

# The Cost of Potential Delisting of U.S.-Listed Chinese Companies

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and

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## Abstract

Because the PCAOB had been unable to inspect the audits completed by Chinese accounting firms until recently, U.S. regulators introduced legislation on March 28, 2019, which became effective on December 18, 2020 (HFCAA), forcing U.S.-listed Chinese companies to delist if the PCAOB is unable to inspect the audits for three consecutive years. We investigate the economic cost to U.S. shareholders because of the potential delisting of U.S.-listed Chinese companies. We find that Chinese companies outperform other Asian firms for the pre-HFCAA period. In sharp contrast, Chinese companies underperform other Asian firms from the time the HFCAA bill was introduced until an agreement was reached on August 26, 2022 allowing inspections. For the post-Agreement period, Chinese stocks perform at par with other Asian firms. Between March 28, 2019 and December 31, 2022, based on the mean (median) value, a typical U.S. shareholder lost about 46% (76%) of wealth invested in Chinese stocks. Compared to other Asian companies, the stock underperformance of Chinese companies is even worse at around 61% (87%).

Keywords: PCAOB, Chinese US-Listing, Stock Returns, Long-term Performance, Delisting

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The annual financial statements (10-K) of public companies listed on the U.S stock exchanges must be filed with the U.S. Securities and Exchange Commission (SEC), and these statements are required to be audited by public accounting firms registered with the Public Company Oversight Board (PCAOB). In turn, the PCAOB inspects the audits of accounting firms to assess compliance with various rules, regulations, and professional standards in connection with the accounting firm's performance of audits and issuance of audit reports.<sup>3</sup> This inspection requirement includes accounting firms domiciled in the U.S. and in foreign jurisdictions. To facilitate audit inspections of non-U.S. auditors, PCAOB previously had formal cooperative arrangements with all foreign audit regulators to allow such inspections with the sole exception of an agreement with China. Until recently, China's Securities and Regulation Commission (CSRC) refused to allow PCAOB to inspect audits of U.S.-listed Chinese firms completed by Chinese accounting firms.

Chinese law restricts auditors from transferring certain company-specific financial information out of the country, thereby limiting its visibility to U.S. regulators (Reuters 2022). Because of these restrictions, PCAOB maintains that many large Chinese companies (e.g., Baidu, China Mobile, PetroChina, the Semiconductor Manufacturing International Corporation) are not complying with U.S. standards (New York Times, 2020). Regulators maintain that the lack of transparency in the Chinese financial system puts American investors at risk of fraud. Because of the impasse, the U.S. Senate passed the Holding Foreign Companies Accountable Act (HFCAA 2020) that would require that: (1) U.S.-listed Chinese companies disclose more information about ties to foreign governments and the Chinese Communist Party, and (2) a company be removed

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<sup>3</sup> Established by Congress under the Sarbanes-Oxley Act of 2002, the PCAOB is charged with overseeing the audits of public companies to protect investors and further the public interest in the preparation of informative, accurate, and independent audit reports.

from a U.S. exchange if for three consecutive years that company does not provide PCAOB access to audit information.<sup>4</sup> However, two years after the passage of HFCAA (August 2022), the PCAOB and the Chinese government (CSRC and Chinese Ministry of Finance) agreed to allow the PCAOB to inspect the audits of U.S.-listed Chinese companies.

Between March 28, 2019 (starting date for the HFCAA bill) and the PCAOB-China agreement (August 26, 2022), there was a realistic threat of U.S.-listed Chinese companies being delisted. What was the cost to U.S. shareholders because of this non-compliance with U.S. regulations? Moreover, the losses investors incurred during this period may not be fully recovered even after the PCAOB-China agreement for two reasons. First, given the prior history, it remains unclear whether the PCAOB-China agreement is a permanent solution. If not, there still remains a non-trivial likelihood that the Chinese companies may get delisted. Second, PCAOB (2023) inspections of Chinese audit firms indicate serious audit deficiencies, raising questions about the financial reporting quality of Chinese companies.

In this paper, we provide an estimate of this cost by analyzing the stock performance of U.S.-listed Chinese companies. To gain a better understanding of how the stock market responded to the threat of delisting, we partition the period around HFCAA as follows (Figure 1): (1) Pre-HFCAA Period (January 1, 2019 to March 27, 2019), (2) HFCAA Legislative Period (March 28, 2019 to December 17, 2020), (3) HFCAA Effective Period (December 18, 2020 to August 25, 2022), and (4) PCAOB-China Agreement Period (August 26, 2022, to December 31, 2022). We also examine the combined period from March 28, 2019 to December 31, 2022.

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<sup>4</sup>On December 18, 2020, the HFCAA became a law (No: 116-2224). Under the HFCAA, any firm that remains a “Commission-Identified Issuer” for three years in a row would have its securities barred from trading on U.S. exchanges. Further, under the HFCAA, Chinese companies are obligated to disclose whether they are owned or controlled by a foreign government and are to provide greater transparency regarding their corporate governance structures.

If the stock market estimates that the cost of delisting is high for U.S.-listed Chinese companies during the test periods (HFCAA Legislative Period and Effective Period), or that there are concerns with the reliability of financial statements of these companies because of poor audit quality, we expect the stock market to incorporate this information into the stock price. We assess the relative performance by comparing the stock performance of U.S.-listed Chinese companies with that of other Asian companies listed on U.S. stock exchanges.

We find that U.S.-listed Chinese stocks (*CHINESE*) outperform other U.S.-listed Asian stocks (*OTHER-ASIAN*) for the Pre-HFCAA Period. The difference between the two groups is economically and statistically significant. *CHINESE* stocks returns are more than three times that of *OTHER-ASIAN* stocks. However, the results are starkly different for the HFCAA Legislative and HFCAA Effective Periods. *CHINESE* stocks underperform *OTHER-ASIAN* stocks for both the Periods. For the HFCAA Legislative Period, the mean (median) *CHINESE* stocks return is about -10% (-24%), while the corresponding numbers for the *OTHER-ASIAN* stocks are about 33% (18%). For the HFCAA Effective Period, the mean (median) *CHINESE* stocks return is about -51% (-64%), while the corresponding numbers for the *OTHER-ASIAN* stocks are -10% (10%). However, following the PCAOB-China Agreement Period, the stock performance of *CHINESE* and of *OTHER-ASIAN* companies are indistinguishable. These results suggest that the losses incurred by U.S. shareholders from owning *CHINESE* stocks when there was a material likelihood of these companies being delisted (Legislative and Effective Periods) were not recovered following the PCAOB-China agreement.

For the HFCAA Legislative and Effective Periods, the returns generated by Chinese stocks that are traded on the Shanghai Stock Exchange (SHANGHAI) mimic those of *OTHER-ASIAN* firms (see Figures 3 and 4). This further supports our inference that the underperformance

of U.S.-listed Chinese firms is linked to the potential delisting from U.S.-stock exchanges and not to factors that are associated with Asian/Chinese companies (e.g., the effect of COVID on Chinese companies).

Because our results may be attributable to differences in risk, we perform two additional tests. First, we examine the difference in stock performance after controlling for the following risk factors: (1) *BETA*, estimated from the market model, as a proxy for systematic risk, (2) *LEVERAGE* (debt to total assets) as a proxy for financial risk, (3) *BOOK-MARKET* (book value of equity to market value of equity) as a proxy for default risk, (4) *FFI* (Fama-French Industry) as a proxy for industry specific return differences. Our regression results are consistent with the univariate findings. Controlling for the four risk proxies, *CHINESE* stocks outperform *OTHER-ASIAN* stocks for the Pre-HFCAA Period but underperform the benchmark companies for the HFCAA Legislative and HFCAA Effective Periods. Second, we replicate the results using the Fama-French (1993) Three-Factor model. We continue to find that *CHINESE* stocks underperform *OTHER-ASIAN* stocks for the HFCAA Legislative and HFCAA Effective Periods.

Finally, we analyze the combined period when there was a material threat of delisting (HFCAA Legislative and HFCAA Effective Periods) relative to the period when this threat was eliminated (PCAOB-China Agreement Period). We find that *CHINESE* stocks underperform *OTHER-ASIAN* stocks for the combined period and the loss of wealth to U.S. shareholders holding Chinese stocks is staggeringly large. Using the mean (median) number, our estimates suggest that a typical U.S. shareholder holding Chinese stocks during the combined period lost about 46% (76%) of value. During the same period, other Asian stocks earned about 15% (11%). Therefore, *CHINESE* stocks underperform *OTHER-ASIAN* stocks by about 61% (87%) for the

combined period.

This paper contributes to the literature by providing a better understanding of the economic effects of non-compliance with PCAOB inspections. Although the PCAOB-China Agreement allows PCAOB to inspect the audit completed by Chinese audit firms, whether these inspections will lead to an improvement in the quality of Chinese audits in the near term is uncertain. For instance, in its recently released Inspection Reports for Mainland China and Hong Kong audit firms, PCAOB (2023) finds unusually high rates of audit deficiencies. Also, it is unclear that whether investors believe the PCAOB-China Agreement will withstand the test of time. Therefore, while the inspections are expected to lead to improvements in the integrity of financial statements of U.S.-listed Chinese firms, assuming that the agreement is not annulled, U.S. shareholders may need to hold for a longer horizon to recover some of their losses. Also, the stock market reaction results suggest that investors have doubts whether the PCAOB-China Agreement is a permanent solution.

Ultimately, the findings emphasize the significance of regulatory compliance, transparency, and the role of regulatory bodies like the PCAOB in maintaining investor confidence and safeguarding shareholders' interests. The insights gained from this research can inform decision-making processes, shape financial reporting practices, and facilitate cross-border investments. As Chinese firms continue to navigate the regulatory landscape, it is imperative to recognize and address the challenges and consequences associated with regulatory compliance, ultimately to foster a more robust and resilient global financial market.

### **Holding Foreign Companies Accountable Act (HFCAA 2020)**

Under the Sarbanes-Oxley Act (2002), PCAOB is required to inspect registered public accounting firms. According to PCAOB, inspections are intended to assess compliance with the

Sarbanes-Oxley Act, the rules of the Board, the rules of the Securities and Exchange Commission (SEC), and professional standards, in connection with the firm's performance of audits, issuance of audit reports, and related matters involving U.S. public companies. However, until recently, the PCAOB had been unable to fully inspect the audit papers and other documents of accounting firms domiciled in mainland China and Hong Kong. The China Securities Regulatory Commission had contended for more than a decade that, while it is prepared to cooperate with the U.S. on matters related to audit inspections by PCAOB, it prohibited the Board's access to information related to China's security and other interests.

Regulators contend that PCAOB's inability to inspect Chinese audit firms posed serious risk to US investors who have been significantly increasing their exposure to U.S.-listed Chinese companies in the last 10 years. Precipitated by Luckin Coffee's disclosure of a massive financial fraud,<sup>5</sup> the U.S. Senate's Committee on Banking, Housing, and Urban Affairs embarked on a bill (Holding Foreign Companies Accountable Act, HFCAA) from March 28, 2019 requiring: (1) certain issuers of securities to establish that they are not owned or controlled by a foreign government, (2) an issuer must make this certification if the PCAOB is unable to audit specified reports because the issuer has retained a foreign public accounting firm not subject to inspection by the board, and (3) if PCAOB is unable to inspect the issuer's public accounting firm for three consecutive years, the issuer's securities are banned from trading on a national exchange or through other methods. This Senate bill was passed by unanimous consent on May 20, 2020. The bill was then considered by the House of Representatives and approved without any objections on

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<sup>5</sup> A Chinese rival to Starbucks, Luckin Coffee raised nearly a billion dollars through debt and equity issuance in the U.S. in 2019. According to the SEC (2020) complaint, between April 2019 and January 2020, Luckin Coffee intentionally fabricated more than \$300 million in retail sales by using related parties to create false sales transactions through three separate purchasing schemes. Some employees at the company attempted to conceal the fraud by inflating the company's expenses by more than \$190 million, creating a fake operations database, and altering accounting and bank records to reflect the false sales. Following these disclosures, the company's stock price fell by around 80%.

December 2, 2020. Finally, the bill was presented to the President of the U.S. and signed by him into a Public Law (No: 116-222) on December 18, 2020.<sup>6</sup>

HFCAA was effective between December 18, 2020 and August 25, 2022. However, on August 26, 2022, the PCAOB announced that it had signed a Statement of Protocol with the China Securities Regulatory Commission and the Ministry of Finance of the People’s Republic of China to allow PCAOB to inspect and investigate registered public accounting firms headquartered in mainland China and Hong Kong without any restrictions. To test compliance with every aspect of the agreement, the PCAOB sent more than 30 PCAOB staff to conduct on-site inspections and investigations in Hong Kong over a nine-week period from September to November 2022.

The PCAOB selected two firms for inspection: KPMG Huazhen LLP in mainland China and PricewaterhouseCoopers in Hong Kong. The two inspected firms audited 40 percent of the total market share of U.S.-listed Chinese companies audited by Chinese and Hong Kong accounting firms. PCAOB staff selected these two firms based on the methodology used in all PCAOB inspections, including consideration of risk factors posed by particular firms or issuers, and with a focus on any audit areas believed to be of greater complexity or significance, or to pose a heightened risk of material misstatement to the issuers' financial statements. According to the PCAOB, the Chinese regulatory authorities or the firms did not have any input or influence over the selections.

On May 10, 2023, the PCAOB (2023) released its 2022 Inspection Reports for Mainland China, Hong Kong Audit Firms. The PCAOB inspected a total of eight engagements, four at each of the two firms, including the types of engagements—such as state-controlled companies and corporations in sensitive industries—that China blocked access previously. The inspections found

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<sup>6</sup> <https://www.congress.gov/bill/116th-congress/senate-bill/945/actions>



Part I.A deficiencies in four out of four of the audits reviewed at KPMG Huazhen, which is a 100 percent rate, while the rate of deficiency was 75 percent at PwC Hong Kong, or three out of four audits reviewed. Even on a relative basis, these deficiency rates are much higher than the deficiency rates associated with the US Big 4 audit firms (typically ranging between 20% to 35%).

Therefore, as Figure 1 reports, we partition the timeline surrounding the HFCAA into four distinct periods between 2019 and 2022: (1) Pre-HFCAA Period (January 1 to March 27, 2019), (2) HFCAA Legislative Period (March 28, 2019 to December 17, 2020), (3) HFCAA Effective Period (December 18, 2020 to August 25, 2022), and (4) PCAOB-China Agreement Period (August 26 to December 31, 2022).

### **Data**

Our data are collected from several sources. Stock trading data are obtained from the Center for Research in Security Prices (CRSP). We obtain information about Chinese companies listed on major U.S. stock exchanges from the U.S.-China Economic and Security Review Commission website.<sup>7</sup> As of January 9, 2023, there were a total of 252 Chinese companies listed on these U.S. exchanges with a total market capitalization of \$1.03 trillion. According to the website, as of January 9, 2023, 137 Chinese companies, representing 99 percent of the market capitalization of Chinese companies listed on these exchanges, used auditors from those jurisdictions. Our control sample consists of Asian companies listed on U.S. stock exchanges (other than U.S.-listed companies from China and Hong Kong). We obtain this list of companies from Stock Market MBA, an educational website whose mission is to provide the best online education on the stock market.<sup>8</sup> Data required to estimate the Fama and French (1993) three-

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<sup>7</sup> <https://www.uscc.gov/research/chinese-companies-listed-major-us-stock-exchanges>

<sup>8</sup> <https://stockmarketmba.com/nonuscompaniesonusexchanges.php>

factor model is obtained from Ken French's website.<sup>9</sup>

Table 1 reports the population of Asian firms listed on U.S. stock exchanges between 2019 and 2022. We partition U.S.-listed Asian firms into two groups. Firms that are based in mainland China and Hong Kong (*CHINESE*) and other Asian firms (*OTHER-ASIAN*) that are domiciled in Asia excluding mainland China and Hong Kong. *OTHER-ASIAN* includes companies from India, Japan, South Korea, Malaysia, Taiwan, and Thailand. Panel A tabulates the number of Asian firms trading in the U.S. between 2019 and 2022. We find that firms headquartered in China are among the most prominent cross-listing examples in the U.S. compared to those from other parts of Asia. For instance, between 2019 and 2022, the number of companies listed on U.S. stock exchanges from China are generally 5 to 6 times the number from other Asian countries.

As Panel B of Table 1 shows, because of stock price data requirements, our sample consists of 104 (32) *CHINESE* (*OTHER-ASIAN*) companies for the Pre-HFCAA Period, 103 (31) for the HFCAA Legislative Period, 117 (30) for the HFCAA Effective Period, and 129 (31) for the PCAOB-China Agreement Period.

## **Research Design**

### **Short-term Performance (Event Study)**

We examine the stock market reaction to the announcement of the various stages of the HFCAA legislative process (events). Specifically, we compute cumulative abnormal returns (*CAR*) around a five-day event window for the following dates: (1) the introduction of HFCAA at the Senate (March 28, 2019), (2) passing of the HFCAA at the Senate (May 20, 2020), (3) passing of the HFCAA by the House of Representatives (December 2, 2020), (4) HFCAA

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<sup>9</sup> [https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)

becomes the law on the day it is signed by the President (December 18, 2020), and (5) China and PCAOB reach an agreement to allow inspections (August 26, 2022).

We compute *CAR* in two ways. *CAR1*, measured over five-days around an event window (-2 to +2), is defined as follows.

$$CAR1_{i,5} = \prod_{t=1}^5(1 + CR_{i,t}) - \prod_{t=1}^5(1 + EWRETD_t) \quad (1)$$

where  $CR_{i,t}$  is the daily stock return of Chinese firm  $i$  on day  $t$ , and  $EWRETD_t$  is CRSP equally weighted return on day  $t$ , our proxy for market returns. Similarly, we measure *CAR2* over five days around an event as follows.

$$CAR2_{i,5} = \prod_{t=1}^5(1 + CR_{i,t}) - \prod_{t=1}^5(1 + AR_t) \quad (2)$$

where  $AR_t$  is the mean of daily stock returns of *OTHER-ASIAN* firms on day  $t$ . Therefore, *CAR1* is market adjusted cumulative abnormal returns, while *CAR2* is control firm adjusted cumulative abnormal returns.

### Long-term Performance

Because the likelihood of potential delisting of Chinese firms may be uncertain during these event times and the market may process the information over a longer period, we also measure long-term stock performance using buy-and-hold raw stock returns (*CRET*). *CRET* for firm  $i$  is computed using daily raw returns ( $R$ ) compounded for the holding period ( $t$ ) beginning from 0 to  $T$  as follows.

$$CRET_{i,T} = \prod_{t=0}^T(1 + R_{i,t}) - 1 \quad (3)$$

To control for risk, we also examine the long-run underperformance after controlling for four risk proxies. *BETA* measures systematic risk which is estimated from the market model by regressing daily stock returns on market returns where CRSP equally weighted returns ( $EWRETD$ ) is the proxy for market returns. *LEVERAGE* measures financial risk estimated as the

book value of total debt to the book value of total assets. *BOOK-MARKET* measures default risk estimated as the book value of equity to the market value of equity. *FFI* represents the five Fama-French industries. *CHINESE* is dummy variable which equals 1 when firm *i* is domiciled in mainland China or Hong Kong, else zero.

$$CRET_{i,T} = \beta_0 + \beta_1 CHINESE_i + \beta_2 BETA_i + \beta_3 LEVERAGE_i + \beta_4 BOOK - MARKET_i + \beta_5 FFI_i + \varepsilon_i \quad (4)$$

Finally, we also examine the long-run underperformance based on the Fama and French (1993) three-factor model using their calendar time portfolio approach to estimate the model. Specifically, we generate daily portfolio returns for *CHINESE* firms ( $R_{CHINESE}$ ) and for *OTHER-ASIAN* firms ( $R_{OTHER-ASIAN}$ ). The difference between the two portfolios ( $R_{CHINESE} - R_{OTHER-ASIAN}$ ) is the dependent variable. The independent variables are *MARKET*, *SMB*, and *HML* which are directly downloaded from the Ken French's website.<sup>10</sup> Specifically we estimate the following regression.

$$R_{CHINESE,t} - R_{OTHER-ASIAN,t} = \alpha_t + \beta_1 MARKET_t + \beta_2 SMB_t + \beta_3 HML_t + \epsilon_t \quad (5)$$

## Empirical Results

### Short-term Performance

Table 2 reports *CARI* and *CAR2* for the following five event dates associated with various stages of the HFCAA legislative process: March 28, 2019; May 20, 2020; December 02, 2020; December 18, 2020; and August 26, 2022. *CARI/CAR2* (0.01%/1.04%) is statistically insignificant around March 28, 2019. Thus, we do not find any reliable evidence to indicate that

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<sup>10</sup> The three factors are constructed using the 6 value-weighted portfolios formed on size and book-to-market ratio. *MARKET* ( $R_{Mt} - R_{Ft}$ ) is the excess return on the market. *SMB* (Small minus Big) is the average return on the three small portfolios minus the average return on the three big portfolios. *HML* (High minus Low) is the average return on the two value portfolios minus the average return on the two growth portfolios.

investors respond negatively to the news about the introduction of the HFCAA bill in the Senate.

In contrast, *CARI* is -5.79% and statistically significant, but *CAR2* is only -0.02% and statistically insignificant around May 20, 2020 (passing of HFCAA bill in the Senate), which suggests that the investor reaction is not reliably different between *CHINESE* and *OTHER-ASIAN* companies to the news about passing of the HFCAA bill in the Senate. *CARI* and *CAR2* are both negative (-6.27% and -7.0%) and statistically significant around December 2, 2020 (passing of the HFCAA bill in the House of Representatives), which indicate that investors respond negatively to the news about the material increase in the likelihood of potential future delisting of *CHINESE* firms.

Surprisingly, *CARI* and *CAR2* are both positive (2.12% and 3.85%) and statistically significant around December 18, 2020 (the day HFCAA became a Law). Finally, as expected, *CARI* and *CAR2* are both positive (2.98% and 2.20%) and statistically significant around August 26, 2022 (PCAOB-China Agreement date), which suggests that investors respond positively to the news about the lower likelihood of the delisting of U.S.-listed Chinese companies because the agreement allows PCAOB inspections of Chinese audit firms.

### **Long-term Performance**

Figure 2 suggests that Chinese firms outperform Other Asian companies or the Shanghai Index for the Pre-HFCAA Period, while Figures 3 and 4 suggest that Chinese firms underperform Other Asian companies or the Shanghai Index for the HFCAA Legislative Period and the HFCAA Effective Period. Therefore, we examine the long-term performance of Chinese and Other Asian companies in detail for the following four periods: the Pre-HFCAA Period (January 1 to March 27, 2019), HFCAA Legislative Period (March 28, 2019 to December 17, 2020), HFCAA Effective Period (December 18, 2020 to August 25, 2022), and PCAOB-China Agreement Period

(December 26 to December 31, 2022).

For the Pre-HFCAA Period, the mean (median) buy-and-hold stock return, *CRET*, is 17.49% (17.36%) for *CHINESE* companies and 6.09% (3.82%) for *OTHER-ASIAN* companies (Panel A of Table 3). The mean and median differences between the two groups are both statistically significant. The difference in returns is also economically large. The stock performance of *CHINESE* companies is between three and four times that of *OTHER-ASIAN* companies. This result is consistent with the notion that Chinese listings in the U.S. attracted investors who wanted to capitalize on the strong economic growth in China prior to any talks about the delisting of U.S.-listed Chinese firms.

In sharp contrast, there is a reversal in the stock performance for the HFCAA Legislative Period (March 28, 2019, to December 17, 2020). *CHINESE* companies underperform *OTHER-ASIAN* companies. As Panel B of Table 3 shows, the mean (median) buy-and-hold stock return for *CHINESE* is -9.69% (-23.66%), while the corresponding number for *OTHER-ASIAN* is 33.11% (17.81%). The mean (median) difference in stock returns is statistically and economically significant. The difference in stock returns between the two groups is between 42% and 43%. Using the median as a typical firm, our findings indicate that *OTHER-ASIAN* companies outperform *CHINESE* companies by  $75\% = [0.1781 / (-0.2366)]$  over the HFCAA Legislative Period. Notwithstanding that HFCAA was yet to become a law, our results suggest that market participants were sufficiently concerned that the impasse between US and Chinese financial regulators could lead to a material likelihood of U.S.-listed Chinese firms being delisted from U.S. stock exchanges.

Once the HFCAA was signed by the President on December 18, 2020 and it became a Public Law, we expect Chinese companies to continue to underperform benchmark firms. This is

because the regulation would force Chinese firms to delist from U.S. stock exchanges in three years if the PCAOB could not inspect the audit papers of their accounting firms during this period consecutively. Consistent with our expectations, we find that *CHINESE* firms continue to underperform benchmark firms until U.S. and Chinese regulators finally reached an agreement to allow PCAOB inspections of Chinese audit firms on August 26, 2022 (see Figure 4). As Panel C of Table 3 shows, the mean (median) buy-and-hold raw return for *CHINESE* firms is -50.61% (-63.94%). For *OTHER-ASIAN* firms, the corresponding number is -9.85% (-9.73%). The difference between the two groups of firms is again statistically and economically significant. Our results suggest that using mean (median) as a benchmark, a typical non-Chinese Asian company listed on a U.S. stock exchange outperforms a U.S.-listed Chinese company by 5 (6) times.

On August 26, 2022, the PCAOB and Chinese financial regulators reached an agreement to allow PCAOB to inspect the audit papers of Chinese audit firms serving as auditors of U.S.-listed Chinese firms. The PCAOB-China Agreement Period extends between August 26 and December 31, 2022 in Figure 5. Because the threat of delisting was eliminated, we do not expect *CHINESE* firms to underperform *OTHER-ASIAN* companies during this period. Consistent with our expectations, we find that the difference between *CHINESE* and *OTHER-ASIAN* companies is statistically insignificant. As Panel D of Table 3 shows, the mean (median) buy-and-hold stock return for *CHINESE* firms is -12.24% (-19.38%) and the corresponding number for *OTHER-ASIAN* firms is -7.39% (-8.31%).

In summary, prior to any threat of U.S.-listed Chinese firms being delisted from U.S. stock exchanges, the stock performance of *CHINESE* companies is between 2 and 5 times the stock performance of *OTHER-ASIAN* companies. However, for the duration of the HFCAA Legislative

Period, the stock performance of *OTHER-ASIAN* companies is more than 2 times the stock performance of *CHINESE* companies. The underperformance of *CHINESE* companies is even greater for the HFCAA Effective Period; the stock performance of *OTHER-ASIAN* companies is between 5 and 7 times the stock performance of *CHINESE* companies. This underperformance of *CHINESE* ends with the PCAOB-China Agreement Period.

Could differences in risk be an explanation for the underperformance of Chinese firms? Therefore, we analyze four risk variables—*BETA*, *LEVERAGE*, *BOOK-MARKET*, and *FFI* in Table 4. We find that the mean and median differences in *BETA*, *LEVERAGE* and *BOOK-MARKET* between *CHINESE* and *OTHER-ASIAN* groups are statistically significant. Specifically, the *BETA* is higher for Chinese companies than for other Asian companies, while *LEVERAGE* and *BOOK-MARKET* are higher for other Asian companies than for Chinese companies. Thus, while systematic risk is higher for Chinese companies than for other Asian companies, financial risk and default risk are higher for other Asian companies than for Chinese companies.

In Table 5, we examine whether stock underperformance of Chinese companies persists after controlling for the four risk proxies. The coefficient on *CHINESE*, an indicator variable, captures the incremental difference in stock performance of Chinese companies relative to other Asian companies. For the Pre-HFCAA Period, the coefficient on *CHINESE* is statistically significant (0.1283, t-stat=2.48). Thus, consistent with the Table 3 results, we find that, controlling for the four risk proxies, U.S.-listed Chinese stocks outperform other U.S.-listed Asian companies for the Pre-HFCAA Period. However, the coefficients on *CHINESE* are negative and statistically significant for the HFCAA Legislative Period (-0.5214, t-stat=-3.29), and HFCAA Effective Period (-0.3058, t-stat=-3.36). Thus, our results suggest that Chinese firms began underperforming relative to other Asian companies once there was a material likelihood of a



Chinese company being delisted from a U.S. stock exchange.

In Table 6, we further examine the underperformance of Chinese companies using the Fama-French three-factor model. We use a calendar time portfolio approach to estimate the three-factor model. For the Pre-HFCAA Period, the coefficient on *ALPHA* is positive and statistically significant (0.0034, t-stat=2.26). Thus, our results suggest that Chinese companies outperform other Asian companies after controlling for the three risk factors. The results are economically significant, about 0.3 basis points per day. In sharp contrast, for the HFCAA Legislative Period (-0.0017, t-stat=-4.63) and the HFCAA Effective Period (-0.0018, t-stat=-3.03), the coefficients on *ALPHA* are both negative and statistically significant. Thus, the underperformance of Chinese companies coincides with the period when there is a material likelihood of a Chinese company being delisted from a U.S. stock exchange.

To understand whether there is any reversal in stock performance of Chinese companies following the agreement between U.S. and Chinese regulators in August 2022, we examine whether Chinese companies underperform for the entire period beginning with HFCAA Legislation Period until December 31, 2022, four months after the bilateral agreement. As Table 7 Panel A reports, the mean (median) values indicate that the mean (median) buy-and-hold stock returns, *CRET*, for Chinese and other Asian companies, with values of -45.88% (-76.22%) and 14.68% (10.53%) respectively. For the entire period, the stock performance of Chinese companies is lower than the stock performance of other Asian companies by about 61% (87%). Once we control for various risk metrics in Panels B and C, we continue to find evidence indicating that Chinese companies underperform other Asian companies.

### **Conclusion**

Until recently, PCAOB has been unable to inspect the audits completed by Chinese audit

firms of U.S.-listed Chinese companies because of the absence of a bilateral agreement between PCOAB and Chinese regulators. One concern was that the lack of PCAOB inspections would erode the financial reporting quality of U.S.-listed Chinese companies, thereby posing serious risk to U.S. investors. In response, U.S. regulators began discussions to delist Chinese companies in the absence of PCAOB inspections. We analyze the economic cost to U.S. investors for the period there was a material likelihood of U.S.-listed Chinese companies being delisted.

We find that just prior to any regulatory initiative to consider delisting, U.S.-listed Chinese companies outperform other U.S.-listed Asian companies. However, once the U.S. Senate began discussions to introduce legislation that would delist Chinese companies in the absence of PCAOB inspections (March 2019) until the PCAOB and Chinese regulators reached a bilateral agreement to allow PCAOB inspections (August 2022), U.S.-listed Chinese companies underperform other U.S.-listed Asian companies by more than 50%. These results are robust to controlling for conventional risk proxies based on firm characteristics, and Fama-French risk factors. Following the bilateral agreement, the stock performance of Chinese companies is comparable to that of other Asian companies or the Shanghai Index. Therefore, the loss to U.S. investors incurred between March 2019 and August 2022 is not reversed following the inspection period.

Furthermore, this research makes a valuable contribution to the existing literature by focusing specifically on Chinese firms among U.S.-listed foreign firms. By examining the unique dynamics and implications of the PCAOB regulations on Chinese firms, this study fills a gap in the auditing and regulation literature, providing insights that are essential for policymakers, regulators, investors, and Chinese firms themselves.

Ultimately, the findings emphasize the significance of regulatory compliance, transparency, and the role of regulatory bodies like the PCAOB in maintaining investor confidence and

safeguarding shareholders' interests. The insights gained from this research can inform decision-making processes, shape financial reporting practices, and facilitate cross-border investments. As Chinese firms continue to navigate the regulatory landscape, it is imperative to recognize and address the challenges and consequences associated with regulatory compliance, ultimately to foster a more robust and resilient global financial market.

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**TABLE 1**  
US Traded Companies Domiciled in Asia

Panel A: US-listed Asian companies		
	<i>CHINESE</i>	<i>OTHER ASIAN</i>
2019	211	41
2020	250	47
2021	260	55
2022	262	58
Panel B: US-listed Asian companies available in CRSP		
<u>Pre-HFCAA Period (January 1 to March 27, 2019)</u>		
□ As of March 27, 2019	104	32
<u>HFCAA Legislative Period (March 28, 2019 to December 17, 2020)</u>		
□ As of December 17, 2020	103	31
<u>HFCAA Effective Period (December 18, 2020 to August 25, 2022)</u>		
□ As of August 25, 2022	117	30
<u>PCAOB-China Agreement Period (August 26 to December 31, 2022)</u>		
□ As of December 31, 2022	129	31

This table reports the sample size for Chinese companies and other Asian companies. *CHINESE* includes companies domiciled in mainland China, and Hong Kong. *OTHER ASIAN* countries include India, Japan, South Korea, Malaysia, Taiwan, and Thailand. Panel A reports the total number of firms traded in the US that are domiciled in Asian Countries. Panel B reports the number of firms included in CRSP in each of the four periods (Pre-HFCAA, HFCAA Legislative Period, HFCAA Effective Period, PCAOB-China Agreement Period).

**TABLE 2**  
Stock Market Reaction around the Various Stages of the HFCAA Legislative Process

	<i>CAR1</i>	<i>CAR2</i>
□ March 28, 2019	0.0001 (0.02)	0.0104 (1.64)
□ May 20, 2020	-0.0579 (-5.81)***	-0.0002 (-0.02)
□ December 02, 2020	-0.0627 (-7.54)***	-0.0700 (-8.29)***
□ December 18, 2020	0.0212 (2.40)**	0.0385 (4.34)***
□ August 26, 2022	0.0298 (3.52)***	0.0220 (2.55)**

This table reports the mean CARs for U.S.-listed Chinese firms around the following event dates (measured over five days around each event window): (1) the introduction of HFCAA at the Senate (March 28, 2019), (2) passing of the HFCAA at the Senate (May 20, 2020), (3) passing of the HFCAA by the House of Representatives (December 2, 2020), (4) HFCAA becomes the law the day it is signed by the President (December 18, 2020), and (5) China and PCAOB reach an agreement to allow inspections (August 26, 2022). *CAR1* is the difference between buy-and-hold stock returns of *CHINESE* firms for five days around an event window and the buy-and-hold CRSP equally weighted returns for the corresponding period. *CAR2* is the difference between buy-and-hold stock returns of *CHINESE* firms for five days around an event window and the buy-and-hold stock returns of *OTHER-ASIAN* firms for the corresponding period. *CHINESE* includes companies domiciled in mainland China, and Hong Kong. *OTHER-ASIAN* countries include India, Japan, South Korea, Malaysia, Taiwan, and Thailand.

\*\*\*, and \*\* indicate significance at the 1% and 5%, respectively.

**TABLE 3**  
Stock Performance of U.S.-listed Chinese Versus Other U.S.-listed Asian Companies

	N	Mean	Median
<b>Panel A: Pre-HFCAA Period (January 1 to March 27, 2019)</b>			
<i>CHINESE</i>	104	0.1749	0.1736
<u><i>OTHER-ASIAN</i></u>	<u>32</u>	<u>0.0609</u>	<u>0.0382</u>
Difference		0.1140	0.1354
(t-z stat)		(2.95)***	(2.43)**
<b>Panel B: HFCAA Legislative Period (March 28, 2019 to December 17, 2020)</b>			
<i>CHINESE</i>	103	-0.0969	-0.2366
<u><i>OTHER-ASIAN</i></u>	<u>31</u>	<u>0.3311</u>	<u>0.1781</u>
Difference		-0.4280	-0.4147
(t-z stat)		(-2.93)***	(-3.66)***
<b>Panel C: Period HFCAA is Effective (December 18, 2020 to August 25, 2022)</b>			
<i>CHINESE</i>	117	-0.5061	-0.6394
<u><i>OTHER-ASIAN</i></u>	30	<u>-0.0985</u>	<u>-0.0973</u>
Difference		-0.4076	-0.5421
(t-z stat)		(-4.76)***	(-4.97)***
<b>Panel D: PCAOB-China Agreement Period (August 26 to December 31, 2022)</b>			
<i>CHINESE</i>	129	-0.1224	-0.1938
<u><i>OTHER-ASIAN</i></u>	<u>31</u>	<u>-0.0739</u>	<u>-0.0831</u>
Difference		-0.0485	-0.1107
(t-z stat)		(-1.06)	(-1.94)

This table reports the mean and median stock performance results for Chinese companies and other Asian companies. Stock performance is measured using buy-and-hold stock returns (*CRET*) for four holding period (Pre-HFCAA, HFCAA Legislative Period, HFCAA Effective Period, PCAOB-China Agreement Period). *CHINESE* includes companies domiciled in mainland China, and Hong Kong. *OTHER-ASIAN* countries include India, Japan, South Korea, Malaysia, Taiwan, and Thailand. We also report the difference in the mean (median) numbers between the two groups and the associated t(z)-statistic. N is the number of firms.

We drop 0, 9, 1, 0 outliers, which is over 3.00, for each period, correspondingly.

\*\*\*, and \*\* indicate significance at the 1% and 5%, respectively.

**TABLE 4**  
Risk Differences for the Pre-HFCAA Period (January 1, 2019)

	<i>CHINESE</i>	<i>OTHER-ASIAN</i>	Difference
<i>BETA</i>			
Observations	117	30	
Mean	0.7567	0.6541	0.1026 (2.16)**
Median	0.7786	0.6462	0.1324 (2.05)**
<i>LEVERAGE</i>			
N	117	30	
Mean	0.1663	0.2311	-0.0647 (-1.93)*
Median	0.0882	0.2195	-0.1313 (-2.55)***
<i>BOOK-MARKET</i>			
Observations	117	30	
Mean	0.7119	1.3140	-0.6021 (-3.30)***
Median	0.3334	1.2959	-0.9625 (-3.88)***
<i>FFI</i>			
<input type="checkbox"/> Consumer Durables, Non-Durables, Wholesale, Retail, and Some Services	22 (18.80%)	2 (6.67%)	
<input type="checkbox"/> Manufacturing, Energy, and Utilities	10 (8.55%)	3 (10.00%)	
<input type="checkbox"/> Business Equipment, Telephone and Television Transmission	43 (36.75%)	16 (53.33%)	
<input type="checkbox"/> Healthcare, Medical Equipment, and Drugs	7 (5.98%)	1 (3.33%)	
<input type="checkbox"/> Other -- Mines, Construction, Building Material, Transportation, Hotels, Business Services, Entertainment, and Finance	35 (29.91%)	8 (26.67%)	

This table reports the mean and median values of four firm-specific risk proxies for Chinese companies and other Asian companies. The risk proxies include *BETA* (estimated from the market model using daily stock returns from January 1 to December 31, 2018, Pre-HFCAA), *LEVERAGE* (ratio of total debt to total assets), *BOOK-MARKET* (ratio of the book value of equity to the market value of equity), and *FFI* (Fama-French five industry codes). We winsorize *LEVERAGE* to make it less than 1.00, and winsorize *BOOK-MARKET* to make it less than 4.00. *CHINESE* includes companies domiciled in mainland China, and Hong Kong. *OTHER-ASIAN* countries include India, Japan, South Korea, Malaysia, Taiwan, and Thailand. We also report the difference in the mean (median) numbers between the two groups and the associated t(z)-statistic. N is the number of firms in the sample. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.



**TABLE 5**  
Stock Performance of U.S.-listed Companies After Controlling for Risk

	Pre-HFCAA	HFCAA Legislative	HFCAA Effective
<i>ALPHA</i>	-0.1224 (-1.30)	0.3282 (1.12)	-0.3830 (-2.36)**
<i>CHINESE</i>	0.1283 (2.48)**	-0.5214 (-3.29)***	-0.3058 (-3.36)***
<i>BETA</i>	0.2397 (3.06)***	0.4690 (1.82)*	-0.0603 (-0.45)
<i>LEVERAGE</i>	0.1935 (1.60)	0.0055 (0.02)	0.3640 (1.91)*
<i>BOOK-MARKET</i>	0.0291 (1.24)	-0.0926 (-1.25)	0.1110 (2.78)***
<i>FFI</i>	-0.0193 (-1.29)	-0.0574 (-1.27)	0.0282 (1.12)
Observations	136	134	147
Adjusted-R <sup>2</sup>	13.23%	7.54%	17.22%

This table reports the estimated coefficients (and the associated t-statistics in parentheses) from OLS regressions for each of the three periods: Pre-HFCAA, HFCAA Legislative, and HFCAA Effective. *CHINESE* is dummy variable, equals to 1 when it is a CHINESE firm, equals to zero when it is an *OTHER-ASIAN* firm. *BETA* is estimated from the market model using daily stock returns from January 1 to December 31, 2018 (Pre-HFCAA). *LEVERAGE* is the ratio of total debt to total assets, *BOOK-MARKET* is the ratio of the book value of equity to the market value of equity. *FFI* is Fama-French five industry codes, equals to 1 to 5. We winsorize *LEVERAG* to make it less than 1.00, and winsorize *BOOK-MARKET* to make it less than 4.00.

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

**TABLE 6**

Stock Performance of U.S.-listed Companies After Controlling for the Fama-French Risk Factors

	Measurement Periods		
	Pre-HFCAA	HFCAA Legislative	HFCAA Effective
<i>ALPHA</i>	0.0034 (2.26)**	-0.0017 (-4.63)***	-0.0018 (-3.03)***
<i>MARKET</i>	0.0004 (0.22)	-0.0004 (-2.02)**	0.0000 (0.06)
<i>SMB</i>	0.0037 (0.99)	0.0023 (4.50)***	0.0071 (9.03)***
<i>HML</i>	-0.0023 (-0.82)	-0.0012 (-4.15)***	-0.0027 (-4.99)***
Observations	59	437	424
Adjusted-R <sup>2</sup>	2.68%	7.01%	25.90%

This table reports the estimated coefficients (and the associated t-statistics in parentheses) from the Fama-French Three Factor model using the *CHINESE* sample. *CHINESE* includes companies domiciled in mainland China, and Hong Kong. We estimate this model for three periods: Pre-HFCAA (January 1 to March 27, 2019), HFCAA Legislative Period (March 28, 2019 to December 17, 2020), HFCAA Effective Period (December 18, 2020 to August 25, 2022). *MARKET* is the excess return on the stock market, *SMB* is the average return on the three small portfolios minus the average return on the three big portfolios, and *HML* is the average return on the two value portfolios minus the average return on the two growth portfolios.

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

**TABLE 7**  
Stock Performance for the Combined period (March 28, 2019 to December 31, 2022)

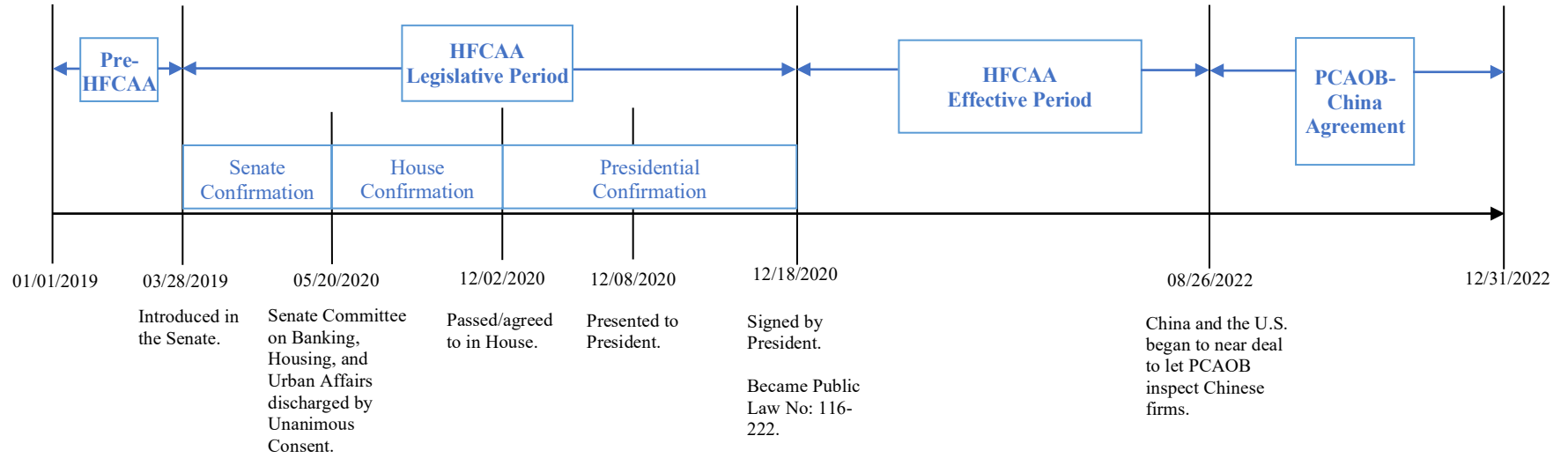
	N	Mean	Median
<b>Panel A: Stock Returns</b>			
<i>CHINESE</i>	111	-0.4588	-0.7622
<i>OTHER-ASIAN</i>	30	<u>0.1468</u>	<u>0.1053</u>
Difference		-0.6056	-0.8675
(t-z stat)		(-4.62)***	(-4.86)***
<b>Panel B: Stock Returns After Controlling for Risk</b>			
<i>ALPHA</i>		-0.1708 (-0.63)	
<i>CHINESE</i>		-0.6411 (-4.27)***	
<i>BETA</i>		0.5254 (2.37)**	
<i>LEVERAGE</i>		0.2102 (0.67)	
<i>BOOK-MARKET</i>		0.0034 (0.05)	
<i>FFI</i>		-0.0237 (-0.56)	
N	141		
Observations			
Adjusted-R <sup>2</sup>	12.96%		
<b>Panel C: Stock Returns After Controlling for Fama-French Risk Factors</b>			
<i>ALPHA</i>		-0.0016 (-4.67)***	
<i>MARKET</i>		-0.0000 (-0.18)	
<i>SMB</i>		0.0054 (11.52)***	
<i>HML</i>		-0.0025 (-8.87)***	
N	949		
Observations			
Adjusted-R <sup>2</sup>	18.47%		

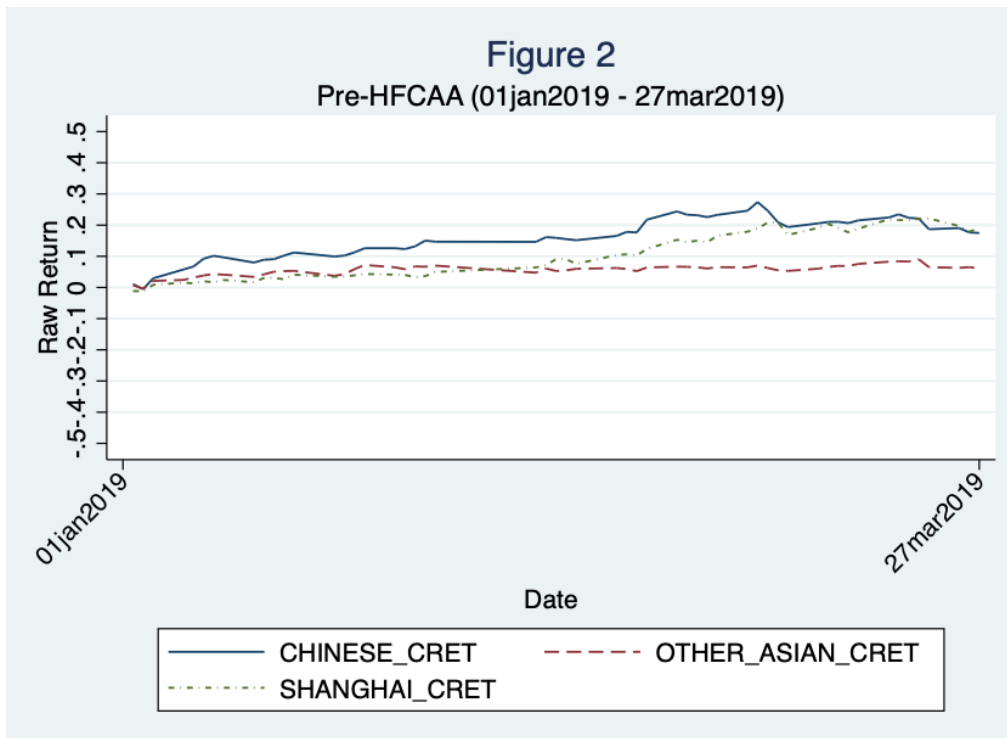
This table reports the stock performance of Chinese companies for the combined Pre-HFCAA, HFCAA Legislative, HFCAA Effective and post-HFCAA periods. *CHINESE* includes companies domiciled in mainland China, and Hong Kong. *OTHER-ASIAN* countries include India, Japan, South Korea, Malaysia, Taiwan, and Thailand. Panel B reports the mean/median buy-and-hold raw stock returns (*CRET*). Panel B reports the stock performance (*CRET*) results after controlling for risk factors for Chinese companies. The risk proxies include *BETA* (estimated from the market model using daily stock returns from January 1 to December 31, 2018, Pre-HFCAA), *LEVERAGE* (ratio of total debt to total assets), *BOOK-MARKET* (ratio of the book value of equity to the market value of equity), and *FFI* (Fama-French five industry codes). Panel C reports the stock performance results for Chinese companies after controlling for Fama-French risk factors. *MARKET* is the excess return on the stock market, *SMB* is the average return on the three small portfolios minus the average return on the three big portfolios, and *HML* is the average return on the two value portfolios minus the average return on the two growth portfolios.

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

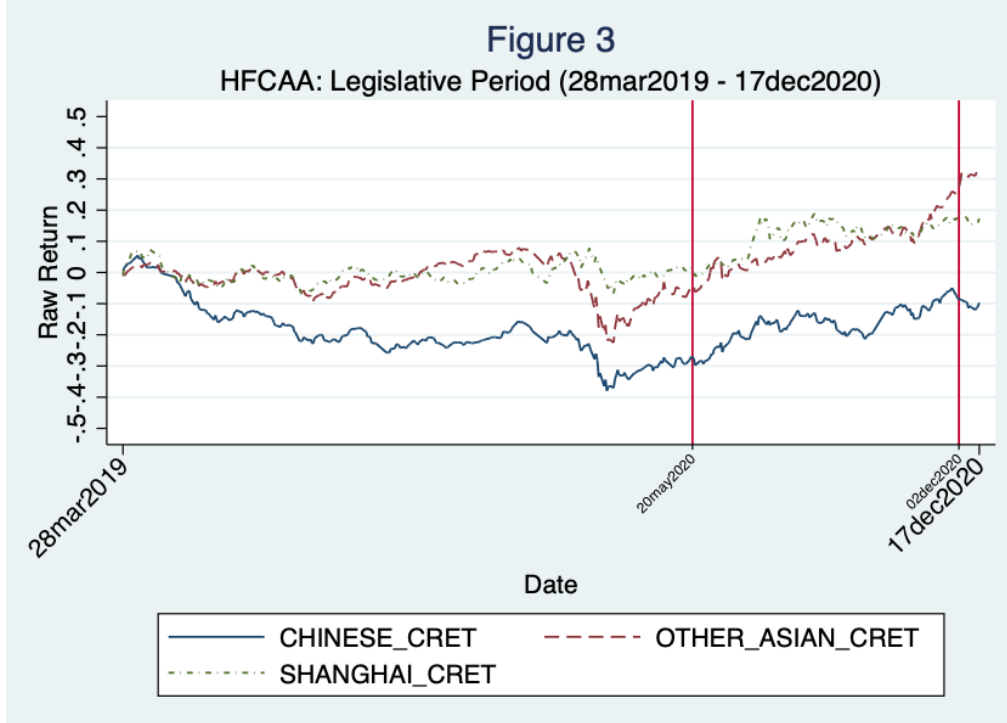
**Figure 1**

**Timeline Surrounding the Holding Foreign Companies Accountable Act (HFCAA)**

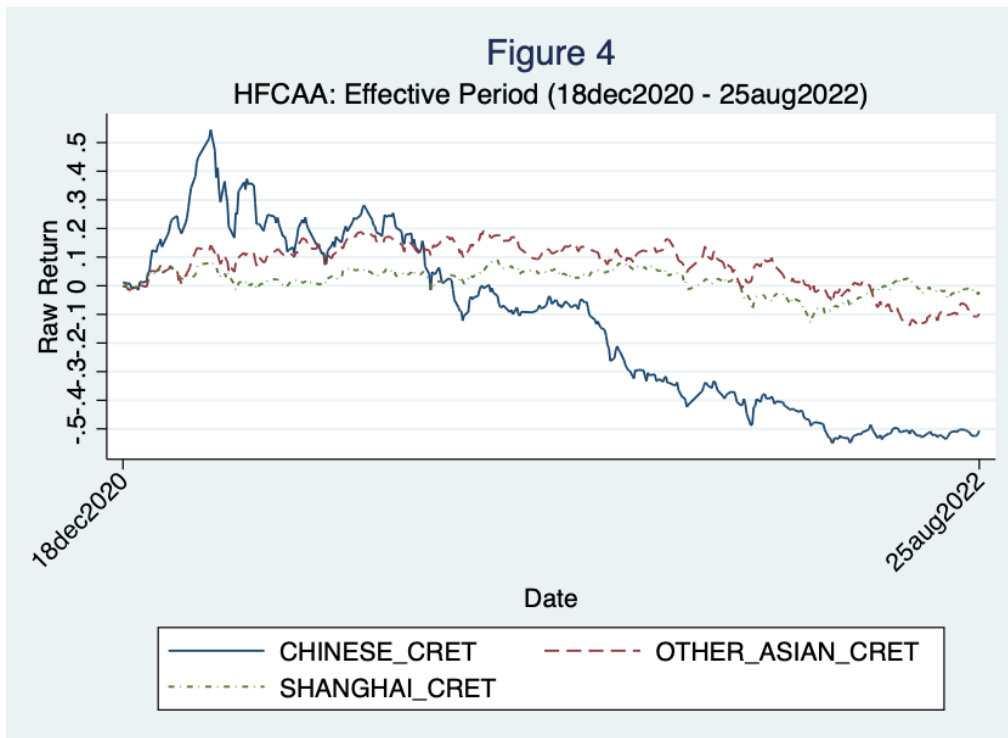




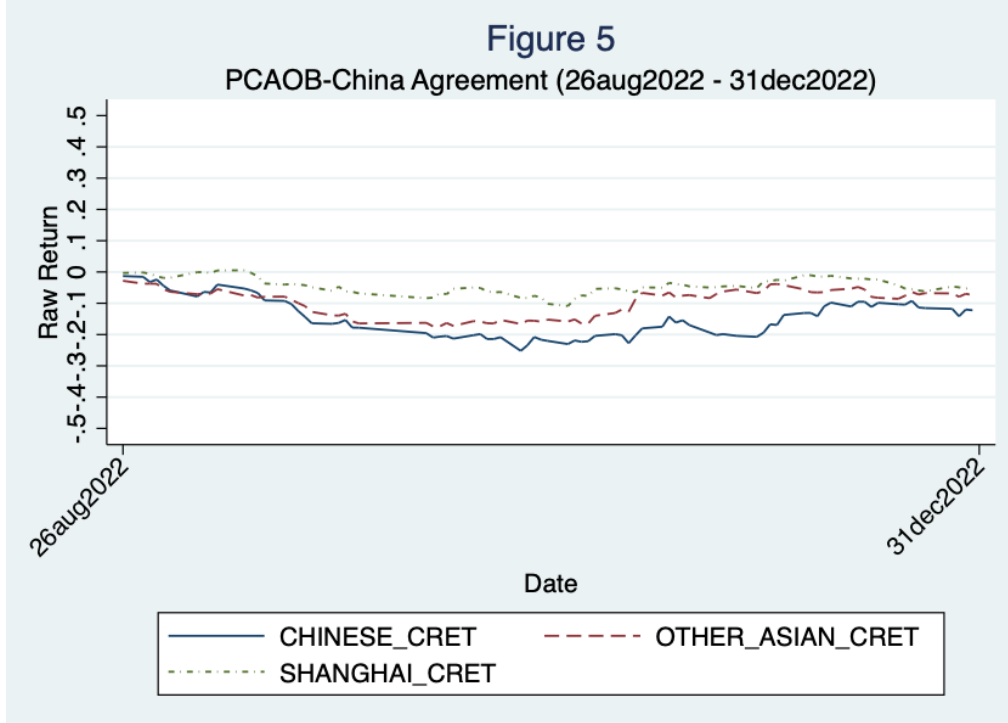
*CHINESE* includes companies domiciled in mainland China, and Hong Kong. *OTHER ASIAN* countries include India, Japan, South Korea, Malaysia, Taiwan, and Thailand. Figure 2 shows  $r$  using buy-and-hold stock returns (*CRET*) for the Pre-HFCAA Period for *CHINESE*, and *OTHER ASIAN*. SHANGHAI is the SSE Composite Index, a stock market index of all stocks that are traded at the Shanghai Stock Exchange.



*CHINESE* includes companies domiciled in mainland China, and Hong Kong. *OTHER ASIAN* countries include India, Japan, South Korea, Malaysia, Taiwan, and Thailand. Figure 3 shows using buy-and-hold stock returns (*CRET*) for the HFCAA Legislative Period for *CHINESE*, and *OTHER ASIAN*. SHANGHAI is the SSE Composite Index, a stock market index of all stocks that are traded at the Shanghai Stock Exchange.



*CHINESE* includes companies domiciled in mainland China, and Hong Kong. *OTHER ASIAN* countries include India, Japan, South Korea, Malaysia, Taiwan, and Thailand. Figure 4 shows using buy-and-hold stock returns (*CRET*) for the HFCAA Effective Period for *CHINESE*, and *OTHER ASIAN*. *SHANGHAI* is the SSE Composite Index, a stock market index of all stocks that are traded at the Shanghai Stock Exchange.



*CHINESE* includes companies domiciled in mainland China, and Hong Kong. *OTHER ASIAN* countries include India, Japan, South Korea, Malaysia, Taiwan, and Thailand. Figure 5 shows using buy-and-hold stock returns (*CRET*) for the PCAOB-China Agreement Period for *CHINESE*, and *OTHER ASIAN*. *SHANGHAI* is the SSE Composite Index, a stock market index of all stocks that are traded at the Shanghai Stock Exchange.