

U.S. Listings by Chinese Companies: Assessing the Benefits to U.S. Investors and Chinese Companies



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Executive Summary

In October 2021, the Committee issued a report calling for a structured dialogue between U.S. and Chinese regulators to avoid the delisting of Chinese companies from U.S. stock exchanges.¹ As described in that report, if the U.S. Public Accounting Oversight Board (“PCAOB”) is unable to inspect the audits of U.S.-listed Chinese companies for three years, then the Holding Foreign Companies Accountable Act (“HFCAA”) requires the delisting of these companies.

We now congratulate the PCAOB and China Securities Regulatory Commission (“CSRC”) for reaching an audit access agreement for U.S.-listed Chinese companies and their first successful inspection in December 2022.² However, as noted by the PCAOB, the agreement will require ongoing access to audits of U.S.-listed Chinese companies and a future risk of the delisting of Chinese companies remains. The purpose of this report is therefore to assess the benefits of U.S. listings of Chinese companies for U.S. investors and Chinese companies and, as a result, the importance to both of avoiding a decoupling of Chinese companies from U.S. capital markets.

In Part I, we review the history of U.S. listings by Chinese companies and describe the role of U.S. listed Chinese companies in U.S. capital markets, including their contribution to stock market trading volume, underwriting fees for U.S. investment banks, and holdings of U.S. institutional investors. Next, we evaluate the reliance of Chinese companies on U.S. listings by comparing their frequency and scale to mainland China and Hong Kong listings in recent decades. Part I concludes that U.S. and Chinese capital markets have become increasingly intertwined in recent decades.

In Part II, we assess the benefits of U.S. listings for Chinese companies through empirical analysis. First, we compare underpricing of U.S. IPOs of Chinese companies with mainland and Hong Kong IPOs of Chinese companies. Second, we compare the cost of capital for U.S.-listed Chinese companies with mainland- and Hong Kong-listed Chinese companies. And finally, we evaluate whether U.S. listings have beneficial competitive effects in Chinese industries. We find substantial benefits to Chinese companies from U.S. listings. However, we also find that Hong Kong listings provide comparable benefits to Chinese companies with respect to IPO pricing and cost of capital.

In Part III, we evaluate the benefits of U.S. listings of Chinese companies for U.S. investors. First, we examine the cost of trading shares in U.S. equity markets as compared to the cost of trading shares in mainland China, Hong Kong, and other foreign equity markets. We then evaluate the operating performance and historical returns of U.S.-listed Chinese companies and incorporate U.S.-listed Chinese companies into simulated investment portfolios to assess the risk-return effects on investors. And finally, we examine whether U.S. listings of Chinese companies reduce U.S. investors’ “home bias” whereby U.S. investors underinvest in foreign companies solely listed abroad. We find significant benefits for U.S. investors from U.S. listings of Chinese companies.

¹ COMMITTEE ON CAPITAL MARKET REGULATION, *ASSESSING THE FUTURE OF U.S. LISTINGS BY CHINESE COMPANIES: A CALL FOR STRUCTURED DIALOGUE* (2021), <https://www.capmktreg.org/2021/10/22/assessing-the-future-of-u-s-listings-by-chinese-companies-a-call-for-structured-dialogue/>.

² PCAOB, *PCAOB Secures Complete Access to Inspect, Investigate Chinese Firms for First Time in History* (Dec. 15, 2022), <https://pcaobus.org/news-events/news-releases/news-release-detail/fact-sheet-pcaob-secures-complete-access-to-inspect-investigate-chinese-firms-for-first-time-in-history>

I. Overview of U.S. Listings by Chinese Companies and the Audit Dispute

In this section, we begin with a brief overview of the history of U.S. listings by Chinese companies. We then describe the share of U.S. stock market trading volume from trading in U.S.-listed Chinese companies, the rise in holdings of U.S.-listed Chinese companies by U.S. institutional investors, and the scale of underwriting fees earned by U.S. investment banks that handle public offerings for these companies. This data demonstrates the increasing importance of U.S. listings of Chinese companies for U.S. capital markets. Next, we review the incidence of U.S. listings by Chinese companies as compared to mainland China and Hong Kong listings to better understand the importance of access to U.S. capital markets for Chinese companies. We then examine the types of Chinese companies that list in the United States, including their sector and whether they are state-owned, in an effort to better understand the importance of U.S. listings for specific types of Chinese companies. Finally, we describe how a dispute over U.S. regulators' ability to review the audits of U.S.-listed Chinese companies threatened to force a mass delisting of Chinese companies from U.S. exchanges and continues to present a risk of such a delisting in the future.

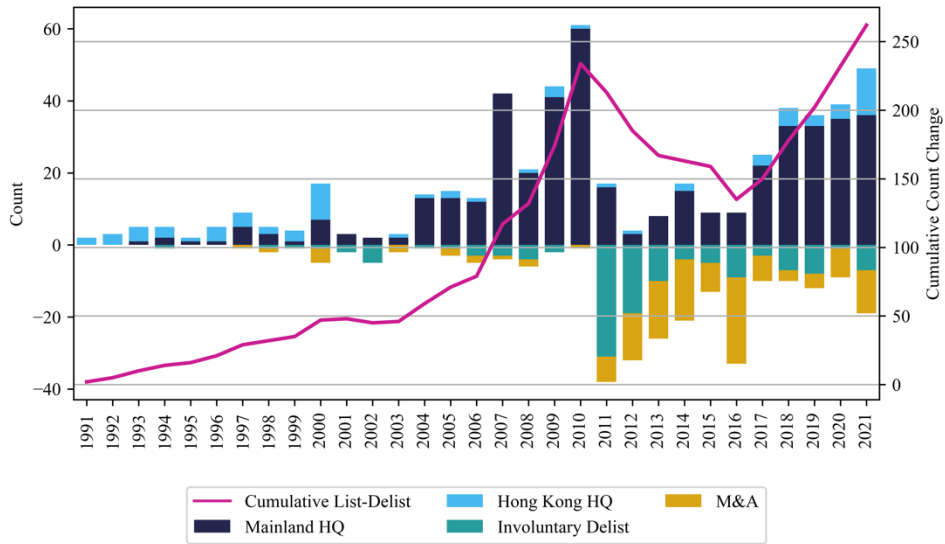
Figure 1 on the next page illustrates the annual number of U.S. listings by Chinese firms, and subsequent delistings. In the 1990s most U.S. listings by Chinese firms were conducted by Hong Kong-headquartered companies. Beginning in 2000, an increasing number of mainland-headquartered companies began to list in the United States. That activity peaked in 2010 with over 60 new listings in that year alone, until the SEC announced heightened scrutiny of foreign listings. Over 2011-2017, listing activity softened and many Chinese companies began to delist. In the early years of the lull, most delistings were involuntary.³ Later delistings often reflected M&A and other forms of voluntary delisting.⁴ From 2017 through 2021, there was a resurgence in listing activity with more than 50 in 2021, and an overall decline in delistings to less than 10 in 2021. Of the 526 listings since 1991, 262 companies remained listed as of September 30, 2022.⁵ U.S.-listed Chinese firms grew from less than 1% of existing listings on U.S. exchanges in 2001 to nearly 6% of listings in 2020.

³ Involuntary delistings include liquidations (CRSP delisting codes 400-499), dropped listings (codes 500-599 excluding 570 and 573), and expirations (codes 600-699).

⁴ "M&A" corresponds to CRSP delisting codes 200-399, and "other voluntary delistings" include delisting codes 570 and 573.

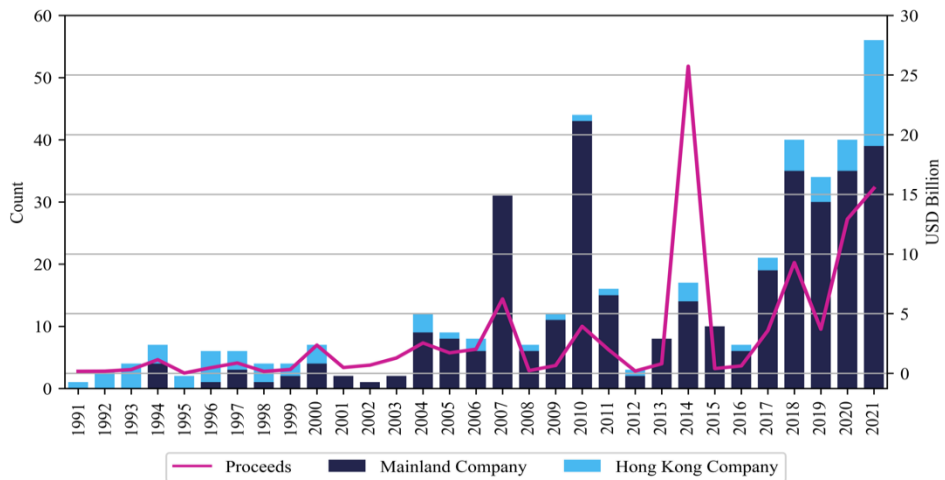
⁵ See U.S.-CHINA ECONOMIC & SECURITY REVIEW COMMISSION, CHINESE COMPANIES LISTED ON MAJOR U.S. STOCK EXCHANGES (2022), <https://www.uscc.gov/research/chinese-companies-listed-major-us-stock-exchanges>.

Figure 1: New U.S. Listings and Delistings by Chinese Companies⁶



IPO counts are not a perfect indicator for capital raising as some transactions are larger than others. **Figure 2** therefore illustrates IPO proceeds over time. IPO proceeds measure the total quantity of capital raised in an IPO. Proceeds from U.S. IPOs of Chinese companies steadily increased through 2021.

Figure 2: Proceeds Raised from U.S. IPOs by Chinese Companies⁷

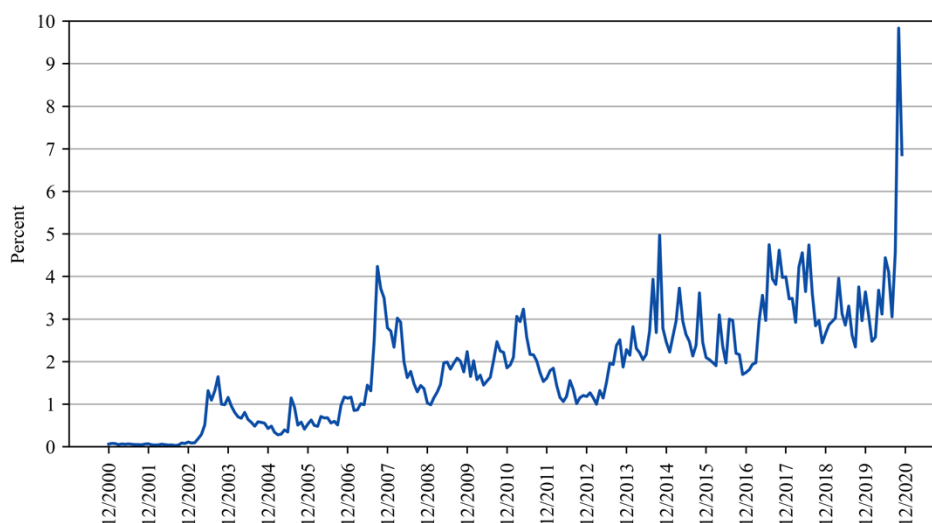


⁶ A Chinese company listing is a new listing in the intersection of CRSP and Compustat, where the company’s headquarters are in Hong Kong or mainland China on the listing date. This method excludes listing techniques like reverse mergers, which can be identified as a change-in-headquarters by a previously listed firm. This method will also exclude Chinese companies with headquarters outside China on the listing date, but that subsequently transitioned. The M&A category includes all voluntary delistings.

⁷ IPOs targeting the U.S. market recorded in Refinitive SDC Platinum New Issues.

The U.S. equity markets are the most active in the world as measured by trading volume, which is a critical factor in maintaining the status of the United States as a preeminent financial center. They also have significantly lower trading costs (which includes bid-ask spreads, price impact, and brokerage commissions) than mainland China and Hong Kong equity markets.⁸ Trading volume in U.S.-listed Chinese companies is an increasingly important contributor to overall trading volume in U.S. equity markets. For example, as demonstrated by **Figure 3**, from 2010 until 2020, trading volume in U.S.-listed Chinese companies steadily increased from approximately 2% of overall trading volume to an average of 6%. This percentage spiked to 9% in 2020 due to a surge in shorting of Chinese companies’ shares in the months immediately preceding the COVID-19 pandemic.⁹

Figure 3: U.S.-Listed Chinese Firm Dollar Volume as a Percentage of Total Dollar Volume in U.S. Common Shares and U.S.-Listed Chinese Firms¹⁰



U.S. institutional holdings of U.S.-listed Chinese firms have also grown substantially over the past 20 years, largely in tandem with the rise of U.S. listings by Chinese firms. For example, **Figure 4** below shows U.S. institutional holdings of U.S.-listed Chinese firms, as reported on Form 13F. Institutional investment managers with more than \$100 million in assets under management must disclose their holdings on a quarterly basis by filing Form 13F with the SEC. The value of U.S. institutional holdings of U.S.-listed Chinese firms reported on Form 13F grew from less than \$100 billion in 2010 to more than \$600 billion at the end of 2020. The impact of a mass delisting of

⁸ PROGRAM ON INTERNATIONAL FINANCIAL SYSTEMS, INTERNATIONAL REVIEW OF EQUITY MARKET STRUCTURE REGULATION, PHASE II: QUANTITATIVE ANALYSIS 13 (2020), <https://www.pifsinternational.org/wp-content/uploads/2022/08/PIFS-EMS-Quantitative-Report-10-08-2020.pdf>.

⁹ Sinead Carew, *Some U.S.-listed China firms see shorting spike, others see short-covering jump* REUTERS (Feb. 13, 2020), <https://www.reuters.com/article/us-usa-stocks-shorts/some-u-s-listed-china-firms-see-shorting-spike-others-see-short-covering-jump-idUSKBN2072US>

¹⁰ Figure illustrates monthly average dollar volumes. The set of U.S.-listed firms includes all common shares in the CRSP database, excluding U.S.-listed Chinese firms. The set of U.S.-listed Chinese firms includes all securities in the intersection of CRSP and Compustat where the issuer has a mainland China or Hong Kong headquarters on the listing date.

U.S.-listed Chinese companies on U.S. institutional investors could therefore be significant because the process of delisting and relisting a company’s shares is costly.¹¹

Figure 4: Value of U.S.-Listed Chinese Firms in Institutional 13F Assets¹²

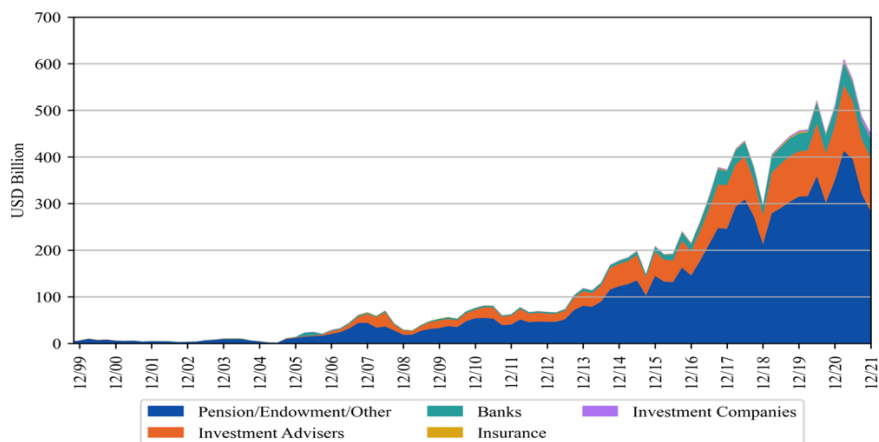
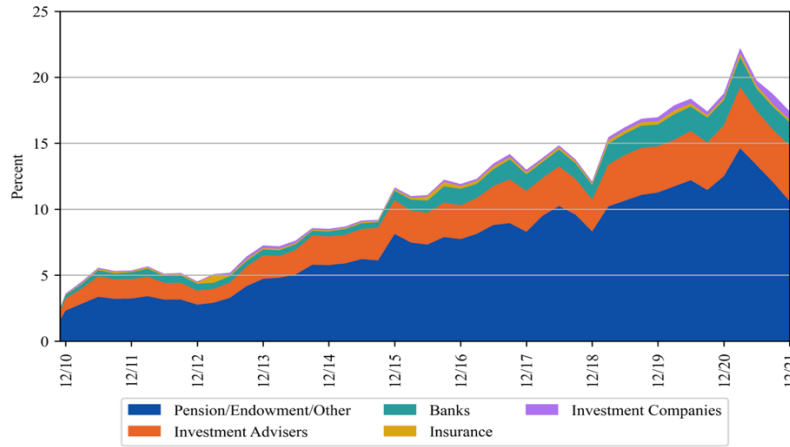


Figure 5 further demonstrates that U.S. institutional investors own a significant percentage of the shares of U.S.-listed Chinese companies, and that this percentage has grown over time. For example, U.S. institutional holdings grew from roughly 5% of total capitalization of U.S.-listed Chinese firms in 2010 to more than 20% in 2020.

¹¹ Richard Frost & Sofia Horta e Costa, *China Signals End to \$2 Trillion U.S. Listings Juggernaut* BLOOMBERG (Jul. 18, 2021), [://www.bloomberg.com/news/articles/2021-07-18/china-signals-end-to-2-trillion-u-s-stock-listing-juggernaut?sref=2ICQoM0A](https://www.bloomberg.com/news/articles/2021-07-18/china-signals-end-to-2-trillion-u-s-stock-listing-juggernaut?sref=2ICQoM0A).

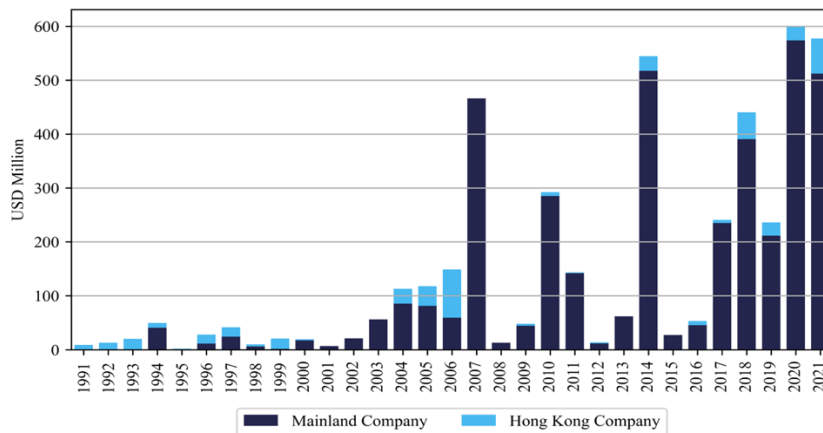
¹² Institutional holdings based on Thomson 13F data. Includes all firms in Compustat with a Hong Kong or Mainland headquarters *at any point*. Unlike other sections, this group may contain firms that list via reverse merger. According to Agarwal et al. (2009) the pension/other institutional category includes investors that would be more appropriately categorized as investment advisers. Vikas Agarwal et al., *Do Institutional Investors Have an Ace up Their Sleeves?* (2009), <https://www0.gsb.columbia.edu/mygsb/faculty/research/pubfiles/4122/Do%20Institutional%20Investors%20Have%20an%20Ace%20Up%20Their%20Sleeves.pdf>.

Figure 5: Fraction of U.S.-Listed Chinese Firm Capitalization Held in Institutional 13F Assets



As illustrated in **Figure 6** below, underwriting fees also benefited from increases in U.S. IPOs by Chinese companies in recent years, totaling nearly \$600 million for both 2020 and 2021. Underwriting fees for U.S. IPOs are earned by investment banks located in the United States and therefore provide economic benefits to investors and employees at these banks. Although U.S.-based investment banks with offshore operations may earn some of these same fees if these IPOs instead took place in Hong Kong, they would be subject to increased competition from Hong Kong- and mainland-based banks.¹³ If Chinese companies no longer list in the United States, then the economic benefits to U.S.-based investment banks would thus likely be reduced.

Figure 6: Underwriting Fees from U.S. IPOs of Chinese Companies¹⁴



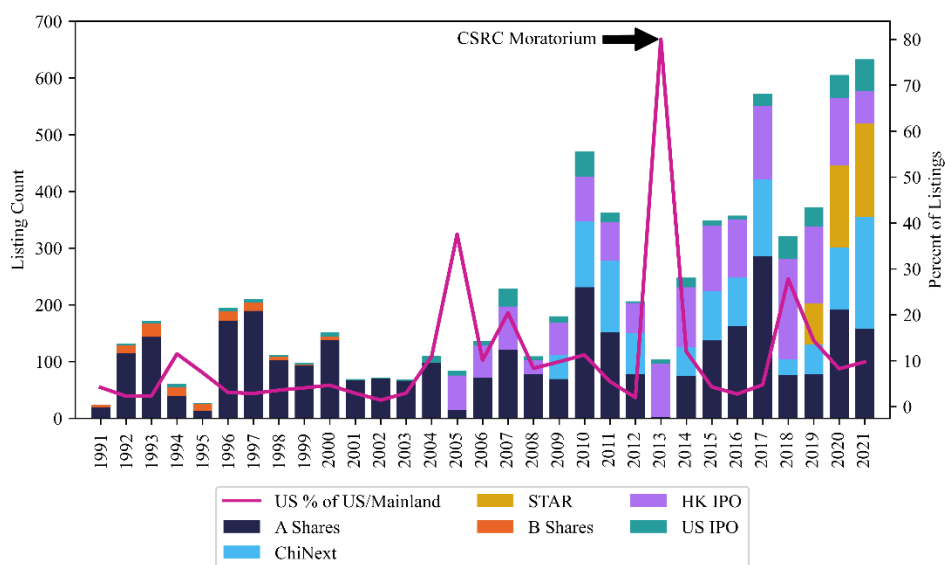
¹³ Chad Bray & Enoch Yu, *Wall Street banks' IPO fees could come under pressure from mainland rivals if Beijing forces tech firms to list in Hong Kong* SOUTH CHINA MORNING POST (Jul. 15, 2021), <https://www.scmp.com/business/banking-finance/article/3141244/wall-street-banks-ipo-fees-could-come-under-pressure>

¹⁴ IPOs targeting the U.S. market recorded in Refinitive SDC Platinum New Issues. Includes fees paid to lead and co-managers. Includes management fees and underwriting fees.

The importance of access to U.S. capital markets for Chinese companies and China can be further illustrated by a comparison of the number and size of U.S. IPOs by Chinese companies with the number and size of mainland China and Hong Kong IPOs by Chinese companies.

Figure 7 below illustrates the number of Chinese company IPOs in the United States compared to the number of IPOs in Hong Kong and mainland China. Between 1991 and 2021, approximately 7% of IPOs by Chinese companies occurred in the United States, and roughly 22% occurred in Hong Kong.

Figure 7: Number of Chinese Company IPOs in the United States, Hong Kong, and Mainland China¹⁵



However, as demonstrated by **Table 1** below, U.S. IPOs by Chinese companies are larger on average than IPOs in mainland China and represent approximately 15% of proceeds raised by Chinese companies in the United States and mainland China combined since 1991. More specifically, in the late 1990s and early 2000s, U.S. IPOs accounted for close to 30% of total proceeds raised on exchanges by Chinese companies. That share declined to less than 5% over 2006-2010, before settling at 10% in the subsequent years.

Table 1 also demonstrates that U.S. IPOs of Chinese companies are less frequent than Hong Kong IPOs of Chinese companies, which include companies headquartered in mainland China or Hong Kong. From 2006-2021 there were 354 U.S. IPOs of Chinese companies and 1452 Hong Kong

¹⁵ U.S. IPOs based on Refinitiv SDC Platinum New Issues database. China IPOs include A shares, B shares, ChiNext listings, and Star Listings from the CSMAR database. “A shares” are shares that are traded on mainland exchanges, quoted in renminbi, and are subject to restrictions on foreign ownership. “B shares” are shares that are traded on mainland exchanges, quoted in U.S. dollars or Hong Kong dollars, and are subject to fewer restrictions on foreign ownership. FTSE RUSSELL, GUIDE TO CHINESE SHARE CLASSES (2022), https://research.ftserussell.com/products/downloads/Guide_to_Chinese_Share_Classes.pdf. Hong Kong IPOs include all HKD denominated IPOs by Mainland/Hong-Kong headquartered firms in the CapitalIQ Transaction Offerings database. CapitalIQ Asia IPO data begins in 2005.

IPOs of Chinese companies. Over the same period U.S. IPOs of Chinese companies raised \$87.8 billion, while Hong Kong IPOs of Chinese companies raised \$341.6 billion.

Table 1: Summary of Chinese Company IPOs in the United States, Hong Kong, and Mainland China¹⁶

Year	Number of Chinese Company IPOs				IPO Proceeds of Chinese Companies (\$B)			
	China	Hong Kong	U.S.	U.S. % All	China	Hong Kong	U.S.	U.S. % All
1991-1995	398	-	17	4.1%	\$17.4	-	\$2.3	11.7%
1996-2000	738	-	27	3.5%	\$33.8	-	\$15.1	30.9%
2001-2005	316	-	26	7.6%	\$23.9	-	\$12.8	34.9%
2006-2010	727	294	102	9.1%	\$199.6	\$128.4	\$13.1	3.8%
2011-2015	778	437	54	4.3%	\$119.0	\$84.8	\$29.1	12.5%
2016-2021	1941	721	198	6.9%	\$285.7	\$128.4	\$45.6	9.9%
Total	4,898	1,452	424	6.3%	\$679.4	\$341.6	\$118.0	10.4%

It is also important to consider whether certain types of Chinese companies are more dependent on U.S. capital markets than others when assessing the potential impact of a decoupling of U.S. and Chinese capital markets.

As demonstrated by **Figure 8**, since 1991, approximately 60% of U.S. listings by Chinese companies have come from the Technology and Consumer sectors. Although **Figure 8** shows that the Technology sector declined from 40% of listings over 1991-2007 to 25% over 2008-2021, this change does not necessarily imply that listings have become less technology oriented. That is because industry classifications are based on Standard & Poor’s Global Industry Classification Standard codes,¹⁷ which do not always categorize companies typically thought of as technology companies as such. For example, DiDi Chuxing is a platform technology company akin to Uber that is classified by S&P as a transportation company within the Industrial sector, not a technology company. And Alibaba, a technology company often compared to Amazon, is a member of the Consumer sector. Companies like Alibaba are responsible for the Consumer sector’s outside share of total capitalization (58.7%) at the time of listing during the 2008-2021 period, as illustrated below in **Figure 9**.

¹⁶ U.S. IPOs of Chinese firms include all IPOs on a U.S. exchange by a mainland- or Hong Kong-headquartered company in the Refinitiv SDC Platinum New Issues database. Mainland IPOs include all IPOs in the CSMAR database. Hong Kong IPOs includes all IPOs on the Hong Kong Stock Exchange with shares denominated in HKD and a corporate headquarters in Mainland China or Hong Kong in the Capital IQ Transaction Offering database. Capital IQ Transaction Offering data are available in Asian markets beginning in 2005.

¹⁷ MSCI, The Global Industry Classification Standard, <https://www.msci.com/our-solutions/indexes/gics>.

Figure 8: Industry Composition of New Chinese Listings on U.S. Exchanges (by Issue Count)¹⁸

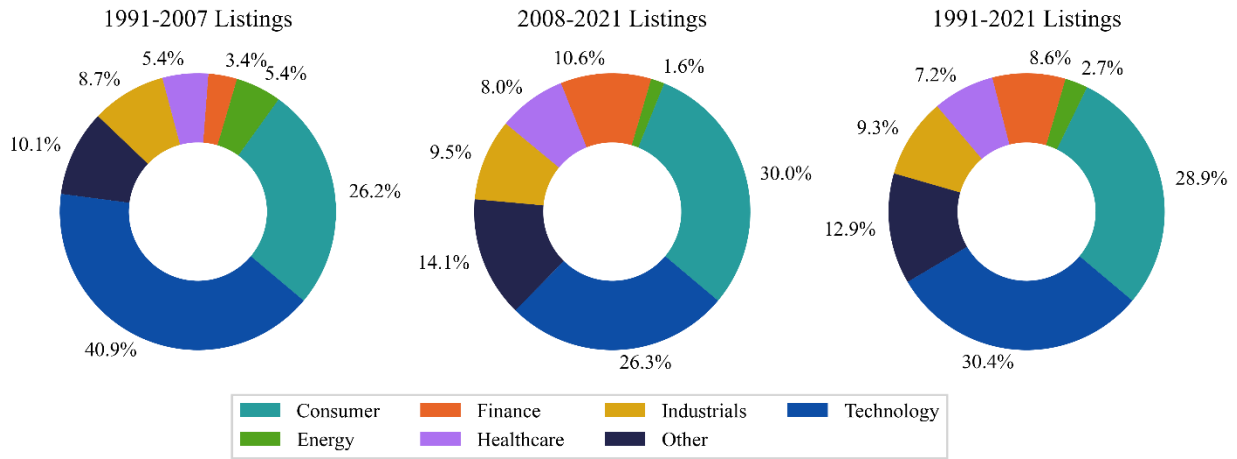
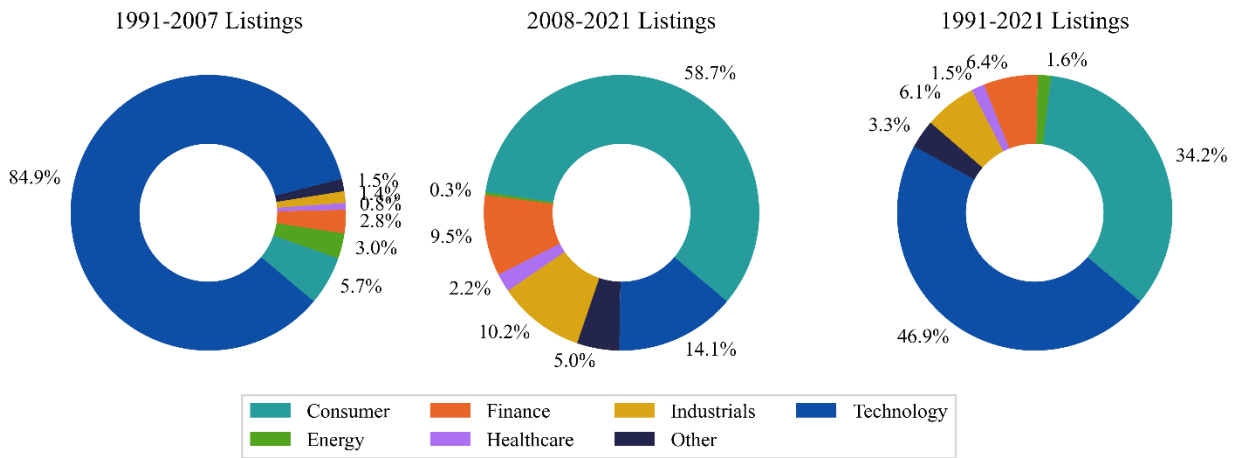


Figure 9: Industry Composition of New Chinese Listings on U.S. Exchanges (by Cap at Listing)



¹⁸ Industry grouping based on GICS sector codes: Technology (45, 50), Finance (40,60), Consumer (25, 30), Energy (10), Healthcare (35), Industrials (20), and Other (15, 55, and missing GICS sector).

The U.S.-China Dispute over Audit Inspections and the Risk of a Delisting of Chinese Shares

The SEC requires U.S.-listed companies to provide audited financial statements to investors. Accounting firms, whether located in the United States or abroad, that prepare or issue these audit opinions are required to register with the Public Company Accounting Oversight Board (the “**PCAOB**”), submit to PCAOB inspection, and produce audit work papers upon request.

Chinese authorities, however, have in several past years prevented Chinese accounting firms, including the Chinese affiliates of the four largest U.S. accounting firms that audit most U.S.-listed Chinese companies, from sharing key records and information with the PCAOB, citing national security, state secrets, and sovereignty concerns. The lack of audit inspection access raised legitimate concerns for the SEC and PCAOB as to the quality of financial statements of U.S.-listed Chinese companies, as described in detail in the Committee’s October 2021 report.¹⁹

In December 2020 Congress enacted the Holding Foreign Companies Accountable Act (the “**HFCAA**”). The HFCAA effectively mandates the delisting of a company’s shares if the company’s auditor has a branch or office in a jurisdiction that the PCAOB determines, for three consecutive years, prevents the PCAOB from carrying out adequate audit inspections or investigations. The PCAOB’s determination with respect to a given jurisdiction thus affects all issuers with auditors located in that jurisdiction. In 2021, the PCAOB determined that Chinese authorities prevented adequate PCAOB inspections of audits conducted by firms with branches or offices in mainland China or Hong Kong.²⁰ As a result, the SEC identified 165 U.S.-listed Chinese issuers with auditors located in mainland China or Hong Kong, including major U.S.-listed Chinese issuers such as Weibo and Baidu, as non-compliant with respect to 2021.²¹

Since the enactment of the HFCAA, total proceeds raised in IPOs on U.S. exchanges by Chinese companies declined significantly: Proceeds from IPOs by Chinese companies on U.S. exchanges during the 12-month period ending August 2022 totaled \$641 million, whereas for each prior year since 2014, total proceeds exceeded \$1 billion.²² Between May 2021 and March 2022, 19 Chinese companies delisted from U.S. exchanges.²³ In late 2022, six Chinese-government controlled companies with a combined market capitalization of \$341.3 billion announced that they would

¹⁹ COMMITTEE ON CAPITAL MARKET REGULATION, *ASSESSING THE FUTURE OF U.S. LISTINGS BY CHINESE COMPANIES: A CALL FOR STRUCTURED DIALOGUE* (2021), <https://www.capmktreg.org/2021/10/22/assessing-the-future-of-u-s-listings-by-chinese-companies-a-call-for-structured-dialogue/>.

²⁰ PUBLIC COMPANY ACCOUNTING OVERSIGHT BOARD [“**PCAOB**”], *PCAOB Makes HFCAA Determinations Regarding Mainland China and Hong Kong* (Dec. 16, 2021), <https://pcaobus.org/news-events/news-releases/news-release-detail/pcaob-makes-hfcaa-determinations-regarding-mainland-china-and-hong-kong>.

²¹ SEC, *Holding Foreign Companies Accountable Act*, <https://www.sec.gov/hfcaa> (last visited Nov. 30, 2022).

²² Jing Yang, *China’s GigaCloud Goes Public in U.S., Bucking Delisting Trend* WALL STREET JOURNAL (Aug. 18, 2022), <https://www.wsj.com/articles/chinas-gigacloud-goes-public-in-u-s-bucking-delisting-trend-11660841284>.

²³ U.S.-CHINA ECONOMIC & SECURITY REVIEW COMMISSION [“**USCC**”], *Companies Listed on Major U.S. Stock Exchanges* (Mar. 31, 2022), https://www.uscc.gov/sites/default/files/2022-03/Chinese_Companies_on_US_Stock_Exchanges.pdf.

voluntarily delist from U.S. exchanges.²⁴ These delistings contributed to a reduction in total market capitalization of U.S.-listed Chinese issuers from \$2.1 trillion in May 2021 to \$775.6 billion in September 2022.²⁵

In August 2022, the PCAOB and CSRC reached an agreement to provide the PCAOB the necessary access to inspect audit work papers of U.S.-listed Chinese companies.²⁶ The terms of the agreement are summarized in a fact sheet released by the SEC.²⁷ The SEC has cautioned that it will require “full compliance” with the agreement and that delisting will occur if the SEC is not satisfied that the PCAOB has been able to conduct complete inspections and investigations under the agreement.²⁸ The PCAOB has since completed an inspection of a sample of audits of U.S.-listed Chinese firms and announced in December 2022 that it had determined that Chinese authorities allowed sufficient access for those inspections to be carried out adequately.²⁹

As noted above, the original HFCAA mandates delisting if the PCAOB determines that it has insufficient audit access for three consecutive years; and the PCAOB has already determined that it had insufficient audit access in mainland China and Hong Kong in December 2021. Therefore, if the PCAOB had determined that its access was not sufficient in December 2022 and then made the same determination again in December 2023, then shares of Chinese issuers would have been barred from trading on U.S. exchanges and in U.S. over-the-counter markets as of 2024.³⁰ Although the PCAOB’s positive determination has allayed the most immediate risk of a mass delisting, the PCAOB will continue to make inspections for each subsequent year. Moreover, legislation passed in December 2022 reduces the timeframe for delisting under the HFCAA from three to two years if the PCAOB changes its assessment with respect to a future year.³¹ If the PCAOB makes such a determination with respect to a future year, the risk of a delisting will recur.³²

²⁴ USCC, *Companies Listed on Major U.S. Stock Exchanges* (Sept. 30, 2022)

https://www.uscc.gov/sites/default/files/2022-09/Chinese_Companies_Listed_on_US_Stock_Exchanges.pdf.

²⁵ *Id.*

²⁶ PCAOB, *PCAOB Signs Agreement with Chinese Authorities, Taking First Step Toward Complete Access for PCAOB to Select, Inspect and Investigate in China* (Aug. 26, 2022), <https://pcaobus.org/news-events/news-releases/news-release-detail/pcaob-signs-agreement-with-chinese-authorities-taking-first-step-toward-complete-access-for-pcaob-to-select-inspect-and-investigate-in-china>.

²⁷ Sey-Hyo Lee et al., *Updates On Audit Oversight Cooperation Between U.S. PCAOB And Chinese Authorities* MONDAQ (Nov. 3, 2022), <https://www.mondaq.com/unitedstates/securities/1246910/updates-on-audit-oversight-cooperation-between-us-pcaob-and-chinese-authorities>.

²⁸ SEC, *Statement on Agreement Governing Inspections and Investigations of Audit Firms Based in China and Hong Kong* (Aug. 26, 2022), <https://www.sec.gov/news/statement/gensler-audit-firms-china-hong-kong-20220826>.

²⁹ PCAOB, *PCAOB Secures Complete Access to Inspect, Investigate Chinese Firms for First Time in History* (Dec. 15, 2022), <https://pcaobus.org/news-events/news-releases/news-release-detail/fact-sheet-pcaob-secures-complete-access-to-inspect-investigate-chinese-firms-for-first-time-in-history>.

³⁰ Lee *supra* note 27.

³¹ Consolidated Appropriations Act, 2023, Title III, Section 301, <https://www.govinfo.gov/content/pkg/BILLS-117hr2617enr/pdf/BILLS-117hr2617enr.pdf>.

³² Strickland, *supra* note 29.

Summary

In this section, we demonstrated that as of 2021, the frequency and size of U.S. listings by Chinese companies was increasing and substantial. We then provided data showing that U.S. listings by Chinese companies contributed substantial trading volume and underwriting fees to U.S. capital markets and that institutional holdings of U.S.-listed Chinese companies were also significant. Next, we evaluated data finding that U.S.-listings by Chinese companies are significant in number and size when compared to mainland and Hong Kong listings by Chinese companies. We also found that the technology sector in China raises the most capital from U.S. markets. Finally, we described how a dispute over U.S. regulators' ability to inspect the audits of U.S.-listed Chinese companies threatened to force a delisting of many Chinese companies from U.S. exchanges and continues to present a risk of such a delisting in the future.

II. Assessing the Benefits of U.S. Listings for Chinese Companies

Part II evaluates the benefits of U.S. listings for Chinese companies relative to listing in mainland China and Hong Kong. In Section 1, we compare the extent of IPO underpricing in the United States for Chinese companies as compared to mainland China and Hong Kong. In Section 2, we compare the cost of capital for U.S.-listed Chinese companies with the cost of capital for Chinese companies listed in mainland China and Hong Kong. And in Section 3, we estimate the effect of U.S.-listings of Chinese companies on competition and industry performance in China. We conclude that listing on U.S. exchanges provides benefits to Chinese companies relative to a mainland listing due to lower IPO underpricing and reduced cost of capital. U.S. listings of Chinese companies also improve competitiveness and industry performance in China. However, a Hong Kong listing by a Chinese company also provides comparable benefits with respect to IPO underpricing and cost of capital as a U.S. listing.

1. IPO Underpricing in the United States is Less than in Mainland China but is Comparable to Hong Kong.

IPO first day returns measure the return an investor would realize by purchasing at the IPO price and selling at close on the first day of trading after the IPO. When a first day return is positive, it means that an issuer has “left money on the table” by selling shares below the market-clearing price. In this sense, IPO first day returns simultaneously measure price efficiency in the IPO market and an indirect cost of raising capital.

As demonstrated by **Figure 10** and **Table 2** below, U.S. IPOs of Chinese firms entail significantly less underpricing than IPOs in mainland China. The average first-day returns of U.S. IPOs of Chinese firms from 1991 through 2021 was 19.5%, which is comparable to the average 21.3% first day return realized in U.S. IPOs of U.S. companies.³³ However, over that same period of time, mainland China IPOs had an average 65.2% first day return, which is a conservative estimate of mainland China IPO underpricing as the Chinese market has price limits that are binding on the first day of trading.³⁴

The underpricing spread between mainland China IPOs (65.2%) and U.S. IPOs of Chinese companies (21.3%) is 45.7%. Based on U.S.-listed Chinese total IPO proceeds of \$118 billion from 1991 through 2021,³⁵ the 45.7% underpricing spread implies that Chinese firms left \$53.9 billion fewer dollars on the table by listing in the United States as compared to mainland China. Reduced underpricing of IPOs would therefore appear to be a significant benefit for Chinese companies from U.S. listings.

³³ U.S. IPO underpricing derived from JAY RITTER, INITIAL PUBLIC OFFERINGS: UNDERPRICING (2021), <https://site.warrington.ufl.edu/ritter/files/IPOs-Underpricing.pdf>.

³⁴ *Id.*

³⁵ See Table 1, *supra* (showing total proceeds of \$118 billion for all IPOs of Chinese companies on U.S. exchanges for the years 1991 through 2021).

However, **Figure 10** and **Table 2** also demonstrate that Hong Kong IPOs of Chinese companies had lower proceeds-weighted first-day returns (12.0%) than U.S. IPOs of Chinese companies (19.5%).³⁶

Figure 10: Proceeds-Weighted First Day Returns for U.S., Hong Kong, and Mainland China IPOs³⁷

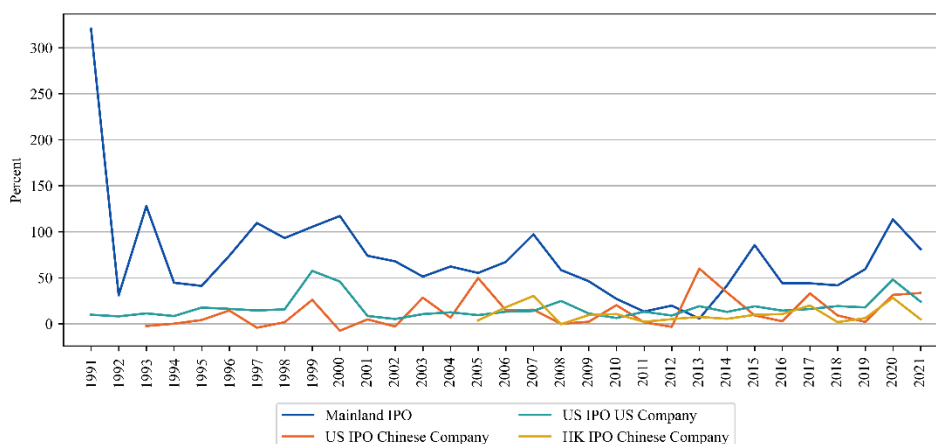


Table 2: Proceeds-Weighted First Day Returns for U.S., Hong Kong, and Mainland China IPOs

	U.S. Domestic	U.S.-China	Mainland China	Hong Kong
1991-1995	11.5%	0.3%	62.2%	-
1996-2000	35.2%	0.1%	104.7%	-
2001-2005	9.2%	12.9%	64.3%	-
2006-2010	13.5%	14.4%	57.8%	17.3%
2011-2015	14.5%	31.3%	41.8%	6.3%
2016-2021	26.6%	22.8%	75.6%	11.8%
Total	21.3%	19.5%	65.2%	12.0%

³⁶ As a robustness check, we compared our Hong Kong underpricing results to those calculated by Jay Ritter and found that he and his team arrived at a similar conclusion using Dealogic data as the Committee. See Ritter *supra* note 33.

³⁷ Data for US IPOs by Chinese firms derived from Refinitive SDC Platinum New Issues. US domestic IPO data from Ritter *supra* note 33. Mainland underpricing data is from CSMAR and includes A shares, B shares, ChiNext listings, and STAR listings. Hong Kong underpricing includes all IPOs on the Hong Kong Stock Exchange with shares denominated in HKD and a corporate headquarters in mainland China or Hong Kong. Capital IQ Transaction Offering data are available in Asian markets beginning in 2005.

2. Cost of Capital for U.S.-Listed Chinese Companies is Lower than Mainland-Listed Chinese Companies, but Comparable to Hong Kong-Listed Chinese Companies.

If a Chinese company can lower its cost of capital by listing in the United States as compared to listing in mainland China, then the ability to list in the United States provides a benefit to Chinese companies. Cost of capital is a weighted average of cost of debt and cost of equity. We now evaluate the cost of capital for U.S.-listed Chinese companies and mainland-listed Chinese companies. We also evaluate the cost of capital for Hong Kong-listed Chinese companies.

i. Cost of Debt

Gross borrowing costs measure annual interest payments as a fraction of total debt. A company’s net borrowing cost adjusts for its marginal tax rate, because debt interest payments are typically deducted from a company’s taxable income.³⁸

Table 3 illustrates gross and net borrowing costs for U.S.-, Hong Kong-, and mainland-listed Chinese companies over the 2000-2021 period. U.S.-listed firms have lower USD gross borrowing costs than both Hong Kong and mainland-listed firms. Thus, for example, the 4.1% gross cost of debt for U.S.-listed Chinese companies is 160 basis points lower than gross cost of debt for both Hong Kong (5.7%) and mainland-listed Chinese companies (5.7%).

A U.S. listing does not change a firm’s tax rate as tax is generally based on the firm’s domicile and where the firm’s revenue and profit are generated. U.S.-listed Chinese companies have slightly higher average tax rates (23.0%) than Hong Kong (20.7%) and mainland-listed Chinese firms (19.8%), and this difference in average tax rates contributes to different net costs of debt between the firms. Average net USD cost of debt for U.S.-listed Chinese firms is 3.2% as compared to 4.5% for both Hong Kong and mainland-listed Chinese firms. Cost of debt for U.S.-listed Chinese firms is therefore 130 basis points lower than for Hong Kong and mainland listed Chinese firms.

Table 3: USD Cost of Debt, U.S.-, Hong Kong-, and Mainland-Listed Chinese Firms³⁹

Metric	Tax Rate			Gross Cost of Debt			Net Cost of Debt		
	China	Hong Kong	U.S.	China	Hong Kong	U.S.	China	Hong Kong	U.S.
Pooled Average	19.8%	20.7%	23.0%	5.7%	5.7%	4.1%	4.5%	4.5%	3.2%
Observations	58,203	28,897	3,248	45,394	24,779	2,423	45,394	24,779	2,423

³⁸ See, e.g., Murray Z. Frank & Tao Shen, *Investment, Q, and the Weighted Average Cost of Capital* (2012), Appendix 2,

https://www.researchgate.net/publication/256013698_Investment_Q_and_the_Weighted_Average_Cost_of_Capital.

³⁹ Cost of debt measured over 2000-2021 in local currency and converted to USD. The population of mainland-listed firms includes all mainland-listed companies in the CSMAR and Compustat databases. The population of Hong Kong-listed Chinese firms includes all Hong Kong-listed firms with Hong Kong or mainland headquarters in Compustat.

ii. Cost of Equity and Weighted Average Cost of Capital

Unlike borrowing costs, the cost of equity capital cannot be observed directly. Instead, economists often use a linear regression to estimate each company’s market beta and calculate cost of equity by combining the beta for each company with an assumed equity risk premium.⁴⁰ Rather than estimating equity risk premia, we rely on commonly used benchmark capital market assumptions.⁴¹ According to these benchmarks, the China equity risk premium of 6.1% exceeds the U.S. risk premium of 4.7% by 140 basis points. We also assume that mainland China and Hong Kong have identical equity risk premia. This is a reasonable assumption, because country risk premia should vary with a country’s CDS spread, and the two regions have similar CDS spreads of 0.6% and 0.5%, respectively.⁴²

Table 4 below illustrates the average USD cost of equity capital for U.S.-, Hong Kong-, and mainland-listed Chinese companies. We find that U.S.-listed Chinese firms have an average cost of equity capital of 7.4%, which is approximately 90 basis points lower than Hong Kong-listed firms’ average cost of equity of 8.3% and 110 basis points lower than mainland China-listed companies with an average cost of equity of 8.5%.

The weighted average cost of capital (“**WACC**”) is calculated by combining a company’s cost of equity with net cost of debt (displayed in **Table 3** above) in proportion to equity and debt’s share of the company’s capital structure. The percentage of debt is in each case represented by the percentage in the “Leverage” column in **Table 4** and the percentage of equity is in each case equal to 1 minus that percentage. Overall, U.S.-listed Chinese firms have a WACC of 6.5%, which is 90 basis points lower than the WACC of Hong Kong-listed Chinese firms of 7.4% and 100 basis points lower than mainland China-listed firms’ WACC of 7.5%.

Table 4: USD Cost of Capital, U.S.-, Hong Kong-, and Mainland-Listed Chinese Companies⁴³

Metric	Leverage			Cost of Equity			WACC		
	China	Hong Kong	U.S.	China	Hong Kong	U.S.	China	Hong Kong	U.S.
Pooled Average	24.2%	26.6%	19.4%	8.5%	8.3%	7.4%	7.5%	7.4%	6.5%
Observations	55,960	28,258	3,256	40,443	20,956	2,217	33,828	18,350	1,698

⁴⁰ Cost of equity is calculated as the risk-free rate plus the market beta multiplied by the equity risk premium. *See, e.g.,* Frank & Shen, *supra* note 38, at Appendix 2.

⁴¹ We use the BlackRock capital market assumptions, which assume U.S. equities return 6.9% per year, mainland equities return 8.3% in USD per year, and a U.S. risk-free rate of 2.2%. This implies a U.S. equity risk premium of 4.7% and a China USD risk premium of 6.1%. BLACKROCK, Capital Market Assumptions, <https://www.blackrock.com/institutions/en-us/insights/charts/capital-market-assumptions>

⁴² *See, e.g.,* Aswath Damodaran, Country Default Spreads and Risk Premiums, https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html (last updated Jan. 2013).

⁴³ Pooled leverage is total debt as a fraction of equity market capitalization and total debt. Pooled cost of equity is a market capitalization weighted average. Pooled WACC uses pooled leverage, pooled cost of equity, and pooled cost of debt.

Tables 5a and **5b** illustrate the results of linear regressions that compare net USD cost of equity (**5a**) and WACC (**5b**) for U.S.-, Hong Kong-, and mainland-listed Chinese firms. The regression controls for characteristics that influence cost of equity such as size, leverage, sector, return on assets, and time, and is the focus of discussion. The markings ** and *** illustrate statistical significance at the 5% and 1% levels respectively. The coefficients under “U.S. vs China” indicate U.S.-listed Chinese firms have USD cost of equity around 160 bps lower than mainland-listed firms (see **Table 5a**) and WACC is 200 bps lower than mainland-listed firms (see **Table 5b**). Our findings that U.S.-listed Chinese companies experience lower cost of equity capital and WACC displayed in **Table 4** therefore hold when controlling for time variation and other factors such as leverage and size. A reduction in the cost of capital is therefore a significant benefit of U.S. listings for Chinese companies as compared to mainland-China listed firms.

However, **Table 5a** and **Table 5b** also show that when controlling for these other factors, there is no statistically significant difference in USD cost of equity or WACC between U.S. and Hong Kong-listed Chinese firms.

Table 5a: USD Cost of Equity, U.S.-, Hong Kong-, and Mainland-Listed Firms

Model	U.S. vs China	U.S. vs Hong Kong
U.S. Listing	-0.016***	0.002
Size	-0.001***	0.005***
Book Leverage	-0.000	0.000
ROA	-0.021***	-0.020***
Year FE	Y	Y
Sector FE	Y	Y
Observations	42,599	22,979
R ²	0.317	0.316

Table 5b: USD WACC for U.S.-, Hong Kong-, and Mainland-Listed Chinese Companies

Model	U.S. vs China	U.S. vs Hong Kong
U.S. Listing	-0.020***	0.001
Size	-0.004***	0.001***
Book Leverage	-0.017***	-0.004**
ROA	-0.014***	-0.019***
Year FE	Y	Y
Sector FE	Y	Y
Observations	35,501	19,912
R ²	0.316	0.154

3. U.S. Listings Improve Chinese Industry Performance.

U.S. listings can potentially improve domestic Chinese industry performance by encouraging competition as U.S.-listed Chinese companies can raise capital at a lower cost in the United States than in China thereby enabling them to invest and compete in China with other Chinese firms.

One way to determine whether U.S. listings influence Chinese domestic industry performance is to measure the relationship between U.S. listing intensity and industry performance in China. U.S. listing intensity is the fraction of Chinese company listings in the U.S. as compared to mainland China for a specific sector/industry.

An industry's performance can be measured along a variety of dimensions. Pooled sector ROA measures how effectively an industry converts assets to earnings. If a sector's ROA increases year-on-year it can signal improved operating efficiency. Growth in a sector's tax and salary expenses or its sales can reflect a sector's increased importance in the economy.

Model 1 in Table 6 illustrates the results of a linear regression that predicts annual changes in pooled mainland industry performance as a function of lagged U.S. listing intensity. Model (1) under "Change in ROA" shows that increasing a sector's U.S. listing intensity by 100% in years 1 and 2 will increase mainland industry pooled ROA by around 260 basis points in year 3 – see "Lagged US Listing Intensity" coefficient in Model (1). In 2021, mainland-listed Chinese companies had a median ROA of approximately 470 basis points; therefore, increasing US Listing Intensity by 100% in years 1 and 2 would result in a 260-basis point absolute improvement to a median ROA of 730 basis points in year 3 – an approximately 55% relative improvement.⁴⁴

CPI growth and GDP growth can also influence measures of industry performance. **Model 2 in Table 6** takes these into consideration and controls for these variables. For example, CPI growth may increase ROA, as earnings will typically grow with inflation, but assets recorded on the balance sheet at historic cost will not grow with inflation. After controlling for the effects of CPI growth and GDP growth, increasing a sector's US listing intensity by 100% will increase mainland industry pooled ROA by around 220 basis points – see "Lagged US Listing Intensity" coefficient for Model (2). These findings suggest that enhanced competition and industry performance in China is therefore another significant benefit for Chinese companies from access to U.S. listings.

⁴⁴ CSMAR December filings.

Table 6: Pooled Sector Performance as a Function of Lagged U.S. Listing Intensity⁴⁵

Model	Change in ROA		Tax Growth		Salary Growth		Sales Growth	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Lagged U.S. Listing Intensity	0.026**	0.022**	0.329	0.262	0.162	0.029	0.101	-0.028
CPI Growth		0.306***		0.118		-1.881		0.531
GDP Growth		-0.024		0.362		1.035**		0.651*
Observations	121	121	121	121	121	121	121	121
R ²	0.089	0.197	0.055	0.058	0.028	0.055	0.058	0.078

Summary

In Part II, we found that U.S. listings for Chinese companies provide significant benefits to Chinese companies. First, U.S. IPOs are subject to significantly less IPO underpricing than mainland Chinese IPOs but are comparable in this regard to Hong Kong IPOs. Second, the cost of capital for U.S.-listed Chinese companies is lower than the cost of capital for mainland-listed Chinese companies. And third, U.S.-listings of Chinese companies enhance competition and industry performance in Chinese markets by increasing Chinese companies' operating performance in China.

⁴⁵ Based on CSMAR December filings. Lagged US listing intensity measures the fraction of Chinese companies listing in the United States and mainland China that list in the United States, in the two prior years. ROA is EBIT as a fraction of total assets. Tax growth is annual growth in pooled sector tax expenses. Salary growth is annual growth in pooled sector salary expenses. Sales growth is annual growth in pooled sector total operating revenue. Of the approximately 5000 China listings, GICS sectors are available for only around 4000. We impute GICS sectors for the remaining 1000 by mapping 2012 CSRC industry classifications to GICS sectors by selecting pairs with the highest combined assets in December 2021.

III. Assessing the Benefits to U.S. Investors from U.S.-Listings of Chinese Companies

The importance of U.S. listings by Chinese companies to U.S. investors depends in part on the relative costs of trading the shares of Chinese companies in U.S. equity markets compared to offshore equity markets. It also depends on how these companies have performed for U.S. investors.

Part III proceeds in five sections. In Section 1 we show that it is more cost effective for U.S. investors to trade the shares of Chinese companies in U.S. equity markets compared to offshore equity markets. In Section 2 and Section 3, we evaluate the operating performance of U.S.-listed Chinese companies and historical returns, respectively. In Section 4 we evaluate how incorporating U.S.-listed Chinese companies into a diversified investment portfolio can enhance U.S. investors' risk-adjusted returns. Finally, we explain how U.S.-listings of Chinese issuers can mitigate the "home bias" of U.S. investors and its associated costs.

1. Trading on U.S. Exchanges is Less Costly for U.S. Investors.

Empirical evidence demonstrates that trading costs in U.S. equity markets are lower than in the other five major equity markets, which includes mainland China and Hong Kong as well as the European Union, UK, and Japan. In 2019, average total equity market trading costs for institutional investors (consisting of price impact costs and commission costs) in the United States were 35.7 basis points, compared to 47.5 basis point in Hong Kong and 52.9 basis points in mainland China.⁴⁶ As such any relisting of a Chinese company in Hong Kong or mainland exchange would likely result in higher trading costs for U.S. investors holdings shares of that company.

2. Operating Performance of U.S.-Listed Chinese Companies is Strong.

Return on assets ("ROA") and Tobin Q ("Q") are two measures used by economists to evaluate a company's operating performance.⁴⁷ ROA measures a company's earnings before interest, taxes, depreciation, and amortization, as a fraction of total assets. It quantifies the efficiency with which a company converts its assets into operating income. Q is a multiple of a company's market to its book value. It captures a company's ability to generate market valuation premium over book value. In addition, we also consider return on sales ("ROS"), which measures how effectively a company converts sales into profits.

ROA, ROS, and Q are not directly comparable across industries. For example, asset intensive industrial companies will typically have lower ROA than platform technology companies with a light asset base. To compare the operating efficiency of U.S.-listed Chinese firms and American peers, we select a collection of U.S. peer companies in the same industry and of similar size.

⁴⁶ PROGRAM ON INTERNATIONAL FINANCIAL SYSTEMS, INTERNATIONAL REVIEW OF EQUITY MARKET STRUCTURE REGULATION 13 (2020), <https://www.pifsinternational.org/wp-content/uploads/2022/08/PIFS-EMS-Quantitative-Report-10-08-2020.pdf>.

⁴⁷ See, e.g., Lucian Bebchuk et al., *The Long-Term Effects of Hedge Fund Activism* 115 COLUM. L. REV. 1085 (2015), <https://dash.harvard.edu/handle/1/17848516> and accompanying references.

Table 7 shows that from 1990 through 2021 U.S.-listed Chinese firms outperformed their U.S. peers in terms of ROA and ROS. That is, U.S.-listed Chinese companies are more effective than their U.S. peers at converting assets to earnings and converting sales to profits. For example, average ROA for U.S.-listed Chinese companies over this period was 3.8% whereas U.S. peer company ROA was lower at 2.3%. The higher operating efficiency as measured by ROA of U.S.-listed Chinese companies suggests that they can be valuable investment opportunities for U.S. investors, as larger cash flows accrue to investors in the long run. This relationship also holds for ROS, with average ROS for U.S.-listed Chinese companies (38.0%) significantly higher than U.S. peer companies (18.3%).

However, Chinese companies had a significantly lower average Q (2.245) than their U.S. peers (2.661) over the 1990-2021 period. This suggests that Chinese companies may be undervalued relative to U.S. peers, as they command lower market value per unit of book value, despite having higher operating performance along other dimensions. In other words, they are “value” stocks.

Table 7: U.S.-Listed Chinese Firms vs U.S. Firms Operating Performance, 1990-2021⁴⁸

Panel A: Return on Assets		
	U.S. Placebos	China Companies
Mean	2.3%	3.8%
Observations	3,829	4,173

Panel B: Return on Sales		
	U.S. Placebos	China Companies
Mean	18.3%	38.0%
Observations	3,751	4,095

Panel C: Tobin Q		
	U.S. Placebos	China Companies
Mean	2.661	2.245
Observations	3,863	3,420

3. Stock Return Performance of U.S.-Listed Chinese Companies is Strong.

To the extent U.S.-listed Chinese stocks outperform their U.S. peers, it reduces the extent to which U.S. investors could mitigate the costs of a delisting by reallocating their portfolios to domestic stocks. Our analysis indicates that U.S.-listed Chinese stocks have in fact outperformed U.S. firms of comparable size and industry group. The Carhart four-factor regression is a method used by financial economists to decompose stock returns into systematic and idiosyncratic components. The regression *alpha* can be understood as a portfolio’s performance relative to the broader market,

⁴⁸ Measured 1990-2021 using Compustat North America. U.S.-listed Chinese firms include all companies with a Mainland or Hong Kong headquarters on their listing date. U.S. peers are selected annually, by matching each Chinese company-year to the US company in the same industry with the closest total assets.

after adjusting for risk associated with the market, firm size, market-to-book ratio, and momentum. A positive alpha suggests that the portfolio outperformed the market, while a negative alpha suggests that the portfolio underperformed the market. The regression *R-squared* can be interpreted as the fraction of return variation, or risk, that is explained by the model’s systematic factors. A lower R-squared means that a higher fraction of risk is idiosyncratic, or unrelated to U.S. market conditions as proxied in the model. In general, assets with lower R-squared are less correlated to the market and provide a better opportunity for diversification.

Table 8 demonstrates our findings using the Carhart four-factor regression. The model decomposes the capitalization-weighted returns of U.S.-listed Chinese firms and U.S. peers for the 2001-2020 period into two separate returns sources: systematic and idiosyncratic components. We focus on the 20-year period of 2001 to 2020, because the returns of U.S.-listed Chinese companies have been negatively impacted since 2021 by the potential threat of U.S. delisting. One notable feature of U.S.-listed Chinese firms is their low R-squared of 0.54 relative to 0.78 R-squared of the U.S. peers, which implies a higher fraction of idiosyncratic risk – that is, company-specific risk not related to market risk. This suggests that investing in U.S.-listed Chinese firms can enhance the diversification of U.S. investors’ portfolios.

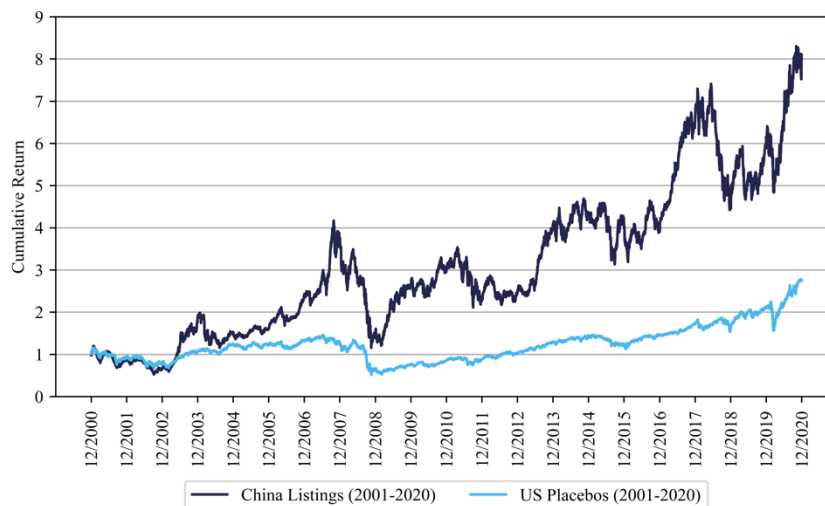
Table 8: Carhart Four Factor Regressions, 2001-2020⁴⁹

Metric	U.S. Placebos	China Companies
Alpha (annual)	-2.89%	1.91%
Alpha (t-stata)	-1.50	0.40
Market Beta	0.99	1.36
Size Beta	0.15	0.38
Value Beta	-0.08	-0.42
Momentum Beta	0.03	0.00
Observations	240	240
R ²	0.78	0.54

Figure 12 further demonstrates that over 2001-2020, U.S.-listed Chinese firms significantly outperformed both the market and the portfolio of U.S. peers. Cumulative returns for U.S.-listed Chinese firms as of the end of 2020 were 8%, nearly 500 basis points higher than cumulative returns for the U.S. peer companies, which were approximately 3%.

⁴⁹ Returns exclusive of delisting returns, from CRSP. Factor returns from Ken French’s data library, available at https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

Figure 12: Cumulative Returns, 2001-2020



The operating performance and stock return performance of U.S.-listed Chinese companies is therefore strong and a potential benefit for U.S. investors.

4. U.S.-Listed Chinese Companies Provide Risk-Return Benefits.

To the extent U.S.-listed Chinese companies provide risk-return benefits to an investor’s balanced portfolio, it reduces the extent to which U.S. investors could mitigate the costs of a delisting by reallocating their portfolios to domestic stocks. Our analysis indicates that U.S.-listed Chinese companies do indeed provide risk-return benefits to U.S. investors.

Over the period 2001-2020, U.S.-listed Chinese firms outperformed the U.S. market while also maintaining a low correlation to the market. **Table 9** below displays the average annual return in excess of the risk-free rate (the “excess return”) and volatility of the capitalization-weighted portfolios of U.S. common shares and U.S.-listed Chinese firms. It also illustrates the characteristics of a portfolio that is 98.25% invested in U.S. common shares and 1.75% invested in U.S.-listed Chinese firms, because U.S.-listed Chinese firms represented, on average, 1.75% of total U.S. market capitalization over 2018-2020.

The U.S.-listed Chinese firms’ correlation of 0.70 with the U.S. market⁵⁰ and higher excess returns of 13.88% displayed in **Table 9** below suggest that adding these companies to a portfolio of only U.S. common shares can have significant diversification and return benefits. This is further indicated by the second to last column of the table, which reports risk and return metrics for a “Blended Portfolio” of 98.25% U.S. and 1.75% U.S.-listed Chinese stocks. The Blended Portfolio has excess annual returns of 8.59%, 9 basis points more than the 8.50% annual excess return of the U.S. common shares portfolio.

⁵⁰ A correlation of below 1 indicates that U.S.-listed Chinese company performance is not directly related to US common share performance. This relationship suggests that an investor investing in only US common share stocks can increase the diversification of her portfolio by investing in U.S.-listed Chinese stocks.

Table 9: Annualized Daily Return Characteristics, U.S. Common Shares and U.S.-Listed Chinese Firms

Metric	U.S. Common Shares	U.S. Listed Chinese Firms	98.25% U.S. & 1.75% China	97% U.S. & 3% China
Excess Return	8.50%	13.88%	8.59%	8.66%
Volatility	19.87%	30.93%	19.90%	19.94%
Sharpe Ratio	0.428	0.449	0.432	0.434
U.S. Common Share Correlation	1.00	0.70	1.00	1.00

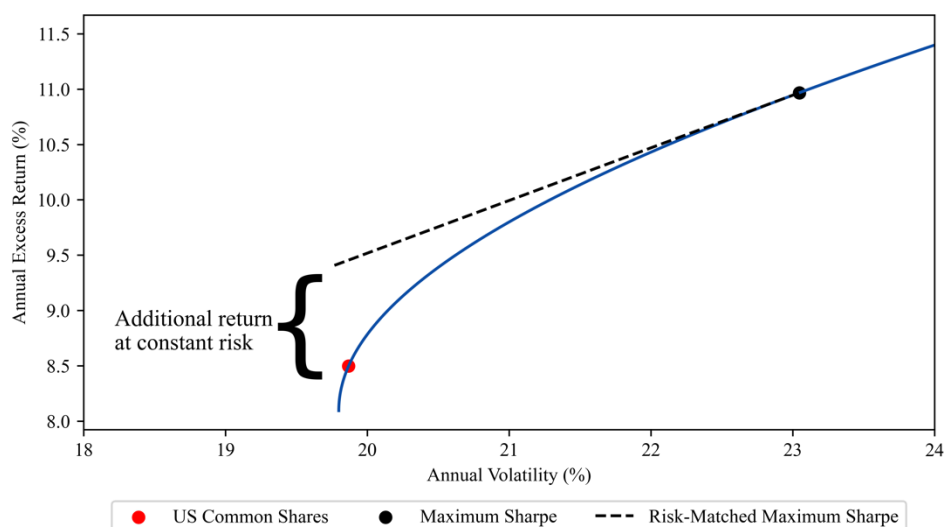
Because Chinese stocks have enjoyed higher excess returns and lower market correlation, an efficient portfolio allocation would, in theory, overweight these stocks. In other words, an efficient portfolio would allocate more than 1.75% to Chinese companies. For example, increasing a portfolio’s China allocation to 3% from 1.75% (the last column in **Table 9** above) increases excess annual returns by a further 7 basis points (i.e., 16 basis points above the 100% U.S. common share portfolio) to 8.66%.

Another way of assessing the potential benefits of diversification is to calculate the optimal mix between a capitalization-weighted index of U.S. common shares and a capitalization-weighted index of U.S.-listed Chinese firms. This calculation consists of determining the varying levels of risk associated with different mixes of U.S. common shares and U.S.-listed Chinese companies, and then determining the expected excess return associated with each such mix. The ratio of a portfolio’s expected excess return to the portfolio’s risk is known as the Sharpe Ratio. We consider the mix that achieves the highest Sharpe Ratio (the “Maximum Sharpe Portfolio”) to represent the optimal allocation between U.S. common shares and U.S.-listed Chinese shares.

Using the risk and return properties previously illustrated in **Table 9**, **Figure 13** calculates the optimal mix of U.S. common shares and U.S.-listed Chinese company stocks. As displayed in **Figure 13**, a portfolio allocated to both U.S. common shares and U.S.-listed Chinese companies improves the risk and return profile of the portfolio compared to a portfolio allocated 100% to U.S. common shares as measured by the Maximum Sharpe Portfolio. More specifically, allocating approximately 54% of the portfolio to U.S. common shares and 46% to U.S.-listed Chinese firms yields a portfolio with the highest possible Maximum Sharpe Ratio of 0.48.

The Maximum Sharpe Portfolio has higher risk than the portfolio composed entirely of U.S. common shares – as evidenced by its position farther along the X-axis of **Figure 13**. However, if an investor wished to reduce the level of risk to match that of the U.S. common share-only portfolio the investor may do so by partially investing in the Maximum Sharpe Portfolio and partially investing in Treasuries and continue to achieve higher excess returns than the U.S. common share-only portfolio. More specifically, if one modifies the Maximum Sharpe Portfolio by re-allocating a portion of the portfolio to Treasuries such that the portfolio’s total risk is reduced to the level of the U.S. common share-only portfolio, the Maximum Sharpe/Treasury Portfolio has an excess annual return of 9.5%, which is 100 bps higher than the 8.5% excess returns of the U.S. common share-only portfolio. These results suggest that the diversification benefits of U.S.-listed Chinese companies can therefore provide a significant benefit to a risk-adjusted investment portfolio.

Figure 13: Efficient Frontier Generated Using Return Characteristics from Table 10



5. Delisting of Chinese Shares May Increase the Effect of U.S. Investors’ Home Bias.

“Home bias” refers to investors’ tendency to hold a larger fraction of their financial assets in companies listed on domestic exchanges and a smaller fraction in companies listed on foreign exchanges than traditional asset allocation models that optimize risk-return tradeoffs recommend.⁵¹ The home bias of U.S. investors is documented in empirical research. For example, researchers at the Federal Reserve found that “U.S. investors double their holdings in foreign stock once the stocks are listed on either the NYSE or NASDAQ.”⁵² Home bias implies that the allocation of U.S. investors’ portfolios to Chinese companies will deviate further from a risk-return optimized portfolio to the extent those companies cease to be listed on U.S. exchanges. The delisting of Chinese companies may thus negatively affect U.S. investors’ returns.

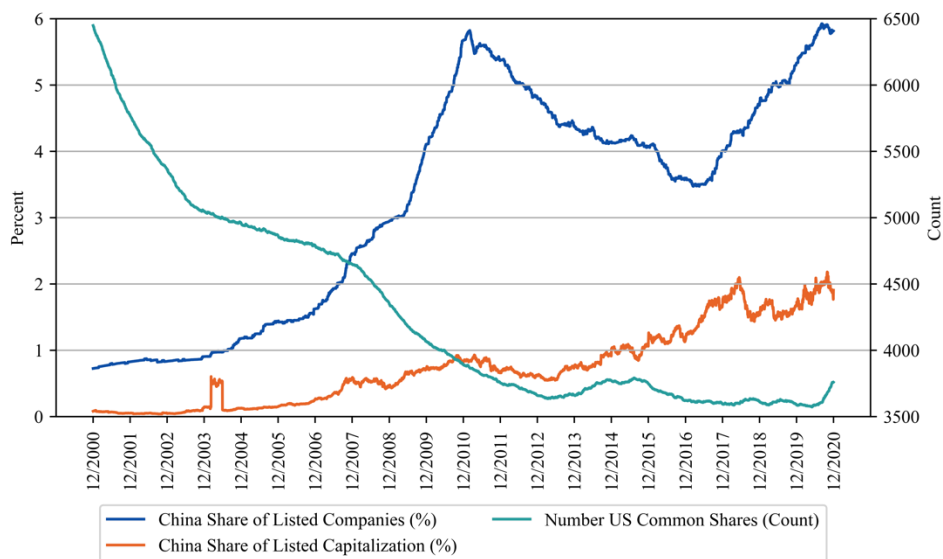
The consequences of the home bias may have a greater impact on investor returns when investment opportunities in the home market are limited. **Figure 11** on the next page shows that the number of U.S.-listed firms has declined precipitously since 2001, from nearly 6,500 in 2001 to less than 4,000 by the end of 2020. As the number of U.S. listings receded, a growing number of Chinese firms listed in the United States. As a result, U.S.-listed Chinese firms grew from less than 1% of existing listings in 2001 to nearly 6% of listings in 2020. Because the market capitalization of the average U.S.-listed Chinese firm is smaller than the average U.S.-listed firm, U.S.-listed Chinese firms’ share of market capitalization is lower than their share of total U.S. listings and only

⁵¹ John Ammer, et al., Board of Governors of the Federal Reserve System, *Why do US Cross-Listings Matter?* International Finance Discussion Papers No. 930 (2008), <https://www.federalreserve.gov/pubs/ifdp/2008/930/ifdp930.pdf>.

⁵² *Id.*

represented approximately 2% of U.S. market cap as of the end of 2020. Nevertheless, U.S.-listed Chinese firms have also grown their share of capitalization since 2001.

Figure 11: Importance of U.S.-Listed Chinese Firms Amidst Reduction in U.S. Listings⁵³



Various studies indicate that individual investors are more susceptible to home bias than professional asset managers.⁵⁴ Over the past decade the value of assets managed by professional managers has grown significantly, which could be expected to reduce the extent of U.S. investors’ home bias.⁵⁵ And indeed recent research indicates that the extent of U.S. investors’ home bias has been declining over time.⁵⁶ As a result, the extent of any increase in home bias resulting from a delisting of Chinese companies may be limited compared to prior decades. On the other hand, in 2020 and 2021 the percentage of U.S. equity trading volume attributable to individual investors, which had remained around 15% for the prior six years, jumped to over 20%.⁵⁷ If this trend persists

⁵³ The set of U.S.-listed firms includes all common shares in the CRSP database, excluding U.S.-listed Chinese firms. The set of U.S.-listed Chinese firms includes all securities in the intersection of CRSP and Compustat where the issuer has a mainland or Hong Kong headquarters on the listing date.

⁵⁴ See, e.g., Zoran Ivkovich & Scott Weisbenner, *Local Does as Local Is: Information Content of the Geography of Individual Investors’ Common Stock Investments*, NBER Working Paper 9685 (2003), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=406057.

⁵⁵ Total assets under management of mutual funds has grown to \$72.9 trillion as of Q1 2022 from \$29.1 trillion as of Q1 2008. See The International Investment Funds Association, *Industry Statistics, 2022 Statistics – 1st Quarter* https://iifa.ca/page/industry_statistics.

⁵⁶ Eduard Gaar et al., *The home bias and the local bias: A survey*, 72 *MANAGEMENT REVIEW QUARTERLY* 21 (2022), <https://link.springer.com/article/10.1007/s11301-020-00203-8>; Bent Sorensen et al., *Home Bias and International Risk Sharing: Twin Puzzles Separated at Birth* (2006), <https://www.ecb.europa.eu/events/pdf/conferences/fgi/Sorensen.pdf>; Brad Setser, *Falling home bias in the US, rising home bias in Russia?* COUNCIL ON FOREIGN RELATIONS (Aug. 2, 2007), <https://www.cfr.org/blog/falling-home-bias-us-rising-home-bias-russia>.

⁵⁷ USCC, *supra* note 57.

it could potentially result in a resurgence in home bias. An increase in home bias therefore remains a potential risk of a mass delisting of Chinese companies.

Summary

In summary, there are significant benefits for U.S. investors from U.S. listings of Chinese companies. First, they allow U.S. investors to avoid the higher costs of trading in offshore equity markets. Second, U.S.-listings of Chinese companies have strong operating performance and historic returns when compared with other U.S. public companies and can thereby present attractive investment opportunities for U.S. investors. Third, incorporating U.S.-listed Chinese companies into an investment portfolio can enhance diversification and risk-adjusted returns for U.S. investors. Finally, such listings can reduce the home bias of U.S. investors thereby optimizing U.S. investors' portfolios, though the significance of this effect is likely limited.

Conclusion

This report has shown that a mass delisting of Chinese companies would impose significant costs on U.S. investors and reduce the competitiveness of U.S. capital markets. Although delisting would also be costly for Chinese companies, their access to other capital markets outside mainland China, primarily Hong Kong but also Europe, mitigates those costs. Chinese companies are indeed taking advantage of access to non-U.S. markets. For example, in 2022, Chinese companies raised more capital in Europe than in the United States for the first time.⁵⁸

The agreement between the PCAOB and CSRC and the PCAOB's positive determination with respect to its 2022 inspections of Chinese audit firms have allayed the most immediate risk of a mass delisting. The PCAOB will however continue to make annual assessments of its audit access and the risk of a delisting will recur if the PCAOB determines it has not received sufficient access for any future year.⁵⁹ Moreover, recent legislation has reduced the timeframe for delisting from three to two years if the PCAOB makes such a future determination.⁶⁰ Although quantifying the benefits to U.S. capital markets from high-quality audit standards is unfortunately not possible, maintaining confidence in the financial statements of U.S.-listed firms is clearly important to maintaining the attractiveness of U.S. markets as the best in the world. The potential costs of a forced delisting of Chinese companies thus does not suggest that U.S. regulators should abandon their position in the event disputes over audit access recur but underscores the importance of a lasting and satisfactory resolution to audit access.

⁵⁸ Hudson Lockett & Tabby Kinder, *Europe beats US on Chinese listings for first time* FINANCIAL TIMES (Sept. 7, 2022), <https://www.ft.com/content/f9c5ff9a-635f-4929-b9bc-0a2b2b160098>.

⁵⁹ Strickland, *supra* note 29.

⁶⁰ Consolidated Appropriations Act, 2023.

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