan, Dongyan Ye, and Gaoping Zheng, 2025, The Social Origins of Lottery-Like Stock Trading. Working paper, <https://ssrn.com/abstract=5167585>
- Zhang, Zhaohui, Rong Qi, and Alex Chung, 2021, The impact of the Shanghai-Hong Kong Stock Connect Program on the A-H share premium. *International Journal of Business* 26: 84-104.

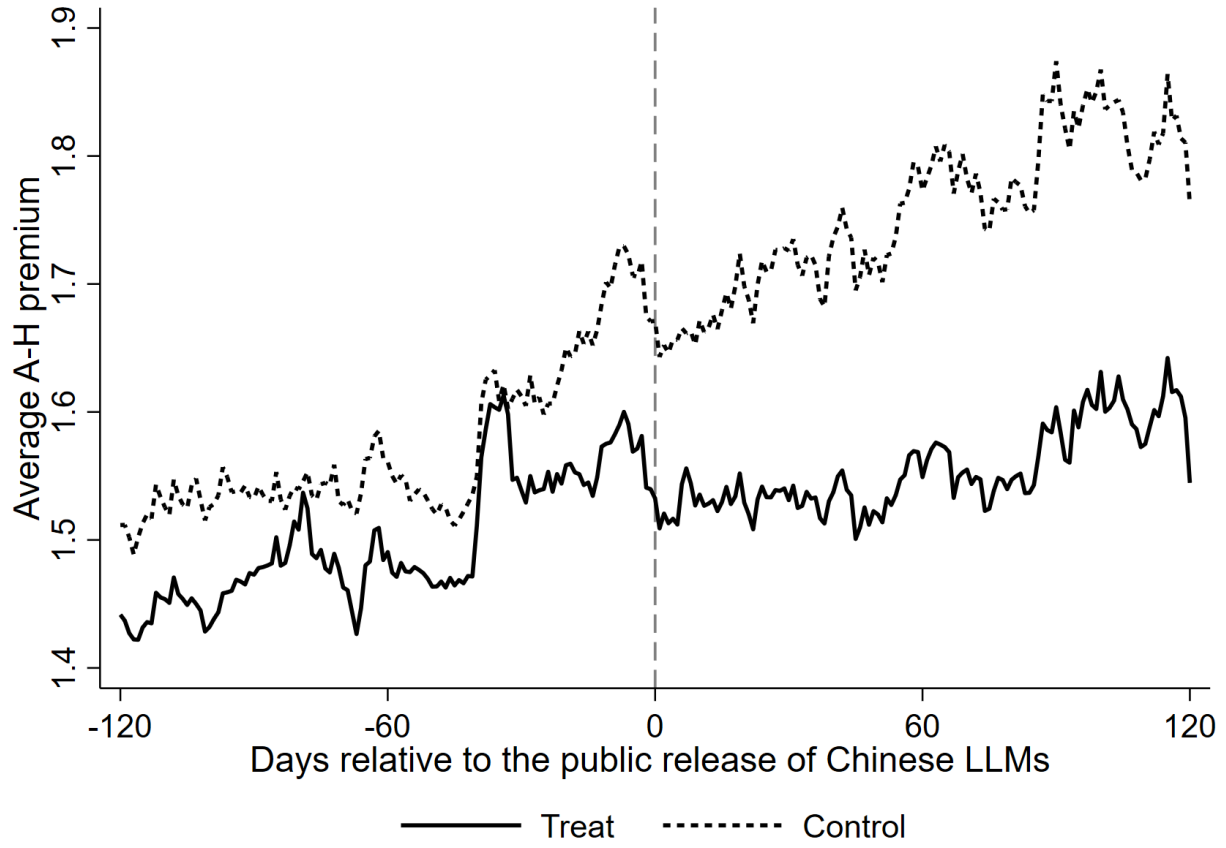


Figure 1: Average A-H premium around the release of Chinese LLMs

This figure illustrates the trend of average A-H premium for treatment and control firms during the period spanning 120 trading days before and after the public release of Chinese LLMs. The solid line represents the treatment firms, while the dotted line represents the control firms. The vertical dashed line marks day 0, which is when Chinese LLMs were publicly released. The x-axis represents trading days relative to day 0. The y-axis depicts the average A-H premium, weighted by the total market value of A- and H-shares for treatment and control firms respectively, following the methodology of Jia, Wang, and Xiong (2017).

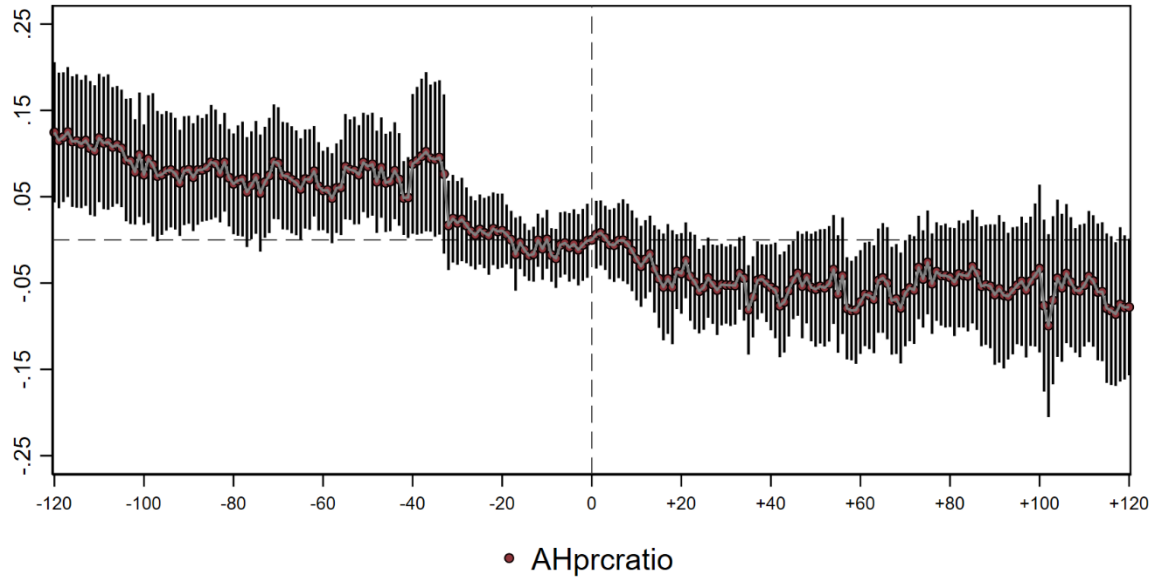


Figure 2: Dynamic trend of the regression result

This figure illustrates the dynamic trend of our main regression estimates in Table 3. The x-axis represents trading days relative to August 31, 2023, when the first batch of Chinese LLMs became officially available to the public. The y-axis displays the coefficient estimates. The trading day on August 31, 2023, is used as the omitted benchmark. The central dots represent the point estimates of the coefficients, while the vertical lines indicate their corresponding 95% confidence intervals.

Table 1: Descriptive of key variables

Panel A: The distribution of A-H dual-listed firms' percentage of overseas revenue in 2022

Variable	Obs	Mean	Sd	Min	P10	P25	Median	P75	P90	Max
<i>Overseas</i> (%)	147	14.534	20.484	0.000	0.000	0.000	5.710	20.710	40.680	93.400
Treat=1										
<i>Overseas</i> (%)	74	27.541	22.148	5.710	8.910	11.640	20.325	34.010	68.140	93.400
Treat=0										
<i>Overseas</i> (%)	73	1.349	1.831	0.000	0.000	0.000	0.000	2.840	4.460	5.360
Treat2=1										
<i>Overseas</i> (%)	61	31.737	22.236	10.100	12.390	14.890	24.968	36.060	72.020	93.400
Treat2=0										
<i>Overseas</i> (%)	86	2.332	2.942	0.000	0.000	0.000	0.940	4.410	7.070	9.680

This table reports the distribution of A-H dual-listed firms' percentage of overseas revenue in 2022. Among 148 firms dual-listed in mainland China and Hong Kong, one firm was listed in mainland China on August 7, 2023, and thus is excluded. *Treat* is an indicator that equals one if the proportion of overseas revenue to total revenue exceeds the median value of our sample (5.71%) in 2022, and 0 otherwise. *Treat2* is an indicator variable that equals one if the percentage of overseas revenue in 2022 exceeds 10%, and 0 otherwise.

Panel B: Descriptive statistics of control variables

Variable	Obs	Mean	SD	Min	P25	Median	P75	Max
Before Matching								
<i>AHprcratio</i>	35,296	2.177	0.917	1.057	1.554	1.851	2.715	6.335
<i>Size</i>	35,296	24.701	1.417	21.650	23.616	24.718	25.564	28.042
<i>BM</i>	35,296	1.354	1.023	0.207	0.601	1.102	1.636	5.080
<i>Hfraction</i>	35,296	0.300	0.184	0.061	0.183	0.245	0.338	0.962
<i>Illiq_A_Daily</i>	35,296	0.009	0.015	0.000	0.001	0.003	0.010	0.099
<i>Illiq_H_Daily</i>	35,296	0.323	0.931	0.000	0.007	0.037	0.178	6.712
<i>Momentum_A</i>	35,296	-0.001	0.045	-0.115	-0.029	-0.002	0.024	0.140
<i>Momentum_H</i>	35,296	-0.007	0.050	-0.141	-0.038	-0.006	0.020	0.182
<i>Beta_A</i>	35,296	1.005	0.436	0.093	0.692	0.973	1.279	2.128
<i>Beta_H</i>	35,296	0.701	0.285	0.066	0.501	0.680	0.880	1.562
After Matching								
<i>AHprcratio</i>	16,842	2.126	0.830	1.067	1.532	1.801	2.600	4.680
<i>Size</i>	16,842	24.882	1.510	21.476	23.899	24.897	25.739	28.121
<i>BM</i>	16,842	1.442	0.977	0.216	0.747	1.209	1.861	4.854
<i>Hfraction</i>	16,842	0.294	0.165	0.056	0.190	0.257	0.330	0.962
<i>Illiq_A_Daily</i>	16,842	0.008	0.015	0.000	0.001	0.003	0.008	0.106
<i>Illiq_H_Daily</i>	16,842	0.379	1.224	0.000	0.005	0.034	0.171	9.264
<i>Momentum_A</i>	16,842	0.003	0.041	-0.103	-0.023	0.001	0.025	0.146
<i>Momentum_H</i>	16,842	-0.004	0.046	-0.123	-0.033	-0.005	0.023	0.178
<i>Beta_A</i>	16,842	1.014	0.456	0.052	0.683	0.972	1.313	2.234
<i>Beta_H</i>	16,842	0.658	0.266	0.052	0.479	0.645	0.806	1.512

This table presents summary statistics for the variables used in our main model. *AHprcratio* represents the ratio of the closing A-share price (P_A) to the closing H-share price (P_H), adjusted for currency differences. *Size* is measured as the natural logarithm of the combined market capitalization of outstanding A- and H-shares on each trading day. *BM* denotes the book-to-market ratio, calculated as total book value of equity divided by the combined market value of outstanding A- and H-shares. *Hfraction* represents the ratio of outstanding H-shares to the total number of outstanding A- and H-shares across both share classes on each trading day. *Illiq_A_Daily* and *Illiq_H_Daily* are Amihud's (2002) illiquidity measures (in units of 10^{-8}) for A-shares and H-shares, respectively, computed daily. *Momentum_A* and *Momentum_H* measure return momentum, calculated as the average monthly return during the three months preceding each trading date for A-shares and H-shares, respectively. *Beta_A* and *Beta_H* represent systematic risk measures (beta) for A-shares and H-shares, respectively, calculated using data from the preceding 120 trading days for each trading day. The sample comprises A-H dual-listed firms with overseas revenue proportion exceeding the sample median value (treatment group) and their matched counterparts with overseas revenue proportion below the median value (control group).

Table 2: Balance test for the propensity score matching

Variables	Treat=0	Mean	Treat=1	Mean	Mean Dif.	t-value
<i>Size</i>	35	24.606	35	25.004	-0.398	-1.094
<i>BM</i>	35	1.453	35	1.5	-0.048	-0.205
<i>SOE</i>	35	0.657	35	0.743	-0.086	-0.775
<i>Hfraction</i>	35	0.296	35	0.309	-0.013	-0.316
<i>IlliquiA_mean</i>	35	0.01	35	0.009	0.001	0.202
<i>IlliquiH_mean</i>	35	2.499	35	1.027	1.472	1.163
<i>Momentum_A</i>	35	0.011	35	0.013	-0.002	-0.304
<i>Momentum_H</i>	35	0.015	35	0.015	0.000	0.029
<i>Beta_A</i>	35	0.985	35	0.976	0.009	0.105
<i>Beta_H</i>	35	0.591	35	0.59	0.001	0.020

This table presents the mean values of covariates for the treatment and control groups following propensity score matching (PSM), along with the mean differences between the two groups. *Treat* is an indicator variable equal to one if the proportion of overseas revenue to total revenue exceeds the sample median value (5.71%) in 2022, and zero otherwise. To find a matched control firm for a treatment firm, we implement a one-to-one nearest neighbor propensity score matching without replacement, using a 0.05 caliper, based on the following variables. *Size* represents the total market capitalization of outstanding A- and H-shares at the end of 2022. *BM* is measured as the ratio of total book value of equity to the combined market value of outstanding A- and H-shares at the end of 2022. *SOE* is an indicator variable equal to one if the firm is state-owned in 2022, and zero otherwise. *Hfraction* represents the proportion of a firm's outstanding shares issued in the H-share class at the end of 2022. *IlliquiA_mean* and *IlliquiH_mean* are the average daily illiquidity measures of Amihud (2002) for A-shares and H-shares, respectively, calculated over the last three months of 2022. *Momentum_A* and *Momentum_H* represent the average monthly returns for A-shares and H-shares, respectively, over the last three months of 2022. *Beta_A* and *Beta_H* are the beta coefficients for A-shares and H-shares, respectively, measured at the end of 2022.

Table 3: Chinese LLMs and A-H premium

	(1)	(2)	(3)
	[-120, +120]	[-120, +120]	[-60, +60]
	<i>AHprcratio</i>	<i>AHprcratio</i>	<i>AHprcratio</i>
<i>Treat</i> × <i>Post</i>	-0.108*** (-2.808)	-0.110*** (-3.131)	-0.082*** (-2.690)
<i>Size</i>		0.018 (0.131)	0.323* (1.772)
<i>BM</i>		-0.020 (-0.277)	-0.030 (-0.349)
<i>Hfraction</i>		-0.313 (-0.418)	1.690* (1.947)
<i>Illiq_A_Daily</i>		-0.833*** (-3.328)	-0.607* (-1.794)
<i>Illiq_H_Daily</i>		-0.008** (-2.433)	-0.003 (-1.658)
<i>Momentum_A</i>		2.753*** (10.120)	1.815*** (5.524)
<i>Momentum_H</i>		-2.572*** (-9.297)	-2.147*** (-6.081)
<i>Beta_A</i>		-0.036 (-0.846)	0.045 (0.856)
<i>Beta_H</i>		0.200*** (3.216)	0.207*** (2.930)
<i>Firm FE</i>	YES	YES	YES
<i>Trading day FE</i>	YES	YES	YES
<i>N</i>	16,842	16,842	8,453
<i>adj. R²</i>	0.970	0.977	0.985

This table reports how A-H premium changes after Chinese LLMs become available to mainland investors. The dependent variable is *AHprcratio*, the ratio of the closing A-share stock price (P_A) divided by the closing H-share stock price (P_H) on a currency-adjusted basis. The key independent variables of interest is *Treat*×*Post*. *Treat* is an indicator that equals one if the proportion of overseas revenue to total revenue exceeds the median value of our sample (5.71%) in 2022, and 0 otherwise. *Post* is a dummy variable that takes the value of one after August 31, 2023, and zero otherwise. We follow prior literature to control for a series of control variables that may be correlated with A-H premium (Carpenter, Whitelaw, and Zou 2020; Chan, Menkveld, and Yang 2008; Jia, Wang, and Xiong 2017). Detailed definition of control variables is in section 2.3. In column (1) and column (2), our sample period is from 120 trading days before to 120 trading days after August 31, 2023. In column (3), we further restrict our sample to 60 trading days before and 60 trading days after August 31, 2023. Two-way cluster robust t-statistics, by firm and trading day, are included in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, for the two-tailed tests.

Table 4: Robustness tests for Chinese LLMs and A-H premium

	(1) [-120, +120] <i>AHprcratio</i>	(2) [-60, +60] <i>AHprcratio</i>
<i>Treat2</i> × <i>Post</i>	-0.115*** (-3.010)	-0.064** (-2.381)
<i>Size</i>	-0.249 (-1.658)	0.082 (0.387)
<i>BM</i>	-0.217*** (-2.820)	-0.180** (-2.300)
<i>Hfraction</i>	-0.564 (-1.116)	1.341 (1.530)
<i>Illiq_A_Daily</i>	-1.020** (-2.284)	-0.423 (-0.864)
<i>Illiq_H_Daily</i>	-0.010* (-1.718)	-0.006** (-2.080)
<i>Momentum_A</i>	2.897*** (10.380)	1.954*** (5.261)
<i>Momentum_H</i>	-2.751*** (-9.761)	-2.376*** (-6.711)
<i>Beta_A</i>	0.010 (0.256)	0.118** (2.128)
<i>Beta_H</i>	0.116 (1.647)	0.145 (1.462)
<i>Firm FE</i>	YES	YES
<i>Trading day FE</i>	YES	YES
<i>N</i>	19,266	9,669
<i>adj. R²</i>	0.974	0.984

The table shows the results of robustness tests after using an alternative definition for treatment firms. *Treat2* is an indicator variable that equals one if the percentage of overseas revenue in 2022 exceeds 10%, and 0 otherwise. Other variable definitions are the same as those in Table 3. Two-way cluster robust t-statistics, by firm and trading day, are included in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, for the two-tailed tests.

Table 5: A-H premium around earnings announcement

	(1) Full sample <i>AHprcratiomean</i> [0, +1]	(2) $EPS_t - EPS_{t-4} > 0$ <i>AHprcratiomean</i> [0, +1]	(3) $EPS_t - EPS_{t-4} \leq 0$ <i>AHprcratiomean</i> [0, +1]
<i>Treat</i> × <i>Post</i>	-0.121** (-2.312)	-0.114** (-2.086)	-0.162** (-2.053)
<i>Post</i>	-0.059 (-1.174)	-0.055 (-1.224)	-0.071 (-0.732)
<i>Size</i>	-0.164 (-1.105)	-0.562** (-2.468)	0.022 (0.124)
<i>BM</i>	-0.083 (-0.867)	-0.317*** (-2.845)	-0.055 (-0.534)
$EPS_t - EPS_{t-4}$	0.004 (0.229)	-0.034 (-0.506)	0.002 (0.040)
<i>Turnover</i>	0.015 (0.363)	-0.092 (-1.164)	0.022 (0.671)
<i>Analyst_mean</i>	-0.010 (-1.076)	-0.003 (-0.218)	-0.016 (-1.439)
<i>Inst_mean</i>	0.007 (1.243)	0.018** (2.631)	-0.000 (-0.046)
<i>EarningsVol</i>	0.057* (1.737)	0.061 (0.889)	0.003 (0.034)
<i>EarningsPer</i>	-0.005 (-0.034)	-0.182 (-1.284)	0.333 (1.581)
<i>Firm FE</i>	YES	YES	YES
<i>Quarter FE</i>	YES	YES	YES
<i>N</i>	470	264	186
<i>adj. R</i> ²	0.951	0.958	0.950

The table shows how Chinese LLMs affect A-H premium around earnings announcements. The dependent variable is *AHprcratiomean*[0, +1], the average of A-H premium from the earning announcement date to one day after. Our key independent variable is *Treat*×*Post*, the definitions of *Treat* and *Post* are the same as those in Table 3. As we control for quarter fixed effects, *Post* is not absorbed in our regressions. *Size* is the logarithm of the sum of the market capitalization of A- and H-shares outstanding at the last quarter-end. *BM* is the book-to-market ratio, measured as total book value of equity over the sum of market value of A- and H-shares outstanding at the last quarter-end. $EPS_t - EPS_{t-4}$, is the current quarter EPS minus EPS from the corresponding quarter a year ago. *Turnover* is the average daily turnover rate in the prior 60 trading days. *Analyst_mean* is the average of the number of analysts covering A-share and H-share in the most recent fiscal year. *Inst_mean* is the average of the percentage of outstanding shares held by institutional investors in a firm's A-shares and H-shares at the end of the most recent calendar quarter. *EarningsVol* is the standard deviation of seasonal changes in EPS estimated over the four-year period ending on the fiscal-quarter end date. *EarningsPer* is the first-order autocorrelation coefficient of quarterly EPS during the past 4 years. As we control for quarter fixed effects, *Post* is not absorbed in our regressions. Two-way cluster robust t-statistics, by firm and earnings announcement day, are included in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, for the two-tailed tests.

Table 6: Future Earnings Response Coefficients (FERC)

	(1)	(2)	(3)	(4)
	Before Chinese LLMs opened to public		After Chinese LLMs opened to public	
	<i>CAR</i> [-60,-1]			
	SUE≤0	SUE>0	SUE≤0	SUE>0
<i>Treat</i> × <i>Adummy</i> × <i>SUE</i>	-1.736	0.045	1.454*	-0.148
	(-1.368)	(0.042)	(2.361)	(-0.353)
<i>Treat</i> × <i>SUE</i>	0.887	-2.178*	0.795	-0.078
	(0.459)	(-1.973)	(1.060)	(-0.170)
<i>Adummy</i> × <i>SUE</i>	0.562	0.485	-1.107**	0.022
	(0.490)	(0.538)	(-2.158)	(0.046)
<i>SUE</i>	-31.594	39.267	12.327	7.637*
	(-1.280)	(1.511)	(1.179)	(1.910)
<i>Size</i>	-0.370***	-0.248**	-0.509***	-0.024
	(-3.121)	(-2.188)	(-3.097)	(-0.199)
<i>BM</i>	0.237	0.226*	-0.169*	0.231**
	(1.383)	(1.793)	(-1.967)	(2.066)
<i>Turnover</i>	0.415***	0.320*	0.022	0.050
	(4.901)	(1.973)	(1.193)	(0.648)
<i>Analyst</i>	-0.003	0.006	-0.000	-0.004
	(-0.396)	(0.893)	(-0.053)	(-0.350)
<i>Institute</i>	-0.080	0.844	0.137	-0.242
	(-0.136)	(1.443)	(0.655)	(-0.762)
<i>EarningsVol</i>	0.311*	-0.041	-0.073	0.119*
	(1.774)	(-0.331)	(-0.789)	(1.915)
<i>EarningsPer</i>	-0.022	-0.080	-0.301*	0.459***
	(-0.081)	(-0.448)	(-1.971)	(3.220)
<i>Size</i> × <i>SUE</i>	1.275	-1.405	-0.451	-0.359*
	(1.217)	(-1.281)	(-1.012)	(-2.004)
<i>BM</i> × <i>SUE</i>	-0.687	-2.448*	0.848**	-0.112
	(-0.949)	(-1.844)	(2.368)	(-0.337)
<i>Turnover</i> × <i>SUE</i>	3.041*	-3.003*	-0.319	0.515
	(2.087)	(-1.910)	(-1.291)	(0.512)
<i>Institute</i> × <i>SUE</i>	2.192	-0.056	-3.311***	1.144
	(0.951)	(-0.020)	(-2.883)	(1.187)
<i>Analyst</i> × <i>SUE</i>	0.017	0.051	-0.140*	0.004
	(0.080)	(0.239)	(-1.777)	(0.062)
<i>EarningsVol</i> × <i>SUE</i>	-0.619	-0.266	0.595	0.753
	(-0.253)	(-0.202)	(1.271)	(0.574)
<i>EarningsPer</i> × <i>SUE</i>	2.614*	4.150*	-4.022***	-0.703
	(2.105)	(1.904)	(-3.235)	(-0.649)
<i>Stock FE</i>	YES	YES	YES	YES
<i>Quarter FE</i>	YES	YES	YES	YES
<i>N</i>	88	154	232	322

<i>adj. R²</i>	0.585	0.421	0.067	0.355
<p>The table shows how the predictability of the stock price for upcoming earnings surprises changes after the Chinese LLMs become available to mainland investors. Columns (1) to (2) show the results before Chinese LLMs opened to the public, and columns (3) to (4) report the results after Chinese LLMs became available. The dependent variable is <i>CAR</i>[-60,-1], the cumulative abnormal return from 60 days before to 1 day before the earnings announcement date. The abnormal return is calculated as the raw return minus the predicted return from a market model in which raw stock returns are regressed on the Shanghai/Shenzhen Composite Index and the Hong Kong Hang Seng Index returns. The market model is estimated using data from the period spanning 260 trading days to 70 trading days prior to each earnings announcement date. <i>Treat</i> is an indicator that equals one if the proportion of overseas revenue to total revenue exceeds the median value of our sample (5.71%) in 2022, and 0 otherwise. <i>Adummy</i> is a dummy variable that takes the value of one for A-shares, and zero for H-shares. <i>SUE</i> is standardized unexpected earnings, calculated as the current quarter EPS minus EPS from the corresponding quarter a year ago and scaled by stock price on day t-60 relative to earnings announcement date (Lee and Zhong, 2022). <i>Size</i> is the logarithm of the sum of the market capitalization of A- and H-shares outstanding at the last quarter-end. <i>BM</i> is the book-to-market ratio, measured as total book value of equity over the sum of market value of A- and H-shares outstanding at the last quarter-end. <i>Turnover</i> is the average daily turnover rate in the prior 60 trading days. <i>Analyst</i> is the number of analysts covering each share class in the most recent fiscal year (Jia, Wang, and Xiong 2017). <i>Institute</i> is the percentage of outstanding shares held by institutional investors in each share class at the end of the most recent calendar quarter. <i>EarningsVol</i> is standard deviation of seasonal changes in EPS estimated over the four-year period ending on the fiscal-quarter end date. <i>EarningsPer</i> is the first-order autocorrelation coefficient of quarterly EPS during the past 4 years (Hirshleifer, Lim, and Teoh 2009). We include the firm's separate A-share and H-share fixed effect (Stock FE), and quarter fixed effect in the model. Two-way cluster robust t-statistics, by firm and earnings announcement date, are included in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, for the two-tailed tests.</p>				

Table 7: Earnings Response Coefficients (ERC)

	(1)	(2)	(3)	(4)
	Before Chinese LLMs opened to public		After Chinese LLMs opened to public	
	<i>CAR</i> [0,+1]			
	SUE≤0	SUE>0	SUE≤0	SUE>0
<i>Treat</i> × <i>Adummy</i> × <i>SUE</i>	-0.958* (-2.328)	0.259 (0.788)	0.118 (0.730)	0.506** (2.467)
<i>Treat</i> × <i>SUE</i>	-0.238 (-0.465)	-1.486*** (-4.056)	0.186 (0.555)	-0.233 (-1.114)
<i>Adummy</i> × <i>SUE</i>	0.557 (1.742)	-0.382 (-1.136)	-0.098 (-0.662)	-0.337 (-1.472)
<i>SUE</i>	-4.776 (-0.722)	-3.404 (-0.318)	2.431 (0.632)	-3.485*** (-2.727)
<i>Size</i>	-0.049 (-1.382)	-0.026 (-0.453)	0.034 (0.598)	-0.019 (-0.494)
<i>BM</i>	-0.065 (-1.168)	0.103** (2.439)	0.047** (2.561)	0.012 (0.375)
<i>Turnover</i>	0.046* (1.797)	-0.092** (-2.613)	0.003 (0.436)	-0.011 (-1.059)
<i>Analyst</i>	0.000 (0.063)	-0.003 (-1.576)	-0.003 (-1.569)	0.002 (0.535)
<i>Institute</i>	-0.197 (-1.457)	-0.085 (-1.176)	0.119 (1.428)	-0.134* (-1.715)
<i>EarningsVol</i>	0.065 (1.642)	0.051 (1.281)	-0.040 (-1.534)	0.034 (1.619)
<i>EarningsPer</i>	0.080 (1.402)	0.064 (1.011)	-0.036 (-0.667)	0.069* (1.708)
<i>Size</i> × <i>SUE</i>	0.171 (0.619)	0.184 (0.409)	-0.104 (-0.678)	0.179*** (3.078)
<i>BM</i> × <i>SUE</i>	0.191 (1.414)	-0.879** (-2.174)	0.048 (0.759)	-0.092 (-0.677)
<i>Turnover</i> × <i>SUE</i>	0.441 (0.987)	-0.739 (-1.449)	0.153 (1.482)	0.081 (0.436)
<i>Institute</i> × <i>SUE</i>	0.822** (2.341)	1.925** (2.523)	0.160 (0.230)	-0.385 (-1.182)
<i>Analyst</i> × <i>SUE</i>	-0.036 (-0.746)	0.012 (0.148)	0.016 (1.097)	0.056** (2.233)
<i>EarningsVol</i> × <i>SUE</i>	0.398 (0.760)	-0.319 (-0.624)	-0.067 (-0.286)	-1.138** (-2.641)
<i>EarningsPer</i> × <i>SUE</i>	-0.074 (-0.234)	0.494 (0.390)	-1.072* (-1.788)	-0.215 (-0.377)
<i>Stock FE</i>	YES	YES	YES	YES
<i>Quarter FE</i>	YES	YES	YES	YES
<i>N</i>	88	156	234	324

<i>adj. R²</i>	0.274	0.309	0.029	0.065
---------------------------	-------	-------	-------	-------

The table shows the market response to earnings announcements before and after the Chinese LLMs are available to mainland investors. The dependent variable is $CAR[0,+1]$, the cumulative abnormal return from the earnings announcement date to one day after (Hirshleifer, Lim, and Teoh 2009). The abnormal return is calculated as the raw return minus the predicted return from a market model in which raw stock returns are regressed on the Shanghai/Shenzhen Composite Index and the Hong Kong Hang Seng Index returns. The market model is estimated using data from the period spanning 260 trading days to 10 trading days prior to each earnings announcement date. Other variable definitions are the same as those in Table 6. We include the firm's separate A-share and H-share fixed effect (Stock FE), and quarter fixed effect in the model. Two-way cluster robust t-statistics, by firm and earnings announcement date, are included in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, for the two-tailed tests.

Table 8: Post earnings announcement drift (PEAD)

	(1)	(2)	(3)	(4)
	Before Chinese LLMs opened to public		After Chinese LLMs opened to public	
	<i>CAR</i> [+2,+61]			
	SUE≤0	SUE>0	SUE≤0	SUE>0
<i>Treat</i> × <i>Adummy</i> × <i>SUE</i>	3.543** (2.354)	0.895 (0.907)	-3.003** (-2.683)	-0.397 (-0.466)
<i>Treat</i> × <i>SUE</i>	3.386** (2.693)	-3.182*** (-3.557)	0.657 (0.664)	0.716 (1.191)
<i>Adummy</i> × <i>SUE</i>	-3.381* (-1.804)	-0.299 (-0.285)	2.516** (2.163)	0.988* (1.827)
<i>SUE</i>	-64.789** (-2.465)	49.016* (1.964)	-5.197 (-0.305)	-7.368*** (-3.387)
<i>Size</i>	-0.498*** (-3.842)	-0.366** (-2.179)	-0.922*** (-3.571)	-0.321 (-1.419)
<i>BM</i>	0.255 (1.248)	0.032 (0.298)	0.012 (0.113)	0.140 (1.419)
<i>Turnover</i>	-0.388*** (-3.257)	-0.188** (-2.159)	-0.054 (-1.349)	-0.035 (-0.663)
<i>Analyst</i>	-0.012* (-1.824)	-0.017*** (-3.970)	-0.043*** (-4.372)	-0.013 (-0.987)
<i>Institute</i>	-1.357** (-2.790)	-0.020 (-0.058)	0.259 (0.631)	-0.101 (-0.286)
<i>EarningsVol</i>	-0.138 (-1.175)	-0.053 (-0.696)	0.070 (0.856)	-0.067 (-1.420)
<i>EarningsPer</i>	0.201 (0.354)	-0.028 (-0.304)	0.021 (0.063)	0.125 (0.692)
<i>Size</i> × <i>SUE</i>	2.865** (2.460)	-1.933* (-1.824)	0.187 (0.291)	0.264** (2.699)
<i>BM</i> × <i>SUE</i>	1.399** (2.639)	-1.312 (-1.144)	0.648** (2.388)	0.477** (2.084)
<i>Turnover</i> × <i>SUE</i>	-4.106* (-1.869)	-1.612 (-1.611)	-0.116 (-0.224)	-0.954 (-0.916)
<i>Institute</i> × <i>SUE</i>	-6.863 (-1.627)	1.793 (0.724)	0.125 (0.048)	1.658 (0.796)
<i>Analyst</i> × <i>SUE</i>	-0.254** (-2.600)	0.425** (2.105)	-0.159 (-1.053)	-0.186*** (-3.536)
<i>EarningsVol</i> × <i>SUE</i>	-5.534*** (-3.926)	-1.441 (-1.328)	0.773 (0.861)	0.553 (0.480)
<i>EarningsPer</i> × <i>SUE</i>	4.040* (2.118)	4.025* (1.714)	-2.656 (-0.818)	1.781* (1.689)
<i>Stock FE</i>	YES	YES	YES	YES
<i>Quarter FE</i>	YES	YES	YES	YES
<i>N</i>	88	150	226	324

<i>adj. R²</i>	0.421	0.535	0.441	0.312
<p>The table shows how the post-earning announcement drift changes after the Chinese LLMs are available to mainland investors. The dependent variable is $CAR[+2,+61]$, the cumulative abnormal return over the 60-trading-day window starting 2 days after the earnings announcement date (Hirshleifer, Lim, and Teoh 2009). The abnormal return is calculated as the raw return minus the predicted return from a market model in which raw stock returns are regressed on the Shanghai/Shenzhen Composite Index and the Hong Kong Hang Seng Index returns. The market model is estimated using data from the period spanning 260 trading days to 10 trading days prior to each earnings announcement date. Other variable definitions are the same as in Table 6. We include the firm's separate A-share and H-share fixed effect (Stock FE), and quarter fixed effect in the model. Two-way cluster robust t-statistics, by firm and earning announcement date, are included in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively, for the two-tailed tests.</p>				

Appendix A

In this section, we provide examples of Chinese LLMs’ analyses of the information related to A-H dual-listed companies, in contrast to the search results from Baidu, one of the largest search engines in China. In Panel A, keywords for sentiment are highlighted. In Panels C and D, websites highlighted in yellow are the ones that cannot be accessed directly from mainland China.

Panel A: Baidu

Question	Baidu	
	Research results	Title Sentiment
中远海控（601919.SS/1919.HK）近期在海外经营中遇到了哪些风险和困难？在回答问题前请你帮我搜索海外知名财经英文网站 Financial Times、Reuters、Yahoo Finance、Bloomberg、The Wall Street Journal、Google Finance 等对中远海控（COSCO Shipping Holdings）的相关报道。	First page:	
	(1) <u>中远海控：积极应对关税影响 加大全球运力与码头资源协调力度</u>	+
	(2) <u>中远海控回应美国加征关税影响：美线客户观望情绪增加 行业影响存在较大不确定性</u>	-
	(3) <u>中远海控（601919）2024 年年报关键审计项：商誉减值评估事项、集装箱航运收入确认事项等</u>	Neutral
	(4) <u>中远海控把握机遇前三月赚 116 亿 回购计划完成耗资 14 亿回购近 1 亿股</u>	+
	(5) <u>中远海控：运价暴涨催生业绩大涨，单一业务周期性难解</u>	+
	(6) <u>红海局势存不确定性、贸易关税政策烈度更强 中远海控：预计 2025 年集运需求增速放缓</u>	-
	(7) <u>中远海控：影响股价变动的因素是多方面的，公司保持稳健发展态势注重与资本市场沟通</u>	+
	(8) <u>一周复盘 中远海控本周累计下跌 2.69%，航运港口板块下跌 2.05%</u>	-
	(9) <u>直击股东大会 中远海控：美国大选短期内带动强烈出货需求 长期航运市场将迎结构性变化</u>	+
	(10) <u>中远海控坦言：受诸多回购规则限制</u>	-
	Second page:	
	(11) <u>中远海控 Q3 净利大增 2.86 倍！机构：运价的机遇风险并存</u>	+
	(12) <u>中远海控：下半年集运市场谨慎乐观 产业链合作将更趋紧密</u>	+
	(13) <u>出海 中国工程机械企业的全球化布局剖析</u>	Neutral
	(14) <u>红海局势突现缓和迹象 海运股集体下跌</u>	-
	(15) <u>保险业如何助力把控企业“出海”风险 专家学者探讨企业走出去的“危”与“机”</u>	-
	(16) <u>净利润预计缩水近八成 中远海控（01919）依然困在周期里</u>	-
	(17) <u>集装箱航运业需求走弱，中远海控去年净利润大减 78.25%</u>	-

	<p>(18) 中远海控(601919)业绩预减 78%，数字化供应链成未来发展方向</p> <p>(19) 中国银河给予交通运输推荐评级：红海袭击事件持续发酵 或将推动集运、油运运价水平上行</p> <p>(20) 中企出海，面临哪些风险？</p>	<p>-</p> <p>+</p> <p>-</p>
<p>What risks and difficulties has COSCO Shipping Holdings (601919.SS/1919.HK) encountered recently in its overseas operations? Before answering this question, please search for relevant reports about COSCO Shipping Holdings from well-known international financial news websites, such as Financial Times, Reuters, Yahoo Finance, Bloomberg, The Wall Street Journal, and Google Finance.</p>	<p>First page:</p> <p>(1) COSCO Shipping Holdings: Actively responding to tariff impacts, strengthening global capacity and terminal resource coordination</p> <p>(2) COSCO Shipping responds to US tariff impacts: US route customers increasingly cautious, industry impact faces significant uncertainty</p> <p>(3) COSCO Shipping Holdings (601919) 2024 Annual Report key audit items: Goodwill impairment assessment, container shipping revenue recognition, etc.</p> <p>(4) COSCO Shipping seizes opportunities with 11.6 billion yuan profit in first quarter, completes share buyback plan spending 1.4 billion to repurchase nearly 100 million shares</p> <p>(5) COSCO Shipping: Soaring freight rates drive earnings growth, difficult to solve single-business cyclical issues</p> <p>(6) Red Sea situation remains uncertain, trade tariff policies intensifying – COSCO Shipping: Expects container shipping demand growth to slow in 2025</p> <p>(7) COSCO Shipping: Stock price fluctuations influenced by multiple factors, company maintains steady development and focuses on capital market communication</p> <p>(8) Weekly review: COSCO Shipping down 2.69% this week, shipping and port sector down 2.05%</p> <p>(9) Shareholders' meeting highlights: COSCO Shipping: US election driving strong short-term shipping demand, long-term shipping market facing structural changes</p> <p>(10) COSCO Shipping acknowledges: Constrained by numerous buyback regulations</p> <p>Second page:</p> <p>(11) COSCO Shipping Q3 net profit jumps 2.86 times! Analysts: Freight rates present both opportunities and risks</p> <p>(12) COSCO Shipping: Cautiously optimistic about second-half container market, supply chain cooperation becoming closer</p> <p>(13) Going global: Analysis of Chinese construction machinery companies' globalization strategies</p> <p>(14) Red Sea situation shows signs of easing, shipping stocks collectively decline</p> <p>(15) How insurance industry can help control enterprise “going global” risks: Experts discuss the “dangers” and “opportunities” of international expansion</p> <p>(16) Net profit expected to shrink by nearly 80%, COSCO Shipping (01919) still trapped in cyclical</p>	<p>+</p> <p>-</p> <p>Neutral</p> <p>+</p> <p>+</p> <p>-</p> <p>+</p> <p>+</p> <p>-</p> <p>+</p> <p>-</p> <p>+</p> <p>+</p> <p>Neutral</p> <p>-</p> <p>-</p> <p>-</p>

	(17) <u>Container shipping demand weakens, COSCO Shipping's net profit plunges 78.25% last year</u>	-
	(18) <u>COSCO Shipping (601919) profit decreases 78%, digital supply chain becomes future development direction</u>	-
	(19) <u>China Galaxy Securities gives transportation sector "recommended" rating: Continued Red Sea attacks may drive container shipping and oil tanker rates higher</u>	+
	(20) <u>Chinese enterprises going global: What risks do they face?</u>	-

Panel B: ERINE

Question	ERINE	
	Analyses	Source websites searched
中 远 海 控 （ 601919.SS/1919.HK）近期在海外经营中遇到了哪些风险和困难？在回答问题前请你帮我搜索海外知名财经英文网站 Financial Times、Reuters、Yahoo Finance、Bloomberg、The Wall Street Journal、Google Finance 等对中远海控（ COSCO Shipping Holdings）的相关报道。	<p>目前无法直接实时检索海外知名财经英文网站（如 Financial Times、Reuters、Yahoo Finance、Bloomberg、The Wall Street Journal、Google Finance 等）对中远海控（COSCO Shipping Holdings，股票代码：601919.SS/1919.HK）的最新报道。不过，基于公开信息及行业动态分析，中远海控在海外经营中可能面临以下风险和困难：</p> <p>1. 地缘政治风险</p> <ul style="list-style-type: none">• 红海局势动荡：红海地区局势的不确定性对中远海控的航线安全构成直接威胁。绕行非洲好望角导致航程增加、成本上升，同时可能加剧港口拥堵，影响运营效率。• 中美贸易摩擦：美国对中国航运、物流和船舶制造领域的 301 调查及潜在制裁措施，可能对中远海控的美国航线业务造成冲击。此外，贸易保护主义抬头和关税壁垒的增加，也可能对全球供应链造成冲击，进而影响中远海控的货运需求和收入。 <p>2. 市场波动风险</p> <ul style="list-style-type: none">• 全球经济增长放缓：全球经济增长放缓或衰退将直接导致贸易量下降，影响中远海控的货运需求和收入。• 运力过剩与运价波动：航运业竞争激烈，运力过剩可能导致运费下降，压缩利润空间。同时，运价波动也可能对公司的盈利稳定性造成影响。 <p>3. 运营与合规风险</p> <ul style="list-style-type: none">• 港口拥堵与供应链中断：全球主要港口的拥堵状况可能加剧，影响中远海控的船舶周转效率和货物交付时间。此外，供应链的中断也可能对公司的运营造成不利影响。• 环保法规与合规成本：国际海事组织（IMO）对船舶排放的限制（如硫排放、碳减排）将增加中远海控的运营成本。公司需要升级船舶或使用更昂贵的清洁燃料，以满足环保要求。 <p>4. 技术与数字化转型风险</p> <ul style="list-style-type: none">• 技术升级压力：航运业的数字化转型需要大量投资，中远海控如果未能及时跟进，可能失去竞争力。• 网络安全风险：船舶和港口系统的数字化可能成为黑客攻击的目标，增加公司的网络安全风险。 <p>5. 汇率与财务风险</p> <ul style="list-style-type: none">• 汇率波动：中远海控在海外经营中涉及多种货币结算，汇率波动可能对公司的财务状况造成影响。• 债务与融资成本：全球利率环境的变化可能影响公司的融资成本和债务负担。	<p>(1) 雪球</p> <p>(2) 红海局势存不确定性、贸易关税政策烈度更强 中远海控：预计 2025 年集运需求增速放缓</p> <p>(3) 雪球-中远海控（五）：问题与风险</p> <p>(4) 雪球</p> <p>(5) 中远海控：2024 年净利润增幅超 100%，半数盈利用于分红，全球通道建设加速推进</p> <p>(6) 东方财富网-中远海控</p> <p>(7) 雪球-中远海控，招商轮船，中国船舶，国航物流船舶制造 301 调查结果#</p> <p>(8) 中远海控展望 2025：集运需求增速放缓，风险管理成关键</p> <p>(9) 中远海控 2023 年营收净利双降，面临挑战</p>

<p>What risks and difficulties has COSCO Shipping Holdings (601919.SS/1919.HK) encountered recently in its overseas operations? Before answering this question, please search for relevant reports about COSCO Shipping Holdings from well-known international financial news websites, such as Financial Times, Reuters, Yahoo Finance, Bloomberg, The Wall Street Journal, and Google Finance.</p>	<p>Currently, it's unable to directly search real-time reports about COSCO Shipping Holdings (ticker: 601919.SS/1919.HK) from major international financial news websites like Financial Times, Reuters, Yahoo Finance, Bloomberg, The Wall Street Journal, and Google Finance. However, based on public information and industry analysis, COSCO Shipping Holdings likely faces following risks and challenges in overseas operations:</p> <ol style="list-style-type: none"> Geopolitical Risks <ul style="list-style-type: none"> Red Sea instability: Uncertainties in the Red Sea region directly threaten COSCO's route safety. Diverting around Africa's Cape of Good Hope increases voyage length and costs while potentially worsening port congestion and affecting operational efficiency. US-China trade tensions: US Section 301 investigations into Chinese shipping, logistics, and shipbuilding sectors and potential sanctions may impact COSCO's US route operations. Rising trade protectionism and tariff barriers could also disrupt global supply chains, affecting COSCO's freight demand and revenue. Market Volatility Risks <ul style="list-style-type: none"> Global economic slowdown: Slowing global economic growth or recession would directly reduce trade volumes, impacting COSCO's freight demand and revenue. Overcapacity and rate fluctuations: Intense industry competition and overcapacity may drive down freight rates, squeezing profit margins. Rate volatility also affects earnings stability. Operational and Compliance Risks <ul style="list-style-type: none"> Port congestion and supply chain disruptions: Worsening congestion at major global ports may affect COSCO's vessel turnover efficiency and cargo delivery times. Supply chain disruptions could adversely impact operations. Environmental regulations and compliance costs: IMO restrictions on vessel emissions (sulfur, carbon) will increase COSCO's operational costs, requiring vessel upgrades or more expensive clean fuels to meet environmental requirements. Technology and Digital Transformation Risks <ul style="list-style-type: none"> Technology upgrade pressure: The shipping industry's digital transformation requires substantial investment; COSCO may lose competitiveness if it fails to keep pace. Cybersecurity risks: Digitalization of vessels and port systems may become targets for cyberattacks, increasing network security risks. Currency and Financial Risks <ul style="list-style-type: none"> Exchange rate fluctuations: COSCO's multinational operations involve multiple currency settlements; exchange rate volatility may affect the company's financial position. 	<ol style="list-style-type: none"> (1) Xueqiu (2) Red Sea situation remains uncertain, trade tariff policies intensify - COSCO SHIPPING Holdings: Container shipping demand growth expected to slow in 2025 (3) Xueqiu - COSCO SHIPPING Holdings (Part 5): Issues and Risks (4) Xueqiu (5) COSCO SHIPPING Holdings: 2024 net profit increase exceeds 100%, half of profits used for dividends, global corridor construction accelerates (6) East Money - COSCO SHIPPING Holdings (7) Xueqiu - COSCO SHIPPING Holdings, China Merchants Energy Shipping, China CSSC, China Aviation Logistics shipping manufacturing 301 investigation results (8) COSCO SHIPPING Holdings outlook for 2025: Container shipping demand growth slows, risk management becomes key
--	--	---

	<ul style="list-style-type: none"> • Debt and financing costs: Changes in the global interest rate environment may impact the company's financing costs and debt burden. 	(9) COSCO SHIPPING Holdings 2023 revenue and net profit both decline, facing challenges
--	--	---

Panel C: Kimi

Question	Kimi	
	Analyses	Source websites searched
中 远 海 控 (601919.SS/1919.HK) 近期在海外经营中遇到了哪些风险和困难？在回答问题前请你帮我搜索海外知名财经英文网站 Financial Times、Reuters、Yahoo Finance、Bloomberg、The Wall Street Journal、Google Finance 等对 中 远 海 控（COSCO Shipping Holdings）的相关报道。	<p>根据搜索结果，中远海控（COSCO Shipping Holdings）近期在海外经营中面临以下风险和困难：</p> <p>1. 贸易政策风险</p> <ul style="list-style-type: none">• 美国贸易关税和港口费用：中远海控在美国市场面临贸易关税和可能的港口费用增加的问题。这些措施可能会导致其运营成本大幅上升，增加数千万美元的支出。• 地缘政治影响：2024 年红海地区的紧张局势虽然在一定程度上推高了运价，但也增加了航线的不确定性和运营成本。 <p>2. 市场竞争和运价波动</p> <ul style="list-style-type: none">• 运价下降风险：尽管 2024 年公司业绩表现强劲，但未来运价面临下降压力。分析师预计 2025 年中远海控的营收可能下降 13%，每股收益可能下降 47%。运价的波动直接影响公司的盈利能力。• 行业竞争加剧：全球航运市场竞争激烈，中远海控需要在运力管理、服务质量等方面不断提升，以应对来自其他航运巨头的竞争。 <p>3. 行业周期性风险</p> <ul style="list-style-type: none">• 需求波动：全球贸易的不确定性导致集装箱运输需求的波动。尽管 2024 年因美国消费需求强劲，中远海控的营收和利润大幅增长，但未来需求的不确定性仍然存在。• 运力过剩：航运行业长期面临运力过剩的问题，这可能导致运价下跌，压缩利润空间。 <p>4. 财务和市场风险</p> <ul style="list-style-type: none">• 股价波动：中远海控的股价在过去一段时间内表现较为波动。尽管其在 2024 年业绩表现优异，但市场对其未来业绩的预期存在分歧，导致股价波动较大。• 市场信心不足：尽管公司有较强的市场地位和运营效率，但市场对其未来盈利能力的信心不足，这可能影响其在资本市场的表现。 <p>5. 运营成本上升</p> <ul style="list-style-type: none">• 燃油成本：航运业的燃油成本是重要的运营支出之一，油价波动可能对中远海控的运营成本产生重大影响。	<p>(1) COSCO SHIP HOLD (1919.HK) - Yahoo Finance</p> <p>(2) COSCO SHIPPING Holdings Co., Ltd. (SHA:601919) – Stock Analysis</p> <p>(3) COSCO SHIPPING Holdings Co., Ltd. (601919.SS) - Yahoo Finance</p> <p>(4) COSCO, CHINA SHIPPING GROUP IN ADVANCED MERGER TALKS</p> <p>(5) COSCO SHIPPING Holdings Co., Ltd. (601919.SS) - Yahoo Finance</p> <p>(6) China's largest shipping line sees stunning gains in revenue, profits</p> <p>(7) COSCO SHIPPING Holdings Co., Ltd. (601919.SS) - Yahoo Finance</p> <p>(8) COSCO SHIPPING Holdings (DB:C6G0) - Simply Wall St</p> <p>(9) COSCO SHIPPING Holdings Co., Ltd. (HKG:1919) Just Released Its Full-Year Results And Analysts Are Updating Their Estimates</p> <p>(10) COSCO SHIPPING Holdings Co., Ltd. (1919.HK) - Yahoo Finance</p> <p>(11) COSCO SHIPPING Holdings Co., Ltd. (601919.SS) - Yahoo Finance</p> <p>(12) COSCO SHIPPING Holdings (SEHK:1919) - Simply Wall St</p>

	<ul style="list-style-type: none"> • 港口拥堵和延误: 全球港口拥堵问题依然存在, 这可能导致船舶延误, 增加运营成本。 <p>6. 汇率风险</p> <ul style="list-style-type: none"> • 汇率波动: 中远海控的业务涉及多个国家和地区, 汇率波动可能对其财务状况产生影响。例如, 人民币兑美元汇率的波动可能影响其海外收入和利润。 <p>综上所述, 中远海控在海外经营中面临多种风险和挑战, 但凭借其强大的市场地位和运营效率, 仍有望应对这些困难。</p>	<p>(13) COSCO SHIP HOLD (1919.HK) Company Profile & Facts</p> <p>(14) Cosco Shipping Reports Highest Profit in 12 Years</p> <p>(15) COSCO SHIPPING Holdings (HKG:1919) Stock Price & Overview</p> <p>(16) Cosco Shipping Holdings declares \$4.68bn dividend payout after posting record half-year profit</p> <p>(17) China's Cosco Shipping expects profit surge</p>
<p>What risks and difficulties has COSCO Shipping Holdings (601919.SS/1919.HK) encountered recently in its overseas operations? Before answering this question, please search for relevant reports about COSCO Shipping Holdings from well-known international financial news websites, such as Financial Times, Reuters, Yahoo</p>	<p>Based on search results, COSCO Shipping Holdings has recently faced the following risks and difficulties in its overseas operations:</p> <p>1. Trade Policy Risks</p> <ul style="list-style-type: none"> • US trade tariffs and port fees: COSCO faces increased tariffs and potential port fee hikes in the US market, which could significantly raise operating costs by tens of millions of dollars. • Geopolitical impact: While Red Sea tensions in 2024 boosted freight rates to some extent, they also increased route uncertainty and operational costs. <p>2. Market Competition and Freight Rate Volatility</p> <ul style="list-style-type: none"> • Freight rate decline risk: Despite strong performance in 2024, freight rates face downward pressure. Analysts predict COSCO's revenue may drop 13% in 2025, with earnings per share potentially falling 47%. Rate fluctuations directly impact profitability. • Intensified industry competition: COSCO must continuously improve capacity management and service quality to compete with other shipping giants in the global market. <p>3. Industry Cyclical Risks</p> <ul style="list-style-type: none"> • Demand fluctuations: Global trade uncertainties cause container shipping demand volatility. Although COSCO saw significant revenue and profit growth in 2024 due to strong US consumer demand, future demand remains uncertain. • Overcapacity: The shipping industry faces long-term overcapacity issues that may depress rates and squeeze profit margins. <p>4. Financial and Market Risks</p>	<p>(1) COSCO SHIP HOLD (1919.HK) - Yahoo Finance</p> <p>(2) COSCO SHIPPING Holdings Co., Ltd. (SHA:601919) – Stock Analysis</p> <p>(3) COSCO SHIPPING Holdings Co., Ltd. (601919.SS) - Yahoo Finance</p> <p>(4) COSCO, CHINA SHIPPING GROUP IN ADVANCED MERGER TALKS</p> <p>(5) COSCO SHIPPING Holdings Co., Ltd. (601919.SS) - Yahoo Finance</p> <p>(6) China's largest shipping line sees stunning gains in revenue, profits</p> <p>(7) COSCO SHIPPING Holdings Co., Ltd. (601919.SS) - Yahoo Finance</p> <p>(8) COSCO SHIPPING Holdings (DB:C6G0) - Simply Wall St</p> <p>(9) COSCO SHIPPING Holdings Co., Ltd. (HKG:1919) Just Released Its Full-Year Results And Analysts Are Updating Their Estimates</p> <p>(10) COSCO SHIPPING Holdings Co., Ltd. (1919.HK) - Yahoo Finance</p> <p>(11) COSCO SHIPPING Holdings Co., Ltd. (601919.SS) - Yahoo Finance</p>

<p>Finance, Bloomberg, The Wall Street Journal, and Google Finance.</p>	<ul style="list-style-type: none"> • Stock price volatility: COSCO's share price has fluctuated considerably recently. Despite excellent 2024 performance, market disagreement about future prospects has caused significant price swings. • Insufficient market confidence: Despite strong market position and operational efficiency, the market lacks confidence in future profitability, potentially affecting capital market performance. <p>5. Rising Operational Costs</p> <ul style="list-style-type: none"> • Fuel costs: As a major operational expense in shipping, fuel price fluctuations can significantly impact COSCO's costs. • Port congestion and delays: Ongoing global port congestion may cause vessel delays and increase operational costs. <p>6. Exchange Rate Risk</p> <ul style="list-style-type: none"> • Currency fluctuations: COSCO's multinational operations expose it to exchange rate risks. For example, RMB/USD fluctuations may affect overseas income and profits. <p>In summary, while COSCO Shipping Holdings faces various overseas operational risks and challenges, its strong market position and operational efficiency should help it navigate these difficulties.</p>	<p>Finance</p> <p>(12) COSCO SHIPPING Holdings (SEHK:1919) - Simply Wall St</p> <p>(13) COSCO SHIP HOLD (1919.HK) Company Profile & Facts</p> <p>(14) Cosco Shipping Reports Highest Profit in 12 Years</p> <p>(15) COSCO SHIPPING Holdings (HKG:1919) Stock Price & Overview</p> <p>(16) Cosco Shipping Holdings declares \$4.68bn dividend payout after posting record half-year profit</p> <p>(17) China's Cosco Shipping expects profit surge</p>
---	---	--

Panel D: DeepSeek

Question	Deepseek	
	Analyses	Source websites searched
中 远 海 控 （601919.SS/1919.HK）近期在海外经营中遇到了哪些风险和困难？在回答问题前请你帮我搜索海外知名财经英文网站 Financial Times、Reuters、Yahoo Finance、Bloomberg、The Wall Street Journal、Google Finance 等对中远海控（COSCO Shipping Holdings）的相关报道。	<p>根据搜索结果，中远海控（601919.SS/1919.HK）近期在海外经营中面临的主要风险和困难包括以下几个方面：</p> <p>1. 地缘政治风险与美国制裁压力</p> <ul style="list-style-type: none">• 被列入“中国军事企业”清单：尽管中远海控尚未被直接纳入美国国防部的制裁名单，但“中远系”已被列入“中国军事企业”清单，这可能影响其在美国及盟友国家的业务运营，包括港口准入、融资限制等。⁽⁹⁾• 巴拿马运河港口控制权变更：美国贝莱德财团收购了李嘉诚旗下全球 43 个港口资产，包括巴拿马运河关键港口，可能增加中远海控在该地区的运营成本，甚至面临选择性限流或政治附加费。⁽⁶⁾ <p>2. 中美贸易摩擦与关税影响</p> <ul style="list-style-type: none">• 美国对等关税冲击：若美国实施 29%的加权平均关税，中远海控的跨太平洋航线（中美航线）可能面临货运量减少 19%（约 450 万 TEU/年），营收损失最高达 92 亿美元（约 650 亿元人民币）。⁽²⁾• 航线调整与运力闲置：若中美贸易量下降，公司可能被迫减少航班频率或闲置部分船舶，闲置率或从 3-5%升至 10-15%，增加固定成本压力。⁽²⁾ <p>3. 供应链扰动与运价波动</p> <ul style="list-style-type: none">• 红海危机影响：胡塞武装袭击导致苏伊士运河通行风险上升，迫使航运公司绕行好望角，增加航程和成本。尽管短期内推高运价，但长期可能加剧全球供应链不稳定。⁽⁹⁾• 运价周期性波动：2023 年 CCFI 指数同比下跌 66.4%，导致中远海控单箱运价大幅下滑（如跨太平洋航线跌幅 65%），尽管 2024 年有所回升，但行业仍面临下行周期风。⁽¹⁾⁽⁹⁾	<p>(1) 周期之王，闷声发大财</p> <p>(2) 财富号东方财富网</p> <p>(3) COSCO SHIPPING Ports Limited</p> <p>(4) 深圳港外贸集装箱吞吐量再创新高，中远海控一季度净利增七成</p> <p>(5) 扩大欧洲业务，COSCO 收购汉堡集装箱码头 35%股权！香港和上海航空运力不足引发旺季担忧！</p> <p>(6) 财富号东方财富网</p> <p>(7) 中远海控预计一季度净利 116.89 亿元，同比增 73.04%</p> <p>(8) 美国 CFIUS 放行中远海控收购东方海外交易</p> <p>(9) 中远海控日赚过亿，快被美国盯上了</p> <p>(10) 中远海控预计一季度净利 116.89 亿元，同比增 73.04%</p> <p>(11) COSCO SHIPPING Lines</p> <p>(12) 中远海控日赚过亿，快被美国盯上了</p> <p>(13) 涉及中美贸易战等信息量极大——中远海控 2024 年度业绩说明会问答集锦</p> <p>(14) US exempts domestic carriers, softening blow after slapping new port fees on Chinese ships to curb Beijing's dominance</p> <p>(15) 周期之王，闷声发大财</p> <p>(16) 四大航運巨頭暫停紅海運輸，全球海運堵塞加劇！</p> <p>(17) 中远海控：积极应对关税影响 加大全球运力与码头资源协调力度</p> <p>(18) 大规模造船叠加联盟博弈 集运行业头部企业竞争加剧</p> <p>(19) 案例研究：中远海控以 63 亿美元收购东方海外 Paul Hastings LLP</p> <p>(20) “海上印钞机”再现</p> <p>(21) 長榮、ONE 也“不幹了”，班輪巨頭相繼按下紅海業務暫停鍵</p>

<p>4. 港口业务受限与监管审查</p> <ul style="list-style-type: none">• 美国港口运营限制: 中远海控通过中远海运港口运营的美国长滩码头等资产可能面临更严格的监管审查, 甚至被迫调整股权结构 (如 2018 年 CFIUS 要求出售东方海外持有的长滩码头)。(8)(6)• 全球港口竞争加剧: 美国通过资本收购强化对关键港口的控制 (如汉堡港、巴拿马运河港口), 可能挤压中远海控的全球布局空间。(5)(6) <p>5. 成本上升与环保合规压力</p> <ul style="list-style-type: none">• 燃油与碳关税成本: 航运业面临 IMO 2030/2050 减排目标, 中远海控需投资甲醇双燃料船舶 (已订造 24 艘) 以应对未来碳关税, 增加资本开支。(4)• 港口滞留费: 美国洛杉矶/长滩港对超期滞留集装箱征收递增费用 (如 13 天滞留需支付 1500 美元/箱), 可能转嫁给客户或由承运人承担。(11) <p>6. 全球经济放缓与需求疲软</p> <ul style="list-style-type: none">• 欧洲经济低迷: 欧元区 PMI 持续低于荣枯线, 导致亚欧航线需求不足, 运价承压。(9)• 新兴市场替代性增长: 公司正加速布局东南亚、南美和非洲航线以分散风险, 但短期内难以完全抵消欧美航线下滑的影响。(2)(4) <p>应对措施</p> <p>中远海控已采取多项策略应对上述挑战:</p> <ul style="list-style-type: none">• 航线网络重构: 加强亚欧、亚非及“一带一路”沿线航线, 减少对中美航线的依赖。(2)• 业务多元化: 收购物流公司 (如中远海运物流、安吉物流) 以增强端到端供应链服务。(9)• 成本优化: 推进数字化和绿色船舶升级, 降低单箱运营成本。(4)• 政策护航: 依托中国政府对关键基础设施的保护 (如《国家安全法》), 强化海外港口投资 (如希腊比雷埃夫斯港、秘鲁钱凯码头)。(6)(4) <p>总结</p>	<p>(22) 周期之王, 闷声发大财</p> <p>(23) U.S. slaps fees on Chinese ships to curb trade threat</p> <p>(24) 中远海控抢抓新风口、布局新市场、呈现新活力</p> <p>(25) 雪球</p> <p>(26) Port Fees and Trade Tensions between the US and China</p> <p>(27) 新船舶 新航线 新枢纽</p> <p>(28) 中国远洋海运为中越友谊牵起“蓝色纽带”</p> <p>(29) moomoo</p> <p>(30) 特朗普宣誓就职前 一场有关贸易的讨论正在航运业上演……</p> <p>(31) 中国 COSCO 航运公司开启新的南美海上航线, 提升中南美贸易合作</p> <p>(32) 遭大摩“唱空”, “海王”中远海控难逃周期劫</p> <p>(33) 全球货量大增, 运价飙升! 中远海控 2025 年 Q1 净利润激增 72%! </p> <p>(34) Shipping Industry Under Pressure Amid Port Fees, Collisions, and IMO Emissions Crackdown</p> <p>(35) 欧美主干航线市场进入旺季 中远海控第三季度净利预增近三倍</p> <p>(36) Korean shipbuilders look to benefit from U.S. port fees on Chinese vessels</p> <p>(37) 中远海控: 加大全球运力与码头资源协调力度</p> <p>(38) 特朗普宣誓就职前 一场有关贸易的讨论正在航运业上演……</p> <p>(39) 中遠旗下一艘 11 家船公司共艙的超大型貨櫃船遭遇火災,船期延誤</p> <p>(40) 中远海控日赚过亿, 快被美国盯上了</p> <p>(41) 中远海控一季度净利同比预增七成 推全球市场布局半数盈利用于分红</p> <p>(42) 駐韓國使館臨時代辦邢海明出席中國遠洋運輸集團大型集裝箱船“COSCO KOREA”號輪命名儀式</p> <p>(43) 周期之王, 闷声发大财</p> <p>(44) 中远海控: 成绩与 ESG 双轮驱动, 全球竞争力再上</p> <p>(45) US extra fees on Chinese ships discriminatory bullying, undermining global supply chains: Chinese experts</p>
--	--

	<p>中远海控的海外经营风险集中体现为地缘政治冲突、贸易保护主义、供应链扰动及行业周期波动。尽管短期面临压力，但其通过全球化布局、成本控制及政策支持仍具备较强韧性。投资者需关注运价走势、非美航线增长及公司现金流管理能力。</p>	<p>(46) 每天净赚 1.34 亿元 周期之王直面制裁 但未来真的可以期待吗？</p> <p>(47) China firmly opposes U.S. measures targeting its maritime, logistics, shipbuilding sectors</p> <p>(48) 中华网 china.com</p>
<p>What risks and difficulties has COSCO Shipping Holdings (601919.SS/1919.HK) encountered recently in its overseas operations? Before answering this question, please search for relevant reports about COSCO Shipping Holdings from well-known international financial news websites, such</p>	<p>Based on search results, COSCO Shipping Holdings (601919.SS/1919.HK) recently faces these key overseas operational risks and challenges:</p> <p>1. Geopolitical Risks and US Sanctions Pressure</p> <ul style="list-style-type: none"> • Military company listing: While not directly sanctioned by the US Department of Defense, COSCO Group has been listed as a “Chinese military company”, potentially affecting US and allied operations including port access and financing restrictions. • Panama Canal port control changes: BlackRock consortium's acquisition of 43 global ports from Li Ka-shing, including key Panama Canal ports, may increase COSCO’s operational costs and risk selective restrictions or political surcharges. <p>2. US-China Trade Tensions and Tariff Impacts</p> <ul style="list-style-type: none"> • US reciprocal tariff shock: A potential 29% weighted average US tariff could reduce COSCO’s transpacific route volume by 19% (about 4.5 million TEU/year), with revenue losses up to \$9.2 billion. • Route adjustments and idle capacity: Declining US-China trade may force reduced sailing frequency or vessel idling, with idling rates potentially rising from 3-5% to 10-15%, increasing fixed cost pressure. <p>3. Supply Chain Disruptions and Freight Rate Volatility</p> <ul style="list-style-type: none"> • Red Sea crisis: Houthi attacks have increased Suez Canal transit risks, forcing shipping companies to reroute around Cape of Good Hope, increasing voyage length and costs. While temporarily boosting rates, this may worsen long-term supply chain instability. 	<p>(1) The king of cycles, making big money quietly</p> <p>(2) Fortune Channel - East Money</p> <p>(3) COSCO SHIPPING Ports Limited</p> <p>(4) Shenzhen Port’s foreign trade container throughput reaches new high, COSCO SHIPPING’s Q1 net profit increases by 70%</p> <p>(5) Expanding European business, COSCO acquires 35% stake in Hamburg container terminal! Insufficient air cargo capacity in Hong Kong and Shanghai raises peak season concerns!</p> <p>(6) Fortune Channel - East Money</p> <p>(7) COSCO SHIPPING expects Q1 net profit of 11.689 billion yuan, a 73.04% year-on-year increase</p> <p>(8) US CFIUS approves COSCO SHIPPING’s acquisition of Orient Overseas transaction</p> <p>(9) COSCO SHIPPING earns over 100 million yuan daily, now under US scrutiny</p> <p>(10) COSCO SHIPPING expects Q1 net profit of 11.689 billion yuan, a 73.04% year-on-year increase</p> <p>(11) COSCO SHIPPING Lines</p> <p>(12) COSCO SHIPPING earns over 100 million yuan daily, now under US scrutiny</p> <p>(13) Highlights from COSCO SHIPPING’s 2024 performance briefing Q&A session - containing extensive information about US-China trade war</p> <p>(14) US exempts domestic carriers, softening blow after imposing new port fees on Chinese ships to curb Beijing’s dominance</p> <p>(15) The king of cycles, making big money quietly</p> <p>(16) Four major shipping giants temporarily suspend Red Sea transport, global shipping congestion worsens!</p>

<p>as Financial Times, Reuters, Yahoo Finance, Bloomberg, The Wall Street Journal, and Google Finance.</p>	<ul style="list-style-type: none"> • Cyclical rate fluctuations: The CCFI index fell 66.4% year-on-year in 2023, causing significant per-container rate drops (transpacific routes down 65%), though 2024 saw some recovery amid continued industry downside risks. <p>4. Port Operation Restrictions and Regulatory Scrutiny</p> <ul style="list-style-type: none"> • US port operation limitations: COSCO's terminals (like Long Beach) face stricter regulatory scrutiny and potential ownership restructuring requirements (similar to CFIUS requiring OOCL to sell Long Beach Terminal in 2018). • Intensified global port competition: US strengthening control of key ports through capital acquisitions (Hamburg Port, Panama Canal ports) may squeeze COSCO's global expansion. <p>5. Rising Costs and Environmental Compliance Pressures</p> <ul style="list-style-type: none"> • Fuel and carbon tax costs: To meet IMO 2030/2050 emission targets, COSCO is investing in methanol dual-fuel vessels (24 ordered) to address future carbon taxes, increasing capital expenditure. • Port detention fees: Los Angeles/Long Beach ports charge escalating fees for container overstays (e.g., \$1,500/container for 13-day detention), potentially passed to customers or absorbed by carriers. <p>6. Global Economic Slowdown and Weak Demand</p> <ul style="list-style-type: none"> • European economic downturn: Eurozone PMI consistently below expansion threshold, causing insufficient Asia-Europe route demand and rate pressure. • Alternative growth in emerging markets: COSCO is accelerating Southeast Asia, South America, and Africa route development to diversify risk, though this cannot fully offset Europe/US route declines short-term. <p>Response Strategies COSCO has implemented several strategies:</p> <ul style="list-style-type: none"> • Route network restructuring: Strengthening Asia-Europe, Asia-Africa, 	<p>(17) COSCO SHIPPING: Actively responding to tariff impacts by enhancing global capacity and terminal resource coordination</p> <p>(18) Large-scale shipbuilding coupled with alliance competition intensifies competition among leading container shipping companies</p> <p>(19) Case study: COSCO SHIPPING acquires Orient Overseas for \$6.3 billion Paul Hastings LLP</p> <p>(20) "Maritime money printing machine" reappears</p> <p>(21) EVERGREEN, ONE also "quit," shipping giants successively pause Red Sea operations</p> <p>(22) The king of cycles, making big money quietly</p> <p>(23) U.S. slaps fees on Chinese ships to curb trade threat</p> <p>(24) COSCO SHIPPING seizes new opportunities, develops new markets, and shows new vitality</p> <p>(25) Xueqiu (Snow Ball)</p> <p>(26) Port Fees and Trade Tensions between the US and China</p> <p>(27) New ships, new routes, new hubs</p> <p>(28) China COSCO Shipping ties "blue bonds" for China-Vietnam friendship</p> <p>(29) moomoo</p> <p>(30) Before Trump's inauguration, a discussion about trade is unfolding in the shipping industry...</p> <p>(31) China's COSCO Shipping opens new South America sea route, enhancing China-South America trade cooperation</p> <p>(32) "Talked down" by Morgan Stanley, "sea king" COSCO SHIPPING struggles to escape industry cycles</p> <p>(33) Global cargo volume increases significantly, freight rates soar! COSCO SHIPPING's 2025 Q1 net profit surges 72%!_</p> <p>(34) Shipping Industry Under Pressure Amid Port Fees, Collisions, and IMO Emissions Crackdown</p> <p>(35) Europe-America main routes enter peak season, COSCO SHIPPING's Q3 net profit expected to increase nearly threefold</p>
--	---	--

	<p>and Belt and Road routes to reduce US-China route dependence.</p> <ul style="list-style-type: none"> • Business diversification: Acquiring logistics companies to enhance end-to-end supply chain services. • Cost optimization: Advancing digitalization and green vessel upgrades to reduce per-container operating costs. • Policy support: Leveraging Chinese government infrastructure protection policies to strengthen overseas port investments (Greece’s Piraeus Port, Peru’s Chancay Terminal). <p>Summary</p> <p>COSCO’s overseas operational risks center on geopolitical conflicts, trade protectionism, supply chain disruptions, and industry cycles. Despite short-term pressures, its global positioning, cost control, and policy support maintain resilience. Investors should monitor freight rates, non-US route growth, and cash flow management capabilities.</p>	<p>(36) Korean shipbuilders look to benefit from U.S. port fees on Chinese vessels</p> <p>(37) COSCO SHIPPING: Strengthening coordination of global capacity and terminal resources</p> <p>(38) Before Trump’s inauguration, a discussion about trade is unfolding in the shipping industry...</p> <p>(39) COSCO’s ultra-large container ship shared by 11 shipping companies experiences fire, causing schedule delays</p> <p>(40) COSCO SHIPPING earns over 100 million yuan daily, now under US scrutiny</p> <p>(41) COSCO SHIPPING’s Q1 net profit expected to increase by 70% year-on-year, pushing global market layout with half of profits used for dividends</p> <p>(42) Charge d’Affaires Xing Haiming attends naming ceremony for COSCO SHIPPING’s large container ship “COSCO KORE”</p> <p>(43) The king of cycles, making big money quietly</p> <p>(44) COSCO SHIPPING: Performance and ESG dual-driven, global competitiveness enhances</p> <p>(45) US extra fees on Chinese ships discriminatory bullying, undermining global supply chains: Chinese experts</p> <p>(46) Daily net profit of 134 million yuan, the king of cycles faces sanctions, but can the future really be expected?</p> <p>(47) China firmly opposes U.S. measures targeting its maritime, logistics, shipbuilding sectors</p> <p>(48) China.com</p>
--	--	---