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Zhi Luo April 10, 2023

Stock Behavior and Mispricing Puzzle of Chinese Dual-Listed Stocks on U.S. and Hong Kong Stock Exchanges During Listing Periods

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An abstract of
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Abstract

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By Zhi Luo

This paper examines 39 Chinese companies that dual-listed on the U.S. stock exchanges and Hong Kong stock exchange between January 1, 2019 and February 21, 2023. The focus of this paper is to study the changes in stock behavior during the dual-listing period as well as the differences between Hong Kong listing prices and U.S. listing prices. China's economic growth has driven up demand for capital, especially foreign capital. However, major U.S.-listed China-based companies faced delisting risks after President Trump signed the Holding Foreign Companies Accountable Act (HFCAA) into law on December 18, 2020. HFCAA required China-based audit firms to give the Public Company Accounting Oversight Board (PCAOB) complete access to inspect and investigate U.S.-listed China-based companies' financial statements. Many of these companies decided to dual-list domestically on the Stock Exchange of Hong Kong (SEHK) as a backup plan to continue gaining access to foreign capital. December 15, 2022 was a turning point in the tension between U.S. regulators and Chinese regulators as PCAOB published a statement confirming that it secured complete access to inspect and investigate Chinese firms that have access to U.S. capital markets

A major finding of this paper is that the 39 Chinese stocks experienced a shift of correlation with market indices before and after the enactment of HFCAA and PCAOB's announcement. When delisting risk was high, these Chinese stocks were more correlated with Hong Kong's Hang Seng Index and less correlated with U.S.'s S&P 500 and DJIA indices.

This study adopts causal inference and finds that stock and market volatility has a significant impact on the mispricing between Hong Kong listings and U.S. listings. By observing 3 years of price differences from 2019 to 2022, I noticed that the mispricing was the biggest after the HFCAA was signed into law. The delisting risks caused the market to be volatile. However, explaining what is causing the mispricing is still a challenge.

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Contents

Stock Behavior and Mispricing Puzzle of Chinese Dual-Listed Stocks on U.S. and Hong Kong Stock Exchanges During Listing Periods

Zhi (Steven) Luo

April 2023

1 Introduction

Classical economists typically operate on the assumption that the Law of One Price holds true, meaning that the price of a particular asset should be identical across different regions after accounting for exchange rates. In an ideally integrated global financial market, any deviations from this principle would be corrected via arbitrage.

This paper presents a counterexample to the Law of One Price by demonstrating that stock prices can be impacted by the location of trading. Specifically, I conducted an analysis of the stock prices of 29 China-based companies that are listed on both U.S. and Hong Kong stock exchanges over a three-year period. According to the Law of One Price, the prices of these companies' stocks should be equivalent in Hong Kong and the U.S. when accounting for currency conversion and American Depositary Share (ADS) ratios, which indicate the

number of Hong Kong Ordinary Shares represented by one U.S. ADS. Surprisingly, dual-listed stock prices do not behave in this manner. Many of them exhibited large deviations when the market is volatile.

This paper aims to investigate three primary areas of interest. Firstly, it answer whether dual-listing have a positive impact on the stock performance. Secondly, it analyzes the behavior of stocks immediately following dual-listings, with a focus on factors such as stock return, trading volume, liquidity, and volatility. Thirdly, it examines the potential causes of mispricing and the resulting implications on market integration, market liquidity, and dispersion of opinion.

In the past few decades, dual-listing and cross-listing companies are well-studied by researchers around the globe. Many studies have focused on emerging markets in Japan, Thailand, and Finland during globalization since the 1980s. In contrast to previous literature, this study examined data from U.S.-listed Chinese companies from 2019 to 2023. During this time period, the U.S.-China trade war, U.S.-China 5G competition, COVID-19, and supply chain disruptions accelerated deglobalization.

Furthermore, the increasing adoption of data centers and cloud computing has elevated data security to a matter of national security. Both the U.S. and China have implemented data protection laws that regulate the usage and storage of domestic data. The center of the conflict was the U.S. regulators' access to audit data of Chinese companies listed in the U.S. On December 18, 2020, President Trump signed the Holding Foreign Companies Accountable Act (HFCAA) into law to address the concerns about the Public Company Accounting Oversight Board's (PCAOB) limitations in complete access to inspect and investigate registered public accounting firms in mainland China and Hong Kong. If the PCAOB's limitations are not removed by 2024, the HFCAA poses delisting risks for securities of Chinese companies listed in the U.S. The SEC has identified more than 170 U.S.-listed Chinese issuers that audited their financial statements using public accounting firms that limited PCAOB access. Facing the delisting risk, 29 China-based companies urgently dual-listed on the Stock Exchange of Hong Kong (SEHK) as a backup plan to continue accessing foreign capital in

the event of HFCAA banning trading on U.S. stock exchanges. It is unprecedented for companies to dual-list domestically to avoid delisting risks in foreign markets. In fact, it has been uncommon for companies with listings on U.S. stock exchanges to pursue dual-listing in their home market because U.S. stock exchanges have superior liquidity and higher listing standards.

On December 15, 2022, the PCAOB released a statement confirming that it had obtained full access to inspect and investigate Chinese firms that have access to U.S. capital markets. As a result of this development, U.S. and Chinese authorities were able to reach an agreement that substantially reduced the risk of delisting for Chinese companies. This effectively brought a temporary end to the tensions that had been brewing between the two countries on this issue.

The enactment of the HFCAA on December 18, 2020, and the subsequent statement by the PCAOB on December 15, 2022, marked two crucial time points that establish a clear starting and ending point for the tensions surrounding Chinese firms with access to U.S. capital markets. These events provided a clear delineation between the before and after stages, allowing for a more precise analysis of the impact of these developments.

1.1 Timeline With Two Cutoff Points

1.1.1 First Case of Chinese State-owned Enterprise Delisting

The first delisting of major Chinese companies from U.S. stock exchanges under political pressure occured on November 12, 2020. President Trump signed the Executive Order 13959 to prohibit U.S. investments in three Chinese telecommunication companies: China Telecom, China Mobile, and China Unicom. The U.S. government believed that the three companies "directly support the PRC's military, intelligence, and security apparatuses and aid in their development and modernization". On January 6, 2021, the New York Stock Exchange an-

nounced the delisting of the three Chinese ADSs effective on January 11, 2021. Although, they were the first three major Chinese ADSs delisted from the U.S. stock markets under the pressure of government officials, the market did not think that all the Chinese ADSs faced delisting risks. At the time, the market considered these three delistings as the result of the U.S.-China 5G competition and the U.S.'s sanction on Huawei and ZTE. Therefore, it is a special case under unique geopolitical environment that does not represent the overall trend.

1.1.2 First Cut Off Point: The Beginning of Delisting Risk

The Holding Foreign Companies Accountable Act (HFCAA) was passed by U.S. Senate on May 12, 2020 and U.S. House of Representatives on December 2, 2020. It was signed into law by President Trump on December 18, 2020. Under the law, China-based audit firms are required to give the Public Company Accounting Oversight Board (PCAOB) complete access to inspect and investigate U.S.-listed China-based companies' financial statements. Failure to meet the requirements may result in the Chinese ADSs being banned from trading and delisted from exchanges. The HFCAA created delisting risk to all of the Chinese ADSs, so December 18, 2020 is the first cutoff in this paper's data. It is the beginning of a growing trend among Chinese ADSs to dual-list on Hong Kong stock exchange as a backup plan. The Hong Kong stock exchange has been quick to approve secondary listings for companies that meet the minimum requirements, which are less rigorous than those for primary listings. The key requirements for secondary listing on Hong Kong stock exchange are summarized below.

	Without weighted voting rights ("WVR")		With WVR
Stock Exchange of Primary Listing	Recognised Stock Exchanges Note 3	Qualifying Exchanges Note 2	Qualifying Exchanges(*) Note 2
Centre of Gravity in Greater China Note 1	Generally Prohibited(**)	Permitted	Permitted
"Innovative Company" Requirement Note 4	Not Required		Required
Minimum Market Capitalisation at Listing	HK$ 3 billion	HK$ 3 billion	HK$40 billion or HK$10 billion and revenue of at least HK$1 billion for the most recent audited financial year
Minimum Track Record on Primary Exchange	5 years of listing with good compliance record (***)	5 years of listing with good compliance record (***) (or 2 years of listing with good compliance record if its market capitalisation has at least HK$ 10 billion at the time of Listing)	2 years of listing with good compliance record

Figure 1: Hong Kong Secondary Listing RequirementsHKR

1.1.3 Second Case of Chinese State-owned Enterprise Delisting

On August 12, 2022, five major state-owned Chinese companies including, China Life Insurance Company Limited, PetroChina Company Limited, China Petroleum & Chemical Corporation, Aluminum Corporation of China Limited, and Sinopec Shanghai Petrochemical Company Limited, announced that they intended to voluntarily delist their ADSs. This is a sign that the Chinese decided that the five state-owned companies are impossible to follow the U.S.'s disclosure obligation because of the administrative burden and the sensitivity of the data. The five delistings are an effort to avoid mass delisting of other Chinses companies and conform with the U.S. disclosure obligation.

1.1.4 Second Cut Off Point: The Temporary End of Delisting Risk

On December 15, 2022, PCAOB published a statement that it secured complete access to inspect and investigate Chinese firms that have access to U.S. capital markets. Therefore, U.S. and Chinese authorities reached an agreement that significantly reduced the delisting risk of Chinese companies. This temporary end to the trend of delisting is the second cutoff

in this paper's data.

1.1.5 Third Case of Chinese State-owned Enterprise Delisting

On January 13, 2023, China Eastern Airline and China Southern Airline filed for delisting their ADSs listed on the New York Stock Exchange.

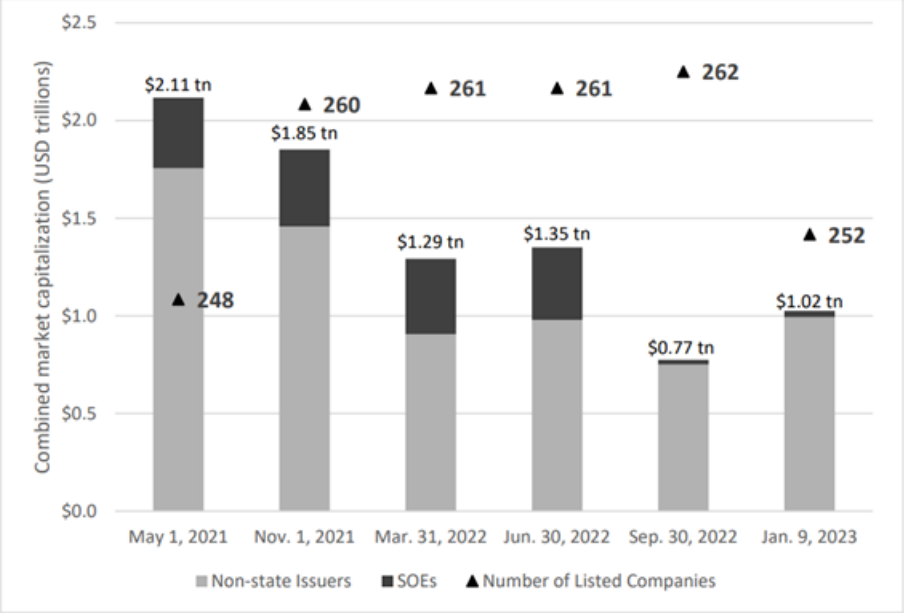

Figure 2: Market Capitalization of Listed Companies, Nov. 2021-Jan. 2023Chi

According to a report published by U.S.-China Economic and Security Review Commission (USCC) on January 9, 2023, 23 out of the top 30 Chinese companies, based on market capitalization, listed on U.S. stock exchanges have dual-listed on the Hong Kong stock exchange. The remaining seven companies that are only listed on the U.S. stock exchanges are: Pinduoduo Inc., Full Truck Alliance Co. Ltd., Vipshop Holdings Limited, Legend Biotech, TAL Education Group, Lufax, iQIYI, Inc. If delisting risks increase in the future because of changes in rules, these major dual-listed Chinese companies have a contingency plan to

continue attracting foreign capital and investment through the Hong Kong stock exchange. The dual listing fortifies their capital structure to continue access international capital markets and mitigate the potential negative impact of delisting from U.S. stock exchanges.
China Eastern Airlines and China Southern Airlines were the last two companies identified by USCC as state-owned enterprises (SOEs). The remaining ADSs are identified by USCC as non-state issuers.

2 Definitions and Literature Review

2.1 American Depositary Receipts (ADRs)

According to Karolyi (1998), U.S. individual and institutional investors began to diversify their portfolios by investing in foreign equity markets during the 1980s. In response to this globalization trend, many companies in emerging markets listed their shares in developed markets such as the U.S., reducing the cost of capital, illiquidity, and investment barriers. They benefited from the higher reporting standards and attracted an enlarged investor base. Depositary Receipt (DR) programs were developed by JP Morgan in 1927 as an alternative option for foreign companies to list in the U.S. Most Chinese companies listed in the U.S. are American Depository Receipts (ADRs). A depositary bank holds the underlying securities and converts dividends and other payments into U.S. dollars.
However, government regulations created market segmentation by imposing restrictions on certain investor groups. Generally, most ADRs are held by U.S. investors because Chinese investors are subject to capital controls capped at $50,000 per year. The underlying Hong Kong shares are unrestricted with fewer capital flow restrictions, so they can be held by both U.S. investors and Chinese investors. As a result of this market segmentation, two distinct pricing mechanisms emerged: one for U.S. ADRs and another for Hong Kong listings. Pre-

vious literature Hietala (1989) examined the Finnish market structure in the 1980s. Finnish domestic investors can own all the restricted Finnish stocks and a portion of unrestricted Finnish stocks while Finnish foreign investors can own a portion of unrestricted Finnish stocks and all the foreign stocks. This market segmentation created three different price quotations for restricted stocks, unrestricted stocks, and foreign stocks. The unrestricted stocks persistently trade at a premium because their demand by both domestic and foreign investors is greater than the restricted stocks' demand by only domestic investors. The ownership restrictions prohibited arbitrage strategies to close the pricing gap.

Despite the possibility of market segmentation, no consistent premiums or discounts between U.S. ADRs and Hong Kong listings were observed in the sample, suggesting today's global market is very integrated. To convert Hong Kong share prices to ADRs, we need Hong Kong Dollar to U.S. Dollar exchange rate and ADS ratio which refers to the number of underlying Hong Kong shares represented by an ADRs.

$$Hong\ Kong\ Share\ Price\ (U.S.Equivalent) = Hong\ Kong\ Share\ Price \times$$
$$HKD\ to\ USD\ Exchange\ Rate \times ADS\ ratio$$

The difference between the theoretical Hong Kong Share Price (U.S. Equivalent) and the U.S. Share Price is the mispricing.

$$Mispricing = Hong\ Kong\ Share\ Price\ (U.S.Equivalent) - U.S.\ Share\ Price$$

2.2 Law of One Pirce

The law of one price assumes that international financial markets are perfectly integrated, meaning that an identical asset or commodity will have the same price globally, and that the asset's price is unaffected by its location of trade. In other words, the price of a particular asset should be identical across different regions after accounting for exchange rates.

2.3 Liquidity

Kyle (1985) defined liquidity as a number of transactional properties of markets, including tightness (the bid-ask spread), depth (ability to absorb large order flow without moving market price), and resiliency (the speed of recovering from a random uninformative shock). From market surveys by Mittoo (1992), the superior liquidity provided by overseas exchanges compared to the home market not only attribute to gains in stocks' value but also attracted more trading volume than the home market, reducing the order flow of the home market. This difference in liquidity might cause a price difference in the two markets. As stock exchanges around the world compete for order flow and liquidity by innovating the trading process, the distribution of trading volume among exchanges has changed. Therefore, the price difference might be related to the changes in the distribution of order flow in the overseas market and home market.

3 Data Description

3.1 Dual-listed Stock Data (Treatment Group)

For the purposes of this study, the stock price data used was sourced from the Refinitiv DataStream database. The dataset contained comprehensive information on 29 companies, including their closing price, bid price, ask price, and trading volume, for both their U.S. and Hong Kong listings. The data covered the period spanning from January 1, 2019, to February 17, 2023.

It is important to note that only three companies (BeiGene, China Eastern Airline, and China Southern Airline) dual-listed on both U.S. stock exchanges and Hong Kong stock exchange before January 1, 2019. The remaining 26 companies are split into two groups: 10

Name	US Symbol	Hongkong Symbol	ADs Convertion	US First Trading Date	HK First Trading Date	IPO Month and Year	IPO Value (US$ mil)	Sector
BeiGene	BGNE	HK6160	1 ADS : 13 shares	Before 1/1/2019	Before 1/1/2019	February 2016	158	Health Care
China EasternAirlinesCorporation Ltd.	CEA	HK0670	1 ADS : 50 shares	Before 1/1/2019	Before 1/1/2019	February 1997	n/a	Transportation
China SouthernAirlines CompanyLimited	ZNH	HK1055	1 ADS : 50 shares	Before 1/1/2019	Before 1/1/2019	July 1997	n/a	Transportation
Alibaba GroupHolding Limited	BABA	HK9988	1 ADS : 8 shares	Before 1/1/2019	11/26/2019	September 2014	21,767	Technology
NetEase, Inc.	NTES	HK9999	1 ADS : 5 shares	Before 1/1/2019	6/11/2020	June 2000	n/a	Technology
JD.com, Inc.	JD	HK9618	1 ADS : 2 shares	Before 1/1/2019	6/18/2020	May 2014	1,800	ConsumerServices
Yum China	YUMC	HK9987	1ADS : 1 shares	Before 1/1/2019	9/10/2020	November 2016	n/a	ConsumerServices
H World Group Limited (previously Huazhu Group Limited)	HTHT	HK1179	1 ADS : 10 shares	Before 1/1/2019	9/22/2020	March 2010	110	ConsumerServices
Zai Lab Limited	ZLAB	HK9688	1ADS : 10 shares	Before 1/1/2019	9/28/2020	September 2017	150	Health Care
Baozun Inc.	BZUN	HK9991	1 ADS : 3 shares	Before 1/1/2019	9/29/2020	May 2015	110	ConsumerServices
ZTO Express(Cayman) Inc.	ZTO	HK2057	1ADS : 1 shares	Before 1/1/2019	9/29/2020	October 2016	1,406	Transportation
GDS HoldingsLimited	GDS	HK9698	1 ADS : 8 shares	Before 1/1/2019	11/2/2020	November 2016	193	Technology
New OrientalEducation &Technology Group,Inc.	EDU	HK9901	1 ADS : 10 shares	Before 1/1/2019	11/9/2020	March 2006	113	ConsumerServices
On 12/18/2020, Holding Foreign Companies Accountable Act Signed Into The Law								
Autohome Inc.	ATHM	HK2518	1 ADS : 4 shares	Before 1/1/2019	3/15/2021	December 2013	133	Technology
Baidu, Inc.	BIDU	HK9888	1 ADS : 8 shares	Before 1/1/2019	3/23/2021	August 2005	109	Technology
Bilibili Inc.	BILI	HK9626	1 ADS : 1 shares	Before 1/1/2019	3/29/2021	March 2018	483	Technology
Trip.comInternational, Ltd.	TCOM	HK9961	1ADS : 1 shares	Before 1/1/2019	4/19/2021	December 2003	76	BusinessServices
HUTCHMED (China)Limited	HCM	HK0013	1ADS : 5 shares	Before 1/1/2019	6/30/2021	March 2016	101	Health Care
Xpeng	XPEV	HK9868	1ADS : 2 shares	8/27/2020	7/7/2021	August 2020	1,500	Technology
Li Auto	LI	HK2015	1 ADS : 2 shares	7/30/2020	8/12/2021	July 2020	1,000	ConsumerDurables
Weibo Corporation	WB	HK9898	1ADS : 1 shares	Before 1/1/2019	12/8/2021	April 2014	286	Technology
NIO Inc.	NIO	HK9866	1 ADS : 1 shares	Before 1/1/2019	3/10/2022	September 2018	1,000	ConsumerDurables
Zhihu	ZH	HK2390	1ADS : 0.5 shares	3/26/2021	4/22/2022	March 2021	772	Technology
KE Holdings	BEKE	HK2423	1 ADS : 3 shares	8/13/2020	5/11/2022	August 2020	2,100	Real Estate
OneConnectFinancialTechnology Co., Ltd	OCFT	HK6638	1 ADS : 3 shares	12/13/2019	7/4/2022	December 2019	312	Technology
Tuya Inc.	TUYA	HK2391	1ADS : 1 shares	3/18/2021	7/5/2022	March 2021	915	Technology
Miniso	MNSO	HK9896	1 ADS : 4 shares	10/15/2020	7/13/2022	October 2020	608	ConsumerServices
Noah Holdings Ltd.	NOAH	HK6686	1 ADS : 0.5 shares	Before 1/1/2019	7/13/2022	November 2010	101	Finance
Tencent MusicEntertainmentGroup	TME	HK1698	1 ADS : 2 shares	Before 1/1/2019	9/21/2022	December 2018	1,100	Technology

Figure 3: Dual-listed Stock Data Summary

completed dual-listings prior to the enactment of the HFCAA, while the remaining 16 did so after the enactment. This division provided a clear distinction between the stock behaviors that were impacted by the new legislation and those that were not.

3.2 Single-listed Stock Data (Control Group)

To investigate the impact of HFCAA on dual-listing stocks using the difference in differences method, I included 16 additional Chinese companies that were exclusively listed on the U.S. stock exchange from January 1, 2019, to February 18, 2023. The single-listed stocks are a valid control group because they have similar size and industries as the treatment group, and they were also affected by the HFCAA.

Name	US Symbol	ADs Convertion	US First Trading Date	IPO Month and Year	IPO Value (US$ mil)	Sector
Pinduoduo Inc.	PDD	1 ADS : 4 shares	Before 1/1/2019	July 2018	$1,626	Business Services
Full Truck Alliance Co. Ltd.	YMM	1 ADS : 20 shares	6/22/2021	June 2021	$1,568	Transportation
Vipshop Holdings Limited	VIPS	5 ADS : 1 shares	Before 1/1/2019	March 2012	$72	Consumer Services
Legend Biotech	LEGN	1 ADS : 2 shares	6/5/2020	June 2020	$424	Health Care
TAL Education Group	TAL	3 ADS : 1 shares	Before 1/1/2019	October 2010	$120	Consumer Services
Lufax	LU	2 ADS : 1 shares	10/30/2020	October 2020	$2,360	Finance
iQIYI, Inc.	IQ	1 ADS : 7 shares	Before 1/1/2019	March 2018	$2,250	Technology
RLX Technology	RLX	1 ADS : 1 shares	1/22/2021	January 2021	$1,400	Consumer Non-Durables
360 DigiTech	QFIN	1 ADS : 2 shares	Before 1/1/2019	December 2018	$52	Finance
Dada Nexus	DADA	1 ADS : 4 shares	6/5/2020	June 2020	$320	Consumer Services
DAQO New Energy Corp.	DQ	1 ADS : 5 shares	Before 1/1/2019	October 2010	$76	Technology
ChinData	CD	1 ADS : 2 shares	9/30/2020	September 2020	$540	Technology
Atour Lifestyle Holdings	ATAT	1 ADS : 3 shares	11/11/2022	November 2022	$52	Consumer Discretionary
JOYY Inc.	YY	1 ADS : 20 shares	Before 1/1/2019	November 2012	$82	Technology
Canadian Solar Inc.	CSIQ	NA	Before 1/1/2019	November 2006	$116	Technology
JinkoSolar Holding Company Limited	JKS	1 ADS : 4 shares	Before 1/1/2019	May 2010	$64	Technology

Figure 4: Single-listed Stock Data Summary

3.3 Market Indices Data

I downloaded Dow Jones Industrial Average (DJIA), S&P 500 (SP500), Hang Seng Index (HSI), Shanghai Stock Exchange Composite Index (SHCOMP) from Yahoo Finance. DJIA and S&P500 are U.S. stock indices. HSI tracks a selection of companies from the Stock Exchange of Hong Kong. SHCOMP tracks the performance of all A-shares and B-shares listed on the Shanghai Stock Exchange. The Shanghai-Hong Kong Stock Connect (SHHK-Connect) was launched on November 17, 2014, as a cross-border investment program that enables investors in Mainland China and Hong Kong to trade and settle shares listed on the other's stock exchange. Given the significance of this cross-border program and the tighter connection between the two markets, I included the Shanghai Composite Index (SHCOMP) in my analysis.

3.4 Exchange Rate

I used the HKD to 1 USD exchange rate from Yahoo Finance.

3.5 ADS ratio

I pulled the ADS ratio from the 20-F forms provided by foreign private issuers from SEC's website.

3.6 Risk Free Rate

I used ICE U.S. 10-year treasury futures price from Yahoo Finance.

4 Methodology

4.1 No Positive Impact On Stock Price After Dual-listing

Since the 1980s, globalization has prompted companies in emerging markets to seek cross-listing in developed markets. Consequently, several studies have examined the impact of cross-listings on stock prices immediately after the listing. While the focus of this paper is on the reverse scenario, where companies with ADSs in developed markets cross-list back in their home emerging markets, the insights from previous studies on liquidity, risks, and managerial implications can still be relevant.

Overall, the empirical evidence of previous research indicates that when non-U.S. companies list on U.S. stock exchanges, they will experience an increase in market value in the listing month, but the post-listing performance varies widely over the next year.

Switzer (1986) found that "there appears to be fairly strong evidence of positive abnormal performance in the interlisting period. Cumulative abnormal returns become persistently positive about 12 days prior to interlisting and continue to rise in a definite trend."

However, another study by Alexander et al. (1988) contradicted Switzer's finding. Alexander examined a sample of 34 foreign firms listed on U.S. stock exchange. He concluded "no ab-

normal returns were detected in the listing period." In fact, he observed a persistent decline after listing "reaching -7.29 percent by month +12, -38.23 percent by month +24, and -53.21 percent by month +36."

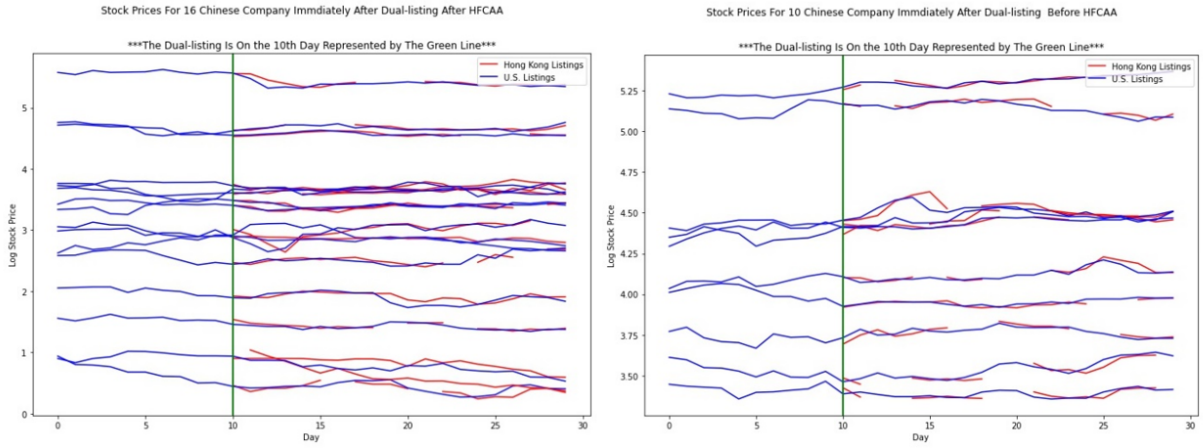

Figure 5: Stock Price After Dual-listing

As shown in Figure 5, the data of 26 Chinese companies immediately before and after the dual-listing on Hong Kong stock exchange shows no consistent trend in stock price and market value. The stock price exhibits no discernible pattern and the daily returns fluctuate in a chaotic manner.

The first potential explanation for the negligible abnormal return is that market is more efficient today than Switzer's study. The low trading cost and easier access to different markets allowed the arbitrageurs to reduce abnormal returns that deviate from fair valuation. The fact that our financial market consistently reflects new information and adjusts prices rapidly suggests that it is integrated globally and conforms to the efficient market hypothesis, which posits that asset prices reflect all available information at any given time. Despite the possible regulatory barriers to cross-border capital investment, arbitrageurs have been shown to quickly exploit mispricing opportunities and enhance market efficiency.

Another potential explanation for the differing results between Swizer's study on Canadian companies and this study on Chinese companies is that the Canadian companies that in-

terlisted on NYSE and AMEX were experiencing upswings with positive outlooks, whereas the Chinese companies were facing more challenging circumstances,especially the risk of delisting, which created downward pressure on their stock valuations. In particular, the 29 Chinese firms analyzed in this study saw an average decrease of 48.58% between 2021 and 2022. The the high levels of uncertainty and pessimistic outlook might wiped out the positive impact of dual-listing.

4.2 Volatility

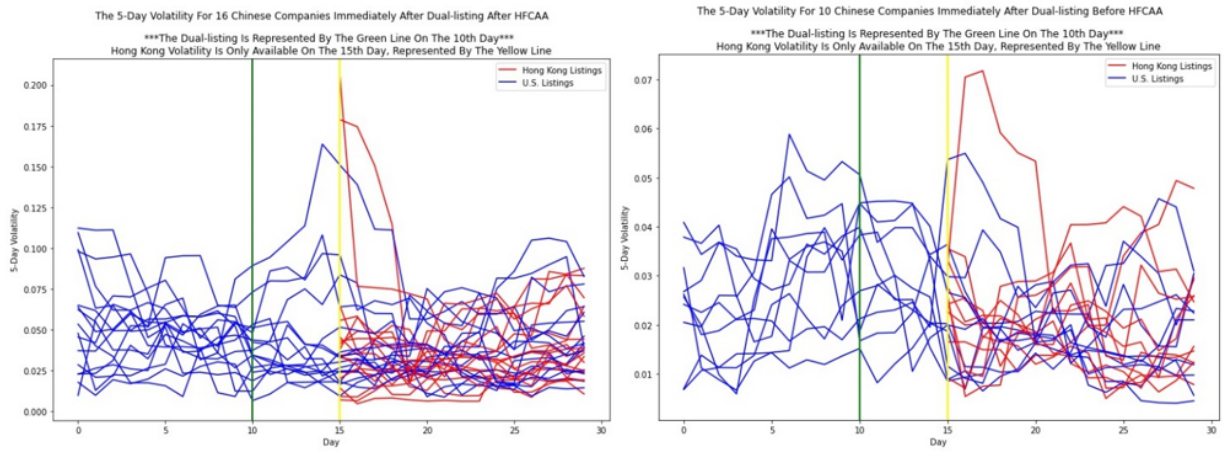

Figure 6: 5-Day Volatility After Dual-listing

Volatility is calculated by the sample standard deviation of stock's daily return and is calculated over a rolling window of 5 consecutive trading days. Given that the dual-listing occurs on the 10th day, the rolling window volatility for a period of 5 days will only be available on the 15th day. There was significant increase in volatility for U.S. stock prices during the dual-listing period starting 5 days before the dual-listing. The U.S. stock prices finally stabilize 10 days after the dual-listing. Volatility is the highest for Hong Kong stock prices in the beginning. It takes about 10 days for the Hong Kong stock prices to stabilize.

4.3 Liquidity And Trading Volume

A potential factor that dual-listing might impact the stock price is the superior liquidity and more trading volume provided by the matured exchanges. Liquidity is measured by the bid-ask spread. A narrower bid-ask spread suggests more liquidity. A wider bid-ask spread suggests less liquidity.

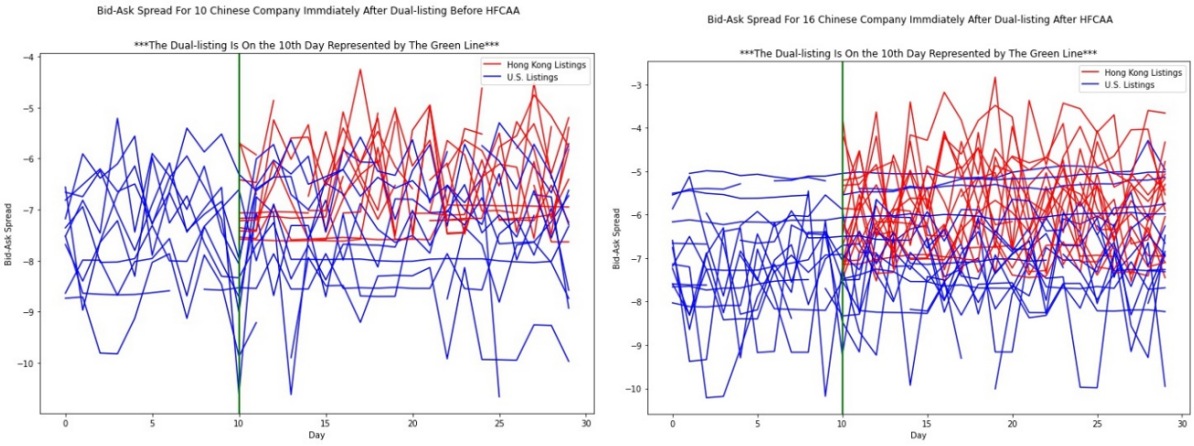

Figure 7: Bid-Ask Spread After Dual-listing

4.3.1 Liquidity's Effect on Cost of Capital

Keim (1989) estimates that "this bid-ask spread represents, on average, from 0.6 to 8.0% of a security's price (depending on a firm's size with larger firms typically displaying smaller percentage spreads), so this spread represents a sizable portion of total transaction costs (which also include commissions)."

Both individual and institutional investors tend to prefer liquid markets due to the lower transaction costs associated with buying and selling securities. By dual-listing their securities in highly liquid markets, firms can increase their shareholder base and trading volume,

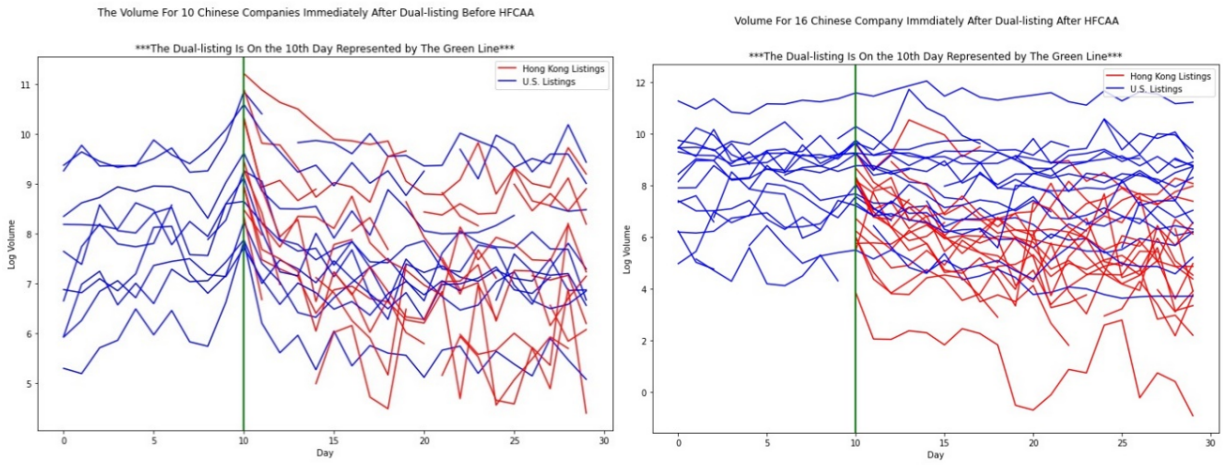

Figure 8: Volume After Dual-listing

ultimately leading to a decrease in their cost of capital. This can result in significant benefits for firms, including improved access to capital, greater financial flexibility, and increased visibility among potential investors.

$$WACC = \frac{E}{V} r_e + \frac{D}{V} r_d (1 - t)$$

A reduction in r_e leads to a reduction in $WACC$, which in turn increases the valuation of the firm when calculating the present value of future cash flows. Thus, the improved liquidity resulting from dual-listing can have a positive and material impact on stock valuations. Although Foerster and Karolyi (1998) found in their analysis of 52 Canadian securities that interlisted on U.S. exchange that "an 11% decline in the unadjusted spread", they also mentioned that "the impact on trading costs is complex and is related to a number of factors including whether a firm experiences a volume increase on the domestic market and the extent to which US market makers are successful at capturing a market share of trading." My sample of 26 dual-listed Chinese companies showed no significant change in bid-ask spread for both U.S. and Hong Kong listings during the listing period. This result suggest that dual-listings in Hong Kong had no effect on the firm's liquidity. Although it might

be easier for Hong Kong investors to invest in these companies, the global market is highly integrated, and transaction costs are so low that the potential impact of expanded shareholder base and change on access to investment opportunities may be negligible. It is also important to note that Hong Kong's bid-ask spread seems to be narrower than U.S.'s bid-ask spread, but it does not actually indicate a higher level of liquidity in the Hong Kong market. Rather, the difference in bid-ask spreads can be attributed to the fact that ADSs in the U.S. market represent a multiple of Hong Kong shares, resulting in smaller slices and a smaller bid-ask spread.

There is a clear increase in trading volume on the day of listing, but it quickly diminished back to the pre-listing level for U.S. listings. Hong Kong listing demonstrated abnormal high initial trading volume and it took about 5 days for the trading volume to stabilize. The liquidation of the IPO in the first week of trading is called flipping activity. It is a natural process in the stock market and provides liquidity to the broader market.

Following the enactment of HFCAA, there appeared to be greater fluctuations in trading volume during the listing period. This could be attributed to heightened uncertainty in the market, as well as frequent news updates regarding the tensions between US and Chinese regulators.

4.3.2 Dividends

Most Chinese companies do not pay dividends. Many literature reviews suggested that dividend policy can significantly affect a company's cost of capital and valuation, particularly when distributions are made differently across various locations. Since these Chinese companies do no pay dividen, it is no an issue for this study.

4.3.3 Liquidity's Effect of Mispricing

Atanasova and Li (2018) examined a sample of 650 international firms cross-listed on a U.S. stock exchange. Their results showed that "lower ADR liquidity leads to a larger price difference between the U.S. and the home market." Moreover, "U.S. market liquidity has a stronger effect than the home market liquidity." It is consistent with the asset pricing literature that suggest illiquidity depresses asset prices.

In my analysis, there was no changes in market liquidity for both U.S. and Hong Kong during the listing period. Therefore, there is no evidence that liquidity had an impact on mispricing. However, the subsequent regression analysis revealed a significant relationship between mispricing and both the liquidity and volatility of the stock. This suggests that these factors may also play a role in influencing mispricing, in addition to the regulatory and market factors previously considered.

4.4 Regressions

I performed a total of nine regression analyses on the dataset. For the first regression, I used Hong Kong daily return as the dependent variable.

$HongKongReturn = \beta_0 + \beta_1 * HKUSExRate + \beta_2 * SP500 + \beta_3 * HSI + \beta_4 * SHCOMP + \beta_5 * TenYearYield + \beta_6 * HKVolatility + \beta 7 * USVolatility + \beta_8 * HKBidAskSpread + \beta_9 * USBidAskSpread + \beta_1 0 * HKVolume + \beta_1 1 * USVolume + \mu$

For the second regression, I used U.S. daily return as the dependent variable.

$U.S.Return = \beta_0 + \beta_1 * HKUSExRate + \beta_2 * SP500 + \beta_3 * HSI + \beta_4 * SHCOMP + \beta_5 * TenYearYield + \beta_6 * HKVolatility + \beta 7 * USVolatility + \beta_8 * HKBidAskSpread + \beta_9 * USBidAskSpread + \beta_1 0 * HKVolume + \beta_1 1 * USVolume + \mu$

For the third regression, I used Mispricing as the dependent variable. $Mispricing = \beta_0 + \beta_1 * HKUSExRate + \beta_2 * SP500 + \beta_3 * HSI + \beta_4 * SHCOMP + \beta_5 * TenYearYield + \beta_6 * HKVolatility + \beta 7 * USVolatility + \beta_8 * HKBidAskSpread + \beta_9 * USBidAskSpread +$

$\beta_1 0 * HKVolume + \beta_1 1 * USVolume + \mu$

They were then split into three distinct time periods to account for the regulatory changes.

1) The first period, spanning from January 1, 2019 to December 17, 2020, was before the enactment of the HFCAA. Prior to December 17, 2020, only 13 companies were dual-listed on both exchanges. As a result, the regression analysis for the first period was conducted exclusively on these 13 companies.

2) The second period, from December 18, 2020 to December 14, 2022, occurred after the enactment of the HFCAA but before the announcement of the PCAOB gaining full access. By the end of this period, all 29 companies were dual-listed, providing sufficient data to conduct regression analysis on all of them.

3) The final period, from December 15, 2022, to February 17, 2023, was after the PCAOB had announced gaining full access. However, the third period is short because of the time constrain of this study. The small sample size in period 3 might be a problem. It can easily be solved with more data in the future.

4.4.1 Regression Variables

The daily return is calculated by $DailyReturn = \frac{Today'sClosingPrice - PreviousClosingPrice}{PreviousClosingPrice} - 1$

$HKUSExRate$**:** Daily exchange rate changes in percentage between Hong Kong Dollar and U.S. Dollar.

$SP500$**:** Daily return of the S&P 500 Index in percentage, representing the U.S. market. I only included S&P 500 because it is highly correlated with other U.S. market indices such as Dow Jones Industrial Average. As shown in the market indices correlation table below, the correlation between S&P 500 and DJIA is about 0.974443. To prevent multicollinearity problem in the regession, I only used the S&P 500 Index.

HSI **:** Daily closing price changes in percentage of the Heng Seng Index, representing the Hong Kong market.

SHCOMP: Daily return of the Shanghai Stock Exchange Composite Index in percentage, representing the Mainland China market. As discussed in the previous section on Data Description, the SHHKConnect program has created significant connections between the Hong Kong and Mainland China markets. Given that many of the 29 companies in our analysis are headquartered in Mainland China, it is reasonable to include the SHCOMP in our analysis.
TenYearYield: Daily of ICE Treasury Yield 10 Years Futures in percentage, representing the risk-free rate of the U.S. market. *HKVolatility*: The sample standard deviation of Hong Kong listings' daily return, which is calculated over a rolling window of 5 consecutive trading days.
USVolatility: The sample standard deviation of U.S. listings' daily return, which is calculated over a rolling window of 5 consecutive trading days.
HKBidAskSpread: The difference between closing ask price and closing bid price for Hong Kong listings.
USBidAskSpread: The difference between closing ask price and closing bid price for U.S. listings.
The following graph depicts the mispricing observed between the U.S. and Hong Kong listings.
While GDS, EDU, ZLAB, ZTO, and YUMC exhibit smaller R^2 values in the period 1, this is likely due to their small sample size. As they were dual-listed only about one or two months before the enactment of the HFCAA, they had fewer observations compared to other companies.
HKVolume: The log of daily turnover volume in thousands HKD amount.
USVolume: The log of daily turnover volume in thousands USD amount.

Table 1: HK Stock Return Period 1

	Dependent variable:												
	BABA	BZUN	BGNE	CEA	ZNH	GDS	HTHT	JD	NTES	EDU	ZLAB	ZTO	YUMC
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
HKBidAskSpread	1.583	-3.763	0.268	-0.358	0.126	-1.358	2.901***	3.275	5.998	3.120*	0.085	-0.760	-0.821
	(5.813)	(2.288)	(0.194)	(0.726)	(0.659)	(4.170)	(0.926)	(4.227)	(4.032)	(1.469)	(0.285)	(1.373)	(1.130)
HKUSExRateReturn	-6.310**	-15.820	-0.736	-3.757	-2.950	35.638	1.312	-7.199	23.409	-50.541	34.300	6.722	34.563**
	(3.151)	(37.285)	(3.786)	(2.288)	(2.369)	(57.551)	(26.261)	(24.898)	(19.564)	(61.448)	(24.504)	(27.335)	(13.183)
HKVolatility	-0.266*	-0.219	0.105	0.023	0.054	-0.237	-0.851*	0.232	-0.019	2.369**	0.032	0.607	0.124
	(0.148)	(0.512)	(0.144)	(0.119)	(0.123)	(0.622)	(0.503)	(0.257)	(0.268)	(0.884)	(0.424)	(0.521)	(0.307)
HKVolume	0.003	0.000	0.002	0.005***	0.008***	-0.001	0.002	-0.006	0.011**	-0.020*	0.004	0.001	0.006***
	(0.004)	(0.008)	(0.001)	(0.002)	(0.002)	(0.017)	(0.006)	(0.006)	(0.005)	(0.010)	(0.004)	(0.005)	(0.002)
HSIReturn	0.945***	0.569	0.677***	1.070***	1.238***	1.713*	0.393	1.267***	0.810***	3.220***	0.920*	0.887*	0.550***
	(0.114)	(0.696)	(0.166)	(0.100)	(0.105)	(0.936)	(0.472)	(0.287)	(0.225)	(0.849)	(0.488)	(0.511)	(0.202)
Intercept	-0.052	0.095	-0.027	-0.039***	-0.069***	0.050	-0.033	-0.126*	-0.107**	0.569***	-0.124	0.056	-0.010
	(0.039)	(0.115)	(0.020)	(0.015)	(0.018)	(0.108)	(0.062)	(0.075)	(0.048)	(0.151)	(0.073)	(0.078)	(0.051)
SHCOMPReturn	0.132	1.250	0.233	0.275***	0.272***	-0.318	0.281	-0.007	0.186	0.849	0.403	-0.320	0.379
	(0.124)	(0.861)	(0.159)	(0.096)	(0.100)	(0.984)	(0.605)	(0.238)	(0.193)	(0.496)	(0.627)	(0.635)	(0.255)
SP500Return	0.033	0.041	0.045	0.054	0.061	1.295	0.174	0.159	-0.138	1.367	0.321	0.693	0.221
	(0.066)	(0.552)	(0.111)	(0.066)	(0.069)	(0.859)	(0.396)	(0.252)	(0.204)	(1.033)	(0.383)	(0.487)	(0.179)
TenYearYieldReturn	0.007	0.096	-0.004	0.016	0.010	0.073	-0.154	-0.111*	-0.087*	-0.196	-0.019	-0.031	0.002
	(0.018)	(0.128)	(0.031)	(0.018)	(0.019)	(0.170)	(0.095)	(0.058)	(0.046)	(0.182)	(0.084)	(0.090)	(0.041)
USBidAskSpread	4.869	-4.526	2.877*	-0.530*	-0.254	-6.701	-11.813*	-28.665**	-2.744	-5.117	0.477	8.204	-4.017
	(4.191)	(10.520)	(1.599)	(0.321)	(0.246)	(11.355)	(6.447)	(13.434)	(4.653)	(4.810)	(4.362)	(18.762)	(6.731)
USVolatility	-0.096	-0.066	0.075	-0.194**	-0.274***	-0.904	0.202	-0.447	0.060	-2.440	0.338	-1.143*	-0.276
	(0.166)	(0.739)	(0.126)	(0.088)	(0.096)	(0.820)	(0.556)	(0.323)	(0.273)	(1.554)	(0.333)	(0.615)	(0.302)
USVolume	0.003	-0.010	0.001	0.001	-0.000	-0.002	0.005	0.021**	0.001	-0.067***	0.016	-0.007	-0.002
	(0.004)	(0.015)	(0.004)	(0.001)	(0.002)	(0.019)	(0.009)	(0.010)	(0.008)	(0.019)	(0.011)	(0.009)	(0.007)
Observations	236	41	434	435	435	27	46	109	114	22	42	41	54
R^2	0.466	0.347	0.139	0.457	0.496	0.427	0.322	0.307	0.271	0.771	0.440	0.260	0.543
Adjusted R^2	0.440	0.100	0.116	0.443	0.483	0.006	0.103	0.229	0.193	0.519	0.235	-0.021	0.423

Note: *p<0.1; **p<0.05; ***p<0.01

Table 2: HK Stock Return Period 2

Dependent variable:

	BABA (1)	ATHM (2)	BIDU (3)	BZUN (4)	BGNE (5)	BILI (6)	CEA (7)	ZNH (8)	GDS (9)	HTHT (10)	JD (11)	BEKE (12)	LI (13)	MNSO (14)
HKBidAskSpread	1.955	-0.164	0.708	-0.107	1.565**	-0.592	0.224	2.792***	1.365	0.498	-3.377	0.039	-0.182	-0.088
	(3.338)	(0.207)	(1.886)	(0.250)	(0.751)	(2.435)	(0.539)	(0.821)	(0.978)	(0.391)	(2.276)	(0.312)	(1.945)	(0.532)
HKUSExRateReturn	-3.396	-2.709	-4.548*	-6.839	-8.771*	-11.780**	3.212	3.527	-8.790*	4.030	-2.350	-4.041	-2.868	-12.178
	(2.673)	(4.426)	(2.713)	(5.065)	(4.742)	(5.084)	(2.290)	(2.602)	(4.762)	(4.156)	(3.053)	(6.981)	(4.852)	(9.653)
HKVolatility	0.098	0.026	0.070	0.054	0.008	0.258**	-0.065	-0.014	0.221**	0.122	0.093	0.288	0.305**	0.130
	(0.082)	(0.139)	(0.094)	(0.104)	(0.106)	(0.118)	(0.134)	(0.136)	(0.093)	(0.092)	(0.095)	(0.210)	(0.124)	(0.307)
HKVolume	-0.001	-0.000	-0.003	0.003	0.002	-0.007*	0.006***	0.005***	-0.003	0.002	0.001	-0.003	-0.004*	-0.005
	(0.003)	(0.001)	(0.002)	(0.002)	(0.003)	(0.004)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.004)	(0.002)	(0.005)
HSIReturn	2.053***	1.343***	1.864***	1.759***	1.362***	2.672***	0.574***	0.797***	2.402***	1.812***	2.004***	1.973***	1.522***	1.908***
	(0.086)	(0.151)	(0.092)	(0.166)	(0.153)	(0.170)	(0.075)	(0.085)	(0.154)	(0.136)	(0.100)	(0.280)	(0.159)	(0.435)
Intercept	-0.025	-0.029	0.064***	0.006	-0.023	0.020	-0.049***	-0.062***	0.042	0.020	0.028	0.052	-0.085*	-0.108
	(0.028)	(0.027)	(0.021)	(0.020)	(0.023)	(0.035)	(0.013)	(0.016)	(0.027)	(0.024)	(0.027)	(0.076)	(0.044)	(0.072)
SHCOMPReturn	-0.634***	0.136	-0.094	0.075	0.104	-0.115	0.277**	0.275**	0.171	0.019	-0.071	-0.821	1.011***	-0.837
	(0.132)	(0.238)	(0.145)	(0.250)	(0.236)	(0.271)	(0.115)	(0.130)	(0.235)	(0.208)	(0.153)	(0.543)	(0.257)	(0.875)
SP500Return	-0.064	0.049	0.039	-0.090	0.280*	0.077	-0.006	0.061	-0.232	0.044	0.089	-0.022	-0.088	-0.233
	(0.084)	(0.144)	(0.089)	(0.160)	(0.150)	(0.166)	(0.073)	(0.083)	(0.150)	(0.134)	(0.099)	(0.239)	(0.152)	(0.426)
TenYearYieldReturn	0.025	-0.020	0.002	0.008	0.033	0.039	-0.008	-0.014	-0.033	0.083	0.015	0.133	-0.014	0.008
	(0.033)	(0.060)	(0.037)	(0.063)	(0.060)	(0.068)	(0.029)	(0.033)	(0.059)	(0.053)	(0.038)	(0.144)	(0.068)	(0.256)
USBidAskSpread	-2.015	2.672	2.943	-2.344	-0.658	0.975	-0.021	0.090	-1.302	2.829	-2.515	-0.504	-4.587	-5.418
	(6.003)	(2.534)	(2.869)	(2.322)	(1.653)	(4.589)	(0.150)	(0.138)	(2.556)	(3.413)	(5.517)	(16.184)	(5.340)	(5.578)
USVolatility	0.039	0.169	0.088	0.109	0.048	-0.071	0.047	0.024	-0.019	-0.024	0.081	0.215	-0.232*	0.091
	(0.079)	(0.152)	(0.078)	(0.108)	(0.106)	(0.102)	(0.129)	(0.139)	(0.099)	(0.103)	(0.101)	(0.211)	(0.126)	(0.398)
USVolume	0.002	0.003	-0.006***	-0.004	0.002	0.002	-0.001	0.003	-0.005	-0.006	-0.004	-0.006	0.013**	0.022*
	(0.003)	(0.004)	(0.002)	(0.003)	(0.004)	(0.005)	(0.001)	(0.002)	(0.004)	(0.004)	(0.003)	(0.008)	(0.006)	(0.013)
Observations	443	389	386	441	443	381	443	442	443	443	443	137	295	94
R^2	0.703	0.355	0.712	0.385	0.335	0.611	0.311	0.399	0.593	0.479	0.672	0.442	0.561	0.387
Adjusted R^2	0.695	0.337	0.704	0.369	0.318	0.600	0.294	0.384	0.583	0.466	0.664	0.393	0.544	0.305

	NTES (15)	EDU (16)	NIO (17)	NOAH (18)	OCFT (19)	TME (20)	TCOM (21)	TUYA (22)	WB (23)	XPEV (24)	ZLAB (25)	ZH (26)	ZTO (27)	HCM (28)	YUMC (29)
HKBidAskSpread	-3.102**	1.357	-2.494**	nan***	-0.068	-0.187	1.117	-0.141	0.313	0.395	1.942***	0.023	-0.048	0.820	0.398
	(1.383)	(0.839)	(1.213)	(nan)	(0.274)	(0.749)	(0.966)	(0.218)	(0.246)	(2.844)	(0.749)	(0.242)	(0.480)	(0.751)	(0.809)
HKUSExRateReturn	-4.326	-10.223	-6.097	nan***	-6.223	4.569	0.302	40.364**	2.986	-6.672	-4.640	-14.816*	-1.198	0.092	5.983**
	(3.032)	(6.643)	(6.837)	(nan)	(9.495)	(9.979)	(4.018)	(15.507)	(4.593)	(5.471)	(5.954)	(8.270)	(2.953)	(5.013)	(2.745)
HKVolatility	-0.033	0.023	-0.020	nan***	-0.091	0.343	0.054	0.201	-0.084	-0.177	0.174	0.269	0.310***	-0.188	0.157
	(0.103)	(0.115)	(0.147)	(nan)	(0.206)	(0.427)	(0.111)	(0.278)	(0.156)	(0.113)	(0.116)	(0.192)	(0.102)	(0.117)	(0.100)
HKVolume	-0.003	0.004	-0.005	nan***	0.001	0.015	0.003	-0.007*	0.002	-0.007***	-0.000	0.003	0.002	0.008***	0.001
	(0.002)	(0.004)	(0.005)	(nan)	(0.005)	(0.010)	(0.002)	(0.004)	(0.002)	(0.003)	(0.003)	(0.004)	(0.001)	(0.003)	(0.001)
HSIReturn	1.481***	1.500***	1.970***	nan***	1.585***	2.335***	1.761***	1.573***	1.704***	1.796***	1.728***	1.925***	0.811***	1.492***	0.949***
	(0.099)	(0.212)	(0.225)	(nan)	(0.442)	(0.635)	(0.130)	(0.473)	(0.149)	(0.175)	(0.191)	(0.303)	(0.095)	(0.162)	(0.089)
Intercept	0.042*	0.015	-0.181*	nan***	-0.014	-0.134	-0.014	0.067	-0.007	-0.002	-0.021	0.021	0.006	-0.035*	-0.008
	(0.023)	(0.030)	(0.109)	(nan)	(0.042)	(0.213)	(0.031)	(0.072)	(0.025)	(0.043)	(0.028)	(0.055)	(0.017)	(0.021)	(0.019)
SHCOMPReturn	-0.031	0.654**	0.317	nan***	0.269	-1.522	0.077	-0.801	-0.378	1.024***	-0.043	-0.746	0.549***	-0.052	0.149
	(0.151)	(0.326)	(0.389)	(nan)	(0.860)	(1.366)	(0.207)	(0.858)	(0.253)	(0.285)	(0.295)	(0.563)	(0.147)	(0.266)	(0.138)
SP500Return	0.005	-0.298	-0.131	nan***	-0.083	-0.360	0.031	-0.448	-0.143	0.139	0.089	0.030	0.028	0.197	-0.057
	(0.097)	(0.207)	(0.209)	(nan)	(0.401)	(0.567)	(0.125)	(0.441)	(0.141)	(0.167)	(0.188)	(0.262)	(0.094)	(0.158)	(0.088)
TenYearYieldReturn	0.014	0.131	-0.040	nan***	-0.179	-0.405	-0.033	0.010	-0.019	-0.028	-0.055	-0.102	-0.086**	-0.068	-0.007
	(0.038)	(0.082)	(0.115)	(nan)	(0.234)	(0.371)	(0.053)	(0.252)	(0.069)	(0.072)	(0.074)	(0.158)	(0.037)	(0.068)	(0.034)
USBidAskSpread	-6.837**	-0.901	-8.690	nan***	0.698	26.944	7.436	-2.089	4.649	-2.098	3.469	-1.265	-7.044	0.793	-2.709
	(2.927)	(1.088)	(11.947)	(nan)	(0.589)	(21.313)	(5.297)	(1.458)	(4.399)	(6.461)	(2.198)	(2.058)	(6.039)	(2.147)	(5.390)
USVolatility	0.062	-0.118	-0.022	nan***	0.239*	0.120	-0.024	1.145**	0.084	0.366***	0.039	-0.014	-0.304***	-0.060	-0.213**
	(0.101)	(0.107)	(0.178)	(nan)	(0.143)	(0.374)	(0.126)	(0.442)	(0.151)	(0.103)	(0.124)	(0.165)	(0.098)	(0.117)	(0.103)
USVolume	-0.001	-0.005	0.021**	nan***	-0.003	0.001	-0.001	-0.013	-0.001	0.006	-0.000	-0.005	-0.001	-0.002	0.001
	(0.003)	(0.004)	(0.010)	(nan)	(0.009)	(0.020)	(0.004)	(0.011)	(0.004)	(0.006)	(0.005)	(0.007)	(0.002)	(0.004)	(0.003)
Observations	443	443	173	56	101	47	370	77	226	320	442	146	442	324	442
R^2	0.543	0.295	0.586	nan	0.347	0.489	0.538	0.334	0.534	0.574	0.319	0.381	0.400	0.377	0.377
Adjusted R^2	0.531	0.277	0.557	nan	0.266	0.328	0.524	0.221	0.510	0.559	0.301	0.330	0.385	0.355	0.361

Note: *p<0.1; **p<0.05; ***p<0.01

Table 3: HK Stock Return Period 3

Dependent variable:

	BABA (1)	ATHM (2)	BIDU (3)	BZUN (4)	BGNE (5)	BILI (6)	CEA (7)	ZNH (8)	GDS (9)	HTHT (10)	JD (11)	BEKE (12)	LI (13)	MNSO (14)
HKBidAskSpread	16.523	-0.425	-17.448	0.623	-9.000*	-4.192	-0.202	-3.111	2.696	3.276	29.159**	1.668	23.749*	-1.029
	(18.483)	(1.361)	(11.338)	(1.066)	(4.906)	(7.286)	(4.270)	(7.272)	(6.073)	(5.005)	(11.771)	(2.702)	(12.166)	(1.402)
HKUSExRateReturn	-8.303	-4.589	-8.620	8.140	-12.726	8.382	5.081	5.717	29.552**	3.067	-0.059	8.339	36.254***	8.532
	(5.148)	(9.531)	(8.699)	(10.435)	(9.228)	(7.599)	(6.969)	(7.425)	(12.296)	(6.356)	(4.270)	(10.070)	(10.846)	(14.391)
HKVolatility	-0.878	0.357	-0.394	-0.620	1.016	0.429	0.506	-0.873	0.561	-0.120	0.310	-0.039	-1.106	0.086
	(0.568)	(0.612)	(0.465)	(0.745)	(0.598)	(0.377)	(1.315)	(1.332)	(0.530)	(0.707)	(0.290)	(0.732)	(0.849)	(0.765)
HKVolume	-0.001	0.003	-0.002	0.021	-0.024*	-0.015	-0.023*	-0.015	0.007	0.004	-0.011	0.001	0.046*	0.018
	(0.011)	(0.004)	(0.016)	(0.014)	(0.012)	(0.012)	(0.011)	(0.015)	(0.016)	(0.012)	(0.010)	(0.013)	(0.026)	(0.013)
HSIReturn	1.728***	1.476***	2.114***	2.873***	0.551	2.927***	0.934*	0.741	3.818***	1.242***	1.961***	1.577**	1.543**	1.051
	(0.381)	(0.526)	(0.616)	(0.617)	(0.473)	(0.530)	(0.499)	(0.517)	(0.691)	(0.384)	(0.288)	(0.620)	(0.630)	(0.844)
Intercept	-0.296*	0.040	-0.235*	-0.146	-0.066	0.260*	0.203*	0.122	0.166	-0.006	0.025	-0.139	-0.214	-0.036
	(0.164)	(0.120)	(0.131)	(0.107)	(0.083)	(0.138)	(0.109)	(0.151)	(0.175)	(0.082)	(0.100)	(0.117)	(0.274)	(0.135)
SHCOMPReturn	0.116	-0.870	-0.644	0.207	0.271	-0.900	0.438	1.839*	0.331	0.588	-0.786*	-0.517	0.784	1.331
	(0.556)	(0.879)	(0.877)	(1.003)	(0.720)	(0.811)	(0.984)	(0.978)	(1.099)	(0.740)	(0.416)	(1.046)	(1.040)	(1.494)
SP500Return	0.238	0.199	2.103***	0.075	0.143	0.252	-0.208	-0.602	-0.383	0.347	-0.101	-0.175	0.094	0.057
	(0.340)	(0.490)	(0.529)	(0.578)	(0.431)	(0.443)	(0.509)	(0.842)	(0.639)	(0.373)	(0.248)	(0.584)	(0.691)	(0.830)
TenYearYieldReturn	-0.112	-0.134	0.143	0.079	-0.591**	-0.126	0.017	-0.116	-0.058	0.308	0.034	-0.367	-0.030	0.471
	(0.158)	(0.258)	(0.331)	(0.306)	(0.273)	(0.224)	(0.234)	(0.243)	(0.356)	(0.202)	(0.157)	(0.297)	(0.316)	(0.430)
USBidAskSpread	19.713	-0.030	-5.109	-6.335	12.917	-6.792	0.126	-0.467	-0.200	4.920	-28.078	2.826	-23.983	-10.864
	(25.955)	(12.084)	(30.781)	(6.655)	(8.620)	(25.658)	(0.553)	(0.900)	(18.123)	(21.456)	(21.689)	(45.475)	(30.213)	(16.990)
USVolatility	0.122	-0.337	0.081	-0.566	-0.196	0.190	0.010	2.469*	-0.776	0.008	0.256	0.509	0.852	0.115
	(0.418)	(0.606)	(0.570)	(0.442)	(0.518)	(0.413)	(0.473)	(1.264)	(0.517)	(0.752)	(0.185)	(0.715)	(0.649)	(0.851)
USVolume	0.032*	-0.007	0.036**	0.015	0.039***	-0.018	-0.005	-0.001	-0.032*	-0.004	0.004	0.013	-0.023	-0.005
	(0.016)	(0.018)	(0.013)	(0.014)	(0.013)	(0.018)	(0.007)	(0.006)	(0.015)	(0.011)	(0.011)	(0.015)	(0.032)	(0.019)
Observations	37	37	37	37	37	37	26	26	37	37	37	37	37	37
R^2	0.764	0.380	0.701	0.693	0.565	0.724	0.438	0.566	0.723	0.444	0.820	0.462	0.510	0.273
Adjusted R^2	0.660	0.107	0.569	0.558	0.373	0.602	-0.004	0.224	0.601	0.200	0.741	0.226	0.295	-0.046

	NTES (15)	EDU (16)	NIO (17)	NOAH (18)	OCFT (19)	TME (20)	TCOM (21)	TUYA (22)	WB (23)	XPEV (24)	ZLAB (25)	ZH (26)	ZTO (27)	HCM (28)	YUMC (29)
HKBidAskSpread	-2.746	-1.404	23.137*	nan***	0.789	2.282**	3.120	-0.846	-2.683	-17.727	5.920	-1.066	-0.451	-0.671	-0.445
	(3.760)	(9.344)	(13.178)	(nan)	(0.568)	(0.983)	(7.666)	(0.633)	(1.851)	(19.061)	(5.035)	(2.307)	(1.594)	(3.602)	(3.972)
HKUSExRateReturn	5.244	-10.127	14.651	nan***	0.442	-2.354	-2.548	-11.022	14.987*	34.539**	-24.584	15.433	5.237	15.201*	-0.749
	(5.915)	(12.715)	(11.574)	(nan)	(19.870)	(9.135)	(7.004)	(25.177)	(8.654)	(13.587)	(15.921)	(24.523)	(4.328)	(8.868)	(6.105)
HKVolatility	-0.717	0.503	0.812	nan***	0.568	-0.248	-0.498	1.300**	-0.344	0.026	-0.511	0.072	-0.605	0.570	0.605
	(0.497)	(0.578)	(0.718)	(nan)	(0.560)	(0.371)	(0.584)	(0.495)	(0.641)	(0.696)	(0.359)	(0.394)	(0.579)	(0.650)	(0.736)
HKVolume	0.012	0.003	0.010	nan***	0.019	-0.003	-0.015	-0.006	0.008	0.025	0.016	0.025	-0.003	0.001	-0.000
	(0.009)	(0.024)	(0.018)	(nan)	(0.013)	(0.008)	(0.014)	(0.013)	(0.009)	(0.021)	(0.022)	(0.031)	(0.005)	(0.014)	(0.006)
HSIReturn	1.903***	1.531*	2.006**	nan***	-0.589	2.733***	1.916***	2.541*	2.096***	2.651***	-0.145	2.135	0.751***	2.426***	1.314***
	(0.333)	(0.857)	(0.761)	(nan)	(1.074)	(0.594)	(0.523)	(1.342)	(0.553)	(0.860)	(1.010)	(1.418)	(0.261)	(0.538)	(0.311)
Intercept	0.020	-0.353*	0.688	nan***	-0.191*	0.199	-0.004	-0.002	0.062	0.155	-0.207	-0.544	0.047	-0.107	-0.010
	(0.095)	(0.194)	(0.508)	(nan)	(0.105)	(0.148)	(0.129)	(0.167)	(0.074)	(0.305)	(0.166)	(0.509)	(0.050)	(0.097)	(0.105)
SHCOMPReturn	-0.665	-0.009	-0.339	nan***	1.394	-0.537	0.353	0.781	-0.505	-0.708	1.134	-3.122	0.348	-0.745	-0.594
	(0.531)	(1.484)	(1.112)	(nan)	(1.860)	(0.910)	(0.706)	(2.165)	(0.846)	(1.296)	(1.600)	(2.708)	(0.400)	(0.837)	(0.508)
SP500Return	-0.115	0.589	0.454	nan***	-1.547	-0.645	0.103	-0.910	1.471***	0.765	1.132	0.933	-0.288	0.730	0.308
	(0.312)	(0.894)	(0.743)	(nan)	(1.035)	(0.485)	(0.410)	(1.220)	(0.519)	(0.808)	(1.010)	(1.546)	(0.244)	(0.539)	(0.330)
TenYearYieldReturn	-0.195	0.149	-0.342	nan***	-1.326**	0.334	0.311	0.646	0.514*	0.171	-1.160**	-0.492	-0.071	-0.047	0.105
	(0.161)	(0.421)	(0.352)	(nan)	(0.548)	(0.253)	(0.197)	(0.642)	(0.284)	(0.388)	(0.495)	(0.726)	(0.123)	(0.260)	(0.155)
USBidAskSpread	-27.509	32.093	-243.175*	nan***	-2.090	20.816	1.301	1.044	-13.420	-38.301	-1.470	3.410	2.455	8.190	-50.176
	(17.545)	(28.285)	(124.180)	(nan)	(3.207)	(34.991)	(24.886)	(6.412)	(15.154)	(28.736)	(17.870)	(18.337)	(11.394)	(6.623)	(29.807)
USVolatility	0.036	-0.895	-0.495	nan***	-0.062	-0.952	0.106	0.734	0.252	-0.627	0.249	-0.549	0.166	-0.129	-0.056
	(0.395)	(0.646)	(0.588)	(nan)	(0.343)	(0.617)	(0.693)	(0.809)	(0.723)	(0.544)	(0.292)	(0.820)	(0.581)	(0.353)	(0.424)
USVolume	-0.012	0.042**	-0.055	nan***	0.016	-0.021	0.014	-0.010	-0.010	-0.032	0.015	0.052	-0.004	0.012	0.002
	(0.010)	(0.018)	(0.051)	(nan)	(0.015)	(0.015)	(0.015)	(0.025)	(0.010)	(0.033)	(0.020)	(0.052)	(0.007)	(0.011)	(0.014)
Observations	37	37	37	14	37	37	37	29	37	37	37	37	37	37	37
R^2	0.705	0.416	0.463	nan	0.433	0.663	0.598	0.520	0.568	0.482	0.502	0.328	0.571	0.643	0.536
Adjusted R^2	0.575	0.160	0.226	nan	0.183	0.514	0.421	0.209	0.378	0.254	0.283	0.032	0.382	0.486	0.332

Note: *p<0.1; **p<0.05; ***p<0.01

Table 4: U.S. Stock Return Period 1

	Dependent variable:												
	BABA	BZUN	BGNE	CEA	ZNH	GDS	HTHT	JD	NTES	EDU	ZLAB	ZTO	YUMC
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
HKBidAskSpread	-10.840*	-2.021	0.110	-0.066	0.096	-4.051	0.391	-0.458	2.236	0.144	-0.277	0.893	-1.444
	(6.066)	(2.480)	(0.195)	(0.862)	(0.767)	(2.896)	(0.950)	(3.859)	(3.525)	(1.765)	(0.286)	(1.386)	(1.131)
HKUSExRateReturn	-3.055	7.899	1.332	-2.890	-2.085	-48.199	35.016	23.261	47.722***	45.859	-3.391	19.934	22.027
	(3.288)	(40.413)	(3.808)	(2.718)	(2.757)	(39.967)	(26.929)	(22.731)	(17.104)	(73.819)	(24.558)	(27.599)	(13.198)
HKVolatility	-0.391**	0.116	-0.070	-0.176	-0.082	-0.416	-0.024	-0.154	-0.496**	0.299	-0.091	0.317	-0.412
	(0.154)	(0.555)	(0.145)	(0.141)	(0.143)	(0.432)	(0.516)	(0.234)	(0.234)	(1.062)	(0.425)	(0.526)	(0.308)
HKVolume	0.009**	-0.013	0.003**	0.001	0.004	0.012	-0.006	-0.001	0.017***	0.001	0.003	-0.003	0.001
	(0.004)	(0.009)	(0.001)	(0.002)	(0.002)	(0.012)	(0.006)	(0.006)	(0.005)	(0.012)	(0.004)	(0.005)	(0.002)
HSIReturn	0.440***	0.739	-0.160	0.513***	0.596***	0.496	0.501	0.390	0.007	1.454	0.296	0.689	-0.131
	(0.119)	(0.754)	(0.167)	(0.118)	(0.122)	(0.650)	(0.484)	(0.262)	(0.197)	(1.020)	(0.489)	(0.516)	(0.202)
Intercept	-0.046	0.186	0.010	-0.009	-0.046**	-0.002	-0.044	-0.095	-0.062	0.137	0.041	0.069	-0.182***
	(0.041)	(0.125)	(0.020)	(0.018)	(0.020)	(0.075)	(0.064)	(0.069)	(0.042)	(0.182)	(0.073)	(0.078)	(0.051)
SHCOMPReturn	0.098	-0.248	0.438***	0.232**	0.292**	0.536	0.394	0.001	0.353**	0.181	0.363	-0.606	-0.275
	(0.130)	(0.933)	(0.160)	(0.114)	(0.116)	(0.683)	(0.620)	(0.217)	(0.168)	(0.596)	(0.629)	(0.641)	(0.256)
SP500Return	0.536***	0.864	0.632***	0.757***	0.837***	1.791***	0.804*	0.947***	0.613***	1.782	1.409***	1.138**	1.127***
	(0.069)	(0.598)	(0.111)	(0.079)	(0.081)	(0.597)	(0.406)	(0.230)	(0.178)	(1.241)	(0.384)	(0.492)	(0.179)
TenYearYieldReturn	-0.017	-0.019	-0.014	0.005	-0.013	-0.363***	0.054	-0.152***	-0.152***	-0.472*	-0.116	-0.071	0.012
	(0.019)	(0.138)	(0.031)	(0.022)	(0.022)	(0.118)	(0.097)	(0.053)	(0.040)	(0.219)	(0.085)	(0.090)	(0.041)
USBidAskSpread	-1.275	-2.314	-2.135	-0.067	0.368	-0.409	4.412	-13.165	-8.021*	1.513	-7.763*	8.767	9.970
	(4.373)	(11.402)	(1.608)	(0.381)	(0.287)	(7.886)	(6.611)	(12.265)	(4.068)	(5.778)	(4.371)	(18.943)	(6.738)
USVolatility	-0.138	-0.678	0.305**	-0.138	-0.275**	-0.491	-0.048	-0.237	0.065	-0.897	0.164	-0.871	-0.561*
	(0.174)	(0.801)	(0.127)	(0.104)	(0.112)	(0.569)	(0.570)	(0.295)	(0.239)	(1.867)	(0.333)	(0.621)	(0.302)
USVolume	-0.002	-0.014	-0.005	0.004**	0.005**	-0.009	0.011	0.013	-0.008	-0.021	-0.006	-0.006	0.025***
	(0.004)	(0.016)	(0.004)	(0.002)	(0.002)	(0.013)	(0.009)	(0.009)	(0.007)	(0.023)	(0.011)	(0.009)	(0.007)
Observations	236	41	434	435	435	27	46	109	114	22	42	41	54
R^2	0.434	0.201	0.154	0.403	0.449	0.637	0.392	0.288	0.380	0.416	0.535	0.311	0.594
Adjusted R^2	0.406	-0.102	0.132	0.387	0.435	0.371	0.196	0.208	0.313	-0.226	0.364	0.049	0.488

Note: *p<0.1; **p<0.05; ***p<0.01

Table 5: U.S. Stock Return Period 2

Dependent variable:

	BABA (1)	ATHM (2)	BIDU (3)	BZUN (4)	BGNE (5)	BILI (6)	CEA (7)	ZNH (8)	GDS (9)	HTHT (10)	JD (11)	BEKE (12)	LI (13)	MNSO (14)
HKBidAskSpread	-6.231	-0.004	1.024	0.156	-1.362*	1.813	-0.189	2.527***	0.810	0.507	-5.607*	0.026	5.291**	0.633
	(5.022)	(0.214)	(2.808)	(0.292)	(0.798)	(3.434)	(0.566)	(0.887)	(1.287)	(0.411)	(3.145)	(0.323)	(2.478)	(0.490)
HKUSExRateReturn	2.494	8.858*	0.039	5.836	-3.834	4.263	2.976	1.629	-7.525	0.456	-0.110	2.082	-2.024	12.641
	(4.022)	(4.590)	(4.039)	(5.930)	(5.042)	(7.170)	(2.404)	(2.814)	(6.268)	(4.365)	(4.219)	(7.236)	(6.180)	(8.882)
HKVolatility	-0.117	0.034	-0.309**	-0.300**	-0.189*	0.139	-0.139	-0.111	0.074	0.020	0.016	0.004	0.303*	0.242
	(0.123)	(0.144)	(0.140)	(0.122)	(0.112)	(0.166)	(0.140)	(0.147)	(0.122)	(0.097)	(0.132)	(0.218)	(0.158)	(0.283)
HKVolume	0.004	-0.000	0.003	-0.001	0.009***	0.003	0.005***	0.005**	-0.000	0.004**	0.004	-0.008*	-0.000	-0.003
	(0.004)	(0.002)	(0.003)	(0.002)	(0.003)	(0.005)	(0.002)	(0.002)	(0.004)	(0.002)	(0.003)	(0.005)	(0.003)	(0.004)
HSIReturn	1.052***	0.860***	0.928***	0.858***	0.716***	1.392***	0.322***	0.360***	1.276***	0.987***	1.059***	0.820***	0.753***	1.706***
	(0.130)	(0.157)	(0.136)	(0.195)	(0.163)	(0.240)	(0.078)	(0.091)	(0.203)	(0.143)	(0.138)	(0.291)	(0.202)	(0.400)
Intercept	-0.049	-0.062**	0.003	-0.047**	-0.033	-0.041	-0.046***	-0.065***	0.011	-0.036	-0.036	0.004	-0.137**	-0.067
	(0.042)	(0.028)	(0.032)	(0.024)	(0.024)	(0.049)	(0.013)	(0.018)	(0.036)	(0.025)	(0.038)	(0.078)	(0.056)	(0.067)
SHCOMPReturn	-0.023	0.144	0.282	0.231	0.289	0.392	0.348***	0.358**	0.299	0.061	0.069	0.573	0.554*	-1.498*
	(0.198)	(0.247)	(0.216)	(0.293)	(0.251)	(0.382)	(0.120)	(0.140)	(0.310)	(0.218)	(0.211)	(0.563)	(0.327)	(0.805)
SP500Return	0.961***	0.700***	1.060***	1.066***	1.108***	1.530***	0.360***	0.597***	1.454***	0.908***	0.965***	0.948***	1.223***	1.162***
	(0.127)	(0.149)	(0.133)	(0.188)	(0.160)	(0.234)	(0.077)	(0.089)	(0.198)	(0.140)	(0.136)	(0.248)	(0.194)	(0.392)
TenYearYieldReturn	-0.007	-0.006	0.035	0.015	-0.087	0.024	0.020	0.021	-0.069	0.059	0.015	0.006	0.043	-0.056
	(0.050)	(0.062)	(0.055)	(0.074)	(0.064)	(0.096)	(0.030)	(0.035)	(0.078)	(0.055)	(0.053)	(0.149)	(0.086)	(0.236)
USBidAskSpread	-3.939	-1.345	6.137	-0.837	1.222	2.482	0.071	0.229	-0.160	-0.969	2.573	-53.339***	-6.713	-1.227
	(9.031)	(2.629)	(4.272)	(2.719)	(1.758)	(6.472)	(0.157)	(0.149)	(3.364)	(3.585)	(7.622)	(16.775)	(6.801)	(5.132)
USVolatility	0.269**	0.158	0.379***	0.385***	0.249**	0.029	0.134	0.087	0.122	0.049	0.152	0.298	-0.193	-0.298
	(0.119)	(0.157)	(0.116)	(0.127)	(0.113)	(0.144)	(0.136)	(0.150)	(0.130)	(0.108)	(0.139)	(0.219)	(0.161)	(0.366)
USVolume	0.000	0.009**	-0.004	0.007*	-0.004	0.001	-0.001	0.004*	-0.003	0.001	-0.000	0.007	0.014**	0.013
	(0.005)	(0.004)	(0.003)	(0.004)	(0.004)	(0.007)	(0.001)	(0.002)	(0.005)	(0.004)	(0.004)	(0.008)	(0.007)	(0.012)
Observations	443	389	386	441	443	381	443	442	443	443	443	137	295	94
R^2	0.360	0.227	0.383	0.186	0.247	0.297	0.221	0.261	0.321	0.293	0.331	0.341	0.316	0.305
Adjusted R^2	0.343	0.205	0.365	0.165	0.228	0.276	0.201	0.242	0.304	0.275	0.314	0.284	0.290	0.212

	NTES (15)	EDU (16)	NIO (17)	NOAH (18)	OCFT (19)	TME (20)	TCOM (21)	TUYA (22)	WB (23)	XPEV (24)	ZLAB (25)	ZH (26)	ZTO (27)	HCM (28)	YUMC (29)
HKBidAskSpread	2.178	1.186	-1.526	nan***	-0.039	0.664	-0.193	-0.096	-0.061	-0.608	0.255	-0.023	-0.401	-0.632	0.398
	(1.759)	(0.988)	(1.386)	(nan)	(0.408)	(0.697)	(1.139)	(0.215)	(0.300)	(3.642)	(0.792)	(0.295)	(0.559)	(0.914)	(0.807)
HKUSExRateReturn	-2.826	2.007	12.212	nan***	12.124	12.484	-0.998	0.645	7.813	7.639	5.084	17.405*	0.301	-5.850	0.764
	(3.855)	(7.827)	(7.814)	(nan)	(14.137)	(9.287)	(4.735)	(15.238)	(5.609)	(7.006)	(6.299)	(10.078)	(3.435)	(6.103)	(2.739)
HKVolatility	0.020	-0.400***	-0.158	nan***	-0.598*	-1.128***	-0.042	-0.372	0.193	-0.333**	-0.064	-0.508**	0.107	-0.275*	0.288***
	(0.131)	(0.135)	(0.168)	(nan)	(0.307)	(0.397)	(0.131)	(0.273)	(0.191)	(0.144)	(0.123)	(0.234)	(0.119)	(0.142)	(0.100)
HKVolume	-0.002	0.004	0.005	nan***	0.002	-0.014	0.006***	-0.004	0.002	-0.003	0.002	-0.007	0.003*	0.009**	0.004***
	(0.003)	(0.004)	(0.005)	(nan)	(0.008)	(0.009)	(0.002)	(0.004)	(0.002)	(0.003)	(0.003)	(0.005)	(0.001)	(0.004)	(0.001)
HSIReturn	0.591***	0.782***	0.980***	nan***	1.130*	0.261	0.880***	1.402***	1.001***	0.942***	1.180***	0.404	0.625***	1.005***	0.432***
	(0.126)	(0.250)	(0.257)	(nan)	(0.657)	(0.591)	(0.154)	(0.465)	(0.182)	(0.224)	(0.202)	(0.370)	(0.110)	(0.197)	(0.089)
Intercept	0.011	0.006	-0.234*	nan***	-0.082	-0.431**	-0.073**	-0.006	-0.071**	-0.043	-0.052*	-0.195***	-0.019	-0.039	-0.015
	(0.029)	(0.036)	(0.124)	(nan)	(0.062)	(0.198)	(0.037)	(0.071)	(0.031)	(0.056)	(0.029)	(0.067)	(0.020)	(0.025)	(0.019)
SHCOMPReturn	0.215	0.546	0.426	nan***	1.429	1.607	0.102	-0.809	-0.221	0.496	0.026	1.134	0.180	0.181	0.076
	(0.192)	(0.384)	(0.444)	(nan)	(1.280)	(1.272)	(0.244)	(0.843)	(0.310)	(0.364)	(0.312)	(0.686)	(0.170)	(0.324)	(0.137)
SP500Return	0.740***	0.928***	1.766***	nan***	0.393	0.830	1.020***	1.115**	0.789***	1.742***	1.229***	1.223***	0.682***	1.042***	0.758***
	(0.124)	(0.244)	(0.239)	(nan)	(0.598)	(0.528)	(0.148)	(0.433)	(0.172)	(0.214)	(0.199)	(0.320)	(0.109)	(0.192)	(0.088)
TenYearYieldReturn	-0.001	0.060	-0.043	nan***	-0.219	-0.089	0.080	0.187	-0.017	0.036	-0.127	0.103	-0.046	-0.177**	0.014
	(0.049)	(0.097)	(0.131)	(nan)	(0.349)	(0.345)	(0.062)	(0.247)	(0.084)	(0.092)	(0.078)	(0.192)	(0.043)	(0.083)	(0.034)
USBidAskSpread	-6.759*	-1.022	-21.072	nan***	-0.880	-2.565	1.316	-0.289	-3.921	-4.329	2.746	2.873	1.030	-2.213	-3.037
	(3.721)	(1.282)	(13.654)	(nan)	(0.877)	(19.835)	(6.243)	(1.433)	(5.372)	(8.274)	(2.325)	(2.508)	(7.023)	(2.614)	(5.379)
USVolatility	0.081	0.245*	0.244	nan***	0.360*	1.070***	-0.016	1.131**	-0.007	0.510***	0.250*	0.421**	-0.203*	0.031	-0.346***
	(0.128)	(0.126)	(0.203)	(nan)	(0.213)	(0.348)	(0.149)	(0.435)	(0.184)	(0.132)	(0.131)	(0.202)	(0.113)	(0.143)	(0.103)
USVolume	0.001	-0.004	0.020*	nan***	0.022*	0.054***	0.004	-0.003	0.009**	0.007	0.004	0.026***	0.001	-0.001	-0.000
	(0.004)	(0.005)	(0.011)	(nan)	(0.013)	(0.019)	(0.004)	(0.011)	(0.005)	(0.007)	(0.005)	(0.009)	(0.003)	(0.005)	(0.003)
Observations	443	443	173	56	101	47	370	77	226	320	442	146	442	324	442
R^2	0.233	0.132	0.442	nan	0.265	0.530	0.296	0.329	0.308	0.339	0.236	0.274	0.241	0.271	0.279
Adjusted R^2	0.213	0.110	0.403	nan	0.174	0.383	0.274	0.216	0.272	0.316	0.216	0.215	0.221	0.245	0.260

Note: *p<0.1; **p<0.05; ***p<0.01

Table 6: U.S. Stock Return Period 3

Dependent variable:

	BABA (1)	ATHM (2)	BIDU (3)	BZUN (4)	BGNE (5)	BILI (6)	CEA (7)	ZNH (8)	GDS (9)	HTHT (10)	JD (11)	BEKE (12)	LI (13)	MNSO (14)
HKBidAskSpread	-11.769	-1.659	-23.816*	-1.769	7.254	-3.597	-3.873	3.116	-1.932	-7.155	22.722	-1.697	3.368	0.644
	(26.708)	(1.282)	(12.589)	(1.219)	(4.596)	(10.138)	(5.832)	(5.812)	(7.856)	(5.049)	(20.806)	(1.989)	(13.804)	(0.959)
HKUSExRateReturn	-1.977	12.592	-4.362	21.921*	15.359*	22.405**	0.597	9.431	23.724	6.087	9.578	-3.367	19.573	10.576
	(7.439)	(8.977)	(9.659)	(11.937)	(8.644)	(10.573)	(9.518)	(5.934)	(15.905)	(6.412)	(7.548)	(7.412)	(12.305)	(9.850)
HKVolatility	-0.704	0.381	0.055	0.614	0.582	0.696	1.029	-1.185	-0.569	-1.023	0.497	0.625	-0.092	-0.874
	(0.820)	(0.576)	(0.517)	(0.852)	(0.560)	(0.525)	(1.796)	(1.064)	(0.685)	(0.713)	(0.512)	(0.539)	(0.963)	(0.524)
HKVolume	-0.013	0.004	-0.018	-0.018	-0.008	0.032*	-0.030*	-0.007	0.008	0.017	0.008	-0.004	0.007	-0.015*
	(0.016)	(0.004)	(0.017)	(0.016)	(0.011)	(0.017)	(0.016)	(0.012)	(0.021)	(0.012)	(0.018)	(0.009)	(0.030)	(0.009)
HSIReturn	1.415**	0.628	1.698**	2.686***	1.015**	0.728	0.647	0.528	3.290***	1.312***	1.943***	0.981**	1.463*	1.550**
	(0.550)	(0.496)	(0.684)	(0.706)	(0.443)	(0.737)	(0.682)	(0.413)	(0.893)	(0.387)	(0.509)	(0.456)	(0.715)	(0.578)
Intercept	-0.173	0.022	-0.074	-0.036	0.003	-0.087	0.277*	0.039	0.178	-0.017	-0.214	-0.253***	0.060	-0.017
	(0.236)	(0.113)	(0.145)	(0.122)	(0.077)	(0.192)	(0.149)	(0.121)	(0.226)	(0.083)	(0.176)	(0.086)	(0.310)	(0.092)
SHCOMPReturn	0.099	0.100	-0.460	-1.073	-0.435	1.465	0.180	1.239	0.264	-0.544	-1.584**	0.604	0.556	-0.052
	(0.803)	(0.827)	(0.974)	(1.148)	(0.674)	(1.128)	(1.344)	(0.781)	(1.422)	(0.747)	(0.735)	(0.770)	(1.180)	(1.023)
SP500Return	0.450	0.590	2.833***	2.968***	0.379	1.028	-0.070	0.259	1.447*	0.766*	0.932**	-0.011	1.331	1.375**
	(0.491)	(0.461)	(0.587)	(0.662)	(0.404)	(0.616)	(0.695)	(0.673)	(0.827)	(0.376)	(0.439)	(0.430)	(0.784)	(0.568)
TenYearYieldReturn	-0.066	-0.356	-0.070	-0.001	-0.054	-0.066	0.114	-0.218	-0.251	0.245	0.261	-0.112	0.182	0.431
	(0.228)	(0.243)	(0.368)	(0.350)	(0.256)	(0.312)	(0.319)	(0.194)	(0.461)	(0.204)	(0.277)	(0.219)	(0.359)	(0.294)
USBidAskSpread	-19.890	8.336	-3.603	-8.496	-7.790	-4.983	0.362	-0.052	-38.884	-7.421	14.045	8.126	9.859	-12.125
	(37.506)	(11.381)	(34.179)	(7.613)	(8.074)	(35.699)	(0.755)	(0.719)	(23.443)	(21.644)	(38.337)	(33.472)	(34.279)	(11.629)
USVolatility	0.466	-0.091	0.034	-0.614	-0.461	0.567	0.081	2.322**	-0.192	-0.241	0.042	0.147	0.247	1.496**
	(0.605)	(0.571)	(0.633)	(0.506)	(0.485)	(0.574)	(0.646)	(1.010)	(0.669)	(0.759)	(0.327)	(0.526)	(0.737)	(0.582)
USVolume	0.034	-0.005	0.032**	0.025	0.008	-0.024	-0.009	-0.003	-0.024	-0.010	0.011	0.028**	-0.016	0.012
	(0.023)	(0.017)	(0.014)	(0.016)	(0.012)	(0.024)	(0.010)	(0.005)	(0.020)	(0.011)	(0.019)	(0.011)	(0.036)	(0.013)
Observations	37	37	37	37	37	37	26	26	37	37	37	37	37	37
R^2	0.561	0.412	0.666	0.701	0.500	0.488	0.354	0.556	0.567	0.492	0.572	0.629	0.353	0.572
Adjusted R^2	0.368	0.154	0.519	0.569	0.280	0.263	-0.154	0.207	0.377	0.268	0.383	0.465	0.069	0.384

	NTES (15)	EDU (16)	NIO (17)	NOAH (18)	OCFT (19)	TME (20)	TCOM (21)	TUYA (22)	WB (23)	XPEV (24)	ZLAB (25)	ZH (26)	ZTO (27)	HCM (28)	YUMC (29)
HKBidAskSpread	-3.253	1.709	9.949	nan***	-0.995	1.348	-1.855	-0.559	-1.288	-1.257	1.870	0.032	-2.228*	-4.479	-2.820
	(4.110)	(7.801)	(10.316)	(nan)	(0.960)	(0.865)	(7.626)	(0.483)	(1.866)	(22.767)	(6.344)	(1.597)	(1.266)	(4.104)	(4.195)
HKUSExRateReturn	15.464**	-8.642	15.857*	nan***	-10.325	-4.657	1.093	27.206	13.700	30.499*	-22.004	24.043	9.778***	13.325	5.685
	(6.465)	(10.616)	(9.060)	(nan)	(33.571)	(8.039)	(6.968)	(19.202)	(8.723)	(16.229)	(20.059)	(16.976)	(3.435)	(10.104)	(6.446)
HKVolatility	-0.525	0.124	-0.440	nan***	-1.772*	-0.024	-0.482	0.375	0.291	-0.245	-1.196**	-0.575**	0.030	-0.562	0.713
	(0.544)	(0.483)	(0.562)	(nan)	(0.947)	(0.327)	(0.581)	(0.377)	(0.646)	(0.832)	(0.452)	(0.273)	(0.459)	(0.740)	(0.778)
HKVolume	0.009	0.067***	0.023	nan***	-0.031	-0.025***	-0.010	-0.008	-0.010	-0.001	0.007	-0.027	0.002	-0.018	-0.003
	(0.010)	(0.020)	(0.014)	(nan)	(0.021)	(0.007)	(0.014)	(0.010)	(0.009)	(0.025)	(0.028)	(0.021)	(0.004)	(0.016)	(0.007)
HSIReturn	0.979**	0.335	1.236**	nan***	1.347	1.585***	1.149**	2.757**	0.847	2.447**	0.038	2.617**	0.523**	1.827***	1.100***
	(0.364)	(0.715)	(0.596)	(nan)	(1.814)	(0.523)	(0.520)	(1.023)	(0.557)	(1.027)	(1.273)	(0.981)	(0.207)	(0.612)	(0.328)
Intercept	-0.082	-0.549***	0.552	nan***	0.243	-0.087	-0.090	-0.028	-0.013	0.254	-0.460**	-0.302	0.028	-0.028	0.141
	(0.104)	(0.162)	(0.398)	(nan)	(0.178)	(0.131)	(0.128)	(0.127)	(0.075)	(0.364)	(0.210)	(0.352)	(0.039)	(0.111)	(0.111)
SHCOMPReturn	0.215	-0.359	-1.106	nan***	1.847	-0.865	0.144	-0.189	1.478*	-1.547	1.392	-1.717	0.270	-0.601	-0.735
	(0.581)	(1.239)	(0.870)	(nan)	(3.143)	(0.801)	(0.702)	(1.651)	(0.853)	(1.548)	(2.016)	(1.875)	(0.317)	(0.954)	(0.537)
SP500Return	0.427	-0.462	2.295***	nan***	3.826**	1.266***	0.168	1.524	1.010*	2.115**	0.780	2.109*	0.511**	2.030***	0.329
	(0.341)	(0.746)	(0.582)	(nan)	(1.748)	(0.427)	(0.408)	(0.930)	(0.523)	(0.966)	(1.272)	(1.070)	(0.194)	(0.614)	(0.348)
TenYearYieldReturn	0.019	-0.455	-0.089	nan***	1.393	-0.096	0.008	0.072	0.365	0.251	0.229	0.555	-0.033	-0.304	-0.039
	(0.176)	(0.351)	(0.276)	(nan)	(0.925)	(0.223)	(0.196)	(0.490)	(0.286)	(0.463)	(0.624)	(0.503)	(0.098)	(0.296)	(0.164)
USBidAskSpread	0.350	0.810	-111.143	nan***	-3.657	11.000	12.047	3.331	-17.994	2.710	9.213	-4.456	3.951	9.627	1.481
	(19.177)	(23.617)	(97.209)	(nan)	(5.419)	(30.797)	(24.757)	(4.890)	(15.274)	(34.323)	(22.514)	(12.694)	(9.045)	(7.547)	(31.475)
USVolatility	0.289	-0.800	0.330	nan***	1.236**	-0.058	0.281	-0.274	0.138	-0.295	0.415	1.101*	0.155	0.222	0.603
	(0.432)	(0.540)	(0.460)	(nan)	(0.580)	(0.543)	(0.689)	(0.617)	(0.729)	(0.649)	(0.368)	(0.568)	(0.461)	(0.402)	(0.448)
USVolume	0.001	0.003	-0.059	nan***	-0.009	0.018	0.020	0.005	0.007	-0.024	0.067**	0.050	-0.006	0.033**	-0.020
	(0.011)	(0.015)	(0.040)	(nan)	(0.025)	(0.013)	(0.015)	(0.019)	(0.010)	(0.039)	(0.026)	(0.036)	(0.005)	(0.013)	(0.015)
Observations	37	37	37	14	37	37	37	29	37	37	37	37	37	37	37
R^2	0.519	0.513	0.576	nan	0.392	0.624	0.369	0.604	0.509	0.367	0.543	0.666	0.627	0.629	0.473
Adjusted R^2	0.308	0.298	0.390	nan	0.125	0.459	0.091	0.347	0.293	0.088	0.342	0.519	0.463	0.466	0.241

Note: *p<0.1; **p<0.05; ***p<0.01

4.4.2 Market Indices

The study conducted regression analysis using Hong Kong and U.S. stock returns as dependent variables in Tables 1-3 and Tables 4-6, respectively. Market indices are return-based and are calculated using the daily percentage changes in closing prices.

Based on the results in Tables 1-3, it appears that only the coefficients for HSI and SHCOMP are statistically significant for Hong Kong stock returns during period 1-3, while the coefficient for S&P 500 is not statistically significant. This suggests that the location of the trade can have an impact on stock returns, as stocks listed in Hong Kong are more influenced by movements in the Asian market, and less sensitive to the movements in the U.S. market.

Tables 4 and 5 demonstrate that all three market indices (S&P 500, HSI, and SHCOMP) are statistically significant for U.S. stock returns during period 1 and 2. This is expected since these stocks are listed in the U.S., and changes in the U.S. market indices are likely to impact them. However, in Table 6, only the coefficients for HSI and SHCOMP are statistically significant, while the significance of S&P 500's coefficient decreases. This weakening of statistical significance might be attributed to the small sample size in period 3, as most companies had only 37 observations during that period. If it is not caused by the small sample size, it could suggest following the dual-listing of major Chinese companies on the Hong Kong stock exchange, their movements are more closely aligned with the Hong Kong market and less aligned with the U.S. market.

During period 1 and 2, the newly dual-listed stocks were added to the Hang Seng Index, so these stocks accounted for a significant weight in the index. Consequently, the movement of these dual-listed stocks can heavily influence the behavior of the Hang Seng Index. However, the U.S. market indices, including the S&P 500 and Dow Jones Industrial Average, only comprise U.S.-based companies, meaning that none of the dual-listed Chinese companies were included. This could lead to a divergence from the U.S. market, particularly given the delisting risks that these companies are currently facing.

The theoretical model of multi-market trading developed by Baruch et al. (2007) suggested

that trading volume migrates to the exchange in which the cross-listed asset returns have a greater correlation with returns of other assets traded on that market. The study by Froot and Dabora (1999) found that the relative price of the dual-listed stocks was highly correlated with the stock market indexes in the locations where the dual-listed stocks are traded.

Figures 9 and 10 exhibit a noticeable declining trend in correlation between 29 Chinese

Table 7: Market Indices Return Correlation Table

	ExReturn	SP500Return	DJIAReturn	HSIReturn	SHCOMPReturn
ExReturn	1.000000	-0.111667	-0.108176	-0.221430	-0.085430
SP500Return	-0.111667	1.000000	0.962574	0.226793	0.172230
DJIAReturn	-0.108176	0.962574	1.000000	0.228287	0.173656
HSIReturn	-0.221430	0.226793	0.228287	1.000000	0.638185
SHCOMPReturn	-0.085430	0.172230	0.173656	0.638185	1.000000

companies' stock prices and the U.S. market indices during the HFCAA era compared to the pre-HFCAA period. This observed trend could indicate that the market anticipated a weaker linkage between the 29 Chinese companies and the U.S. market due to the delisting risks they were facing. This might be explained by the forward-looking nature of valuation. The post-HFCAA period seems to be more chaotic, particularly with the newly listed Hong Kong shares. With the delisting risk temporarily resolved, both the U.S. and Hong Kong markets now exert a shared influence on the stock prices. U.S. listings still account for a significantly higher trade volume in terms of total monetary value than Hong Kong listings. In fact, the majority of the order flow continues to occur in the U.S. stock exchanges.

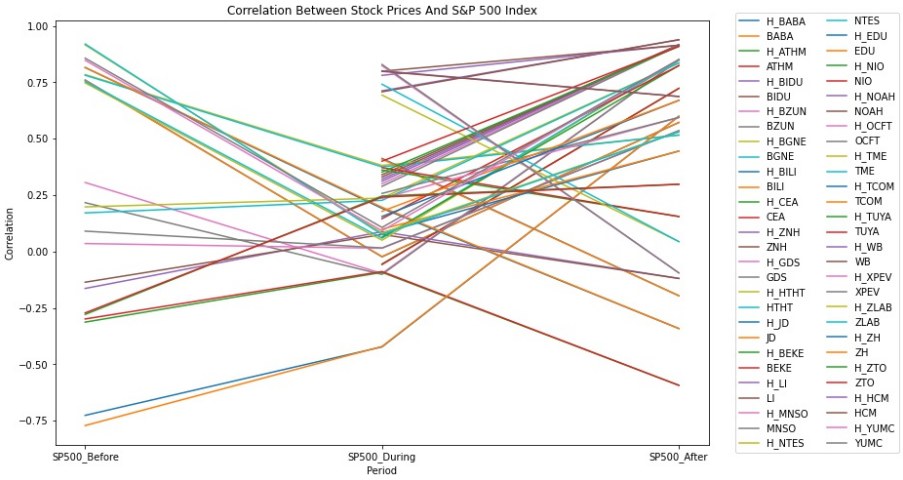

Figure 9: Correlation Between Stock Prices And S&P 500 Index

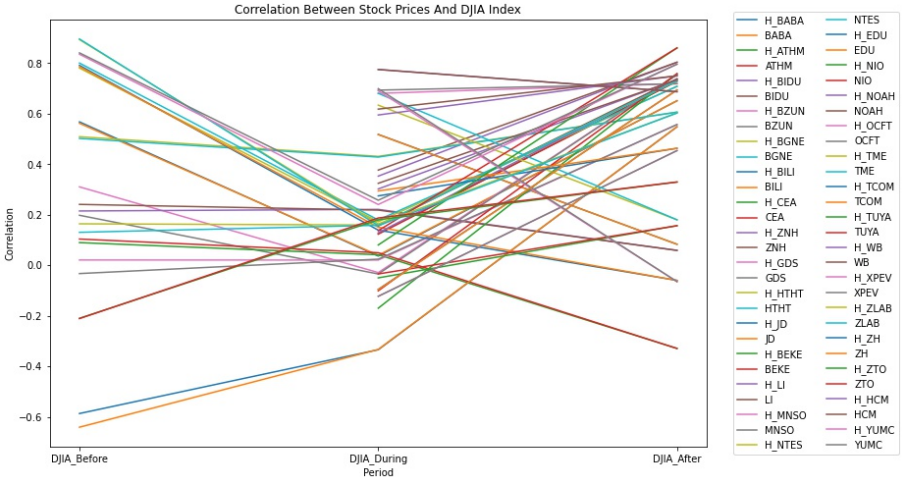

Figure 10: Correlation Between Stock Prices And DJIA Index

Figure 11 showed that there is a significant increase in correlation with the HSI Index after HFCAA. This result aligns with the conclusions drawn from the previous regression models, which indicate that the HSI has greater impact on share prices.

According to Chemmanur and Fulghieri (2006) analysis, "Firms will dual list when they have a significant base of low-cost information producers in their own country, but would like to

enlarge that base by listing in the foreign exchange, or take advantage of the higher transparency of the foreign exchange, or both." The increased correlation between stock prices and the HSI may suggest that dual-listed companies are becoming less likely to comply with the stringent continued listing standards of US exchanges, such as NYSE and NASDAQ (A detailed summary of the respective listing standards can be found in the Appendix). They are more likely to comply with the less stringent Hong Kong stock exchange continuing obligation. This lower listing standard predicts a negative or zero effect on stock prices.

Moreover, increase of "a substantial base of investors who have a comparative advantage in evaluating firms" are likely to have a positive effect on stock prices. Hong Kong stock market is considered a free and open market. According to *2022 Investment Climate Statements: Hong Kong* Tseng (2022) report published by U.S. Department of State, "there are no impediments to the free flow of financial resources. Non-interventionist economic policies, complete freedom of capital movement, and a well-understood regulatory and legal environment make Hong Kong a regional and international financial center. It has one of the most active foreign exchange markets in Asia." This freedom promoted transparency and attracted a large foreign investor base, including U.S. investors to trade in the Hong Kong stock market. In fact, "approximately 1,260 U.S. companies are based in Hong Kong, according to Hong Kong's 2021 census data, with more than half regional in scope. Finance and related services companies, such as banks, law firms, and accountancies, dominate the pack. Seventy of the world's 100 largest banks have operations in Hong Kong." This is further evidence of the high level of integration in the global market. The investor base between the U.S. and Hong Kong stock exchanges overlaps significantly. To conclude, the dual-listings did not necessarily increased investor base who have better information about the valuations of these Chinese companies.

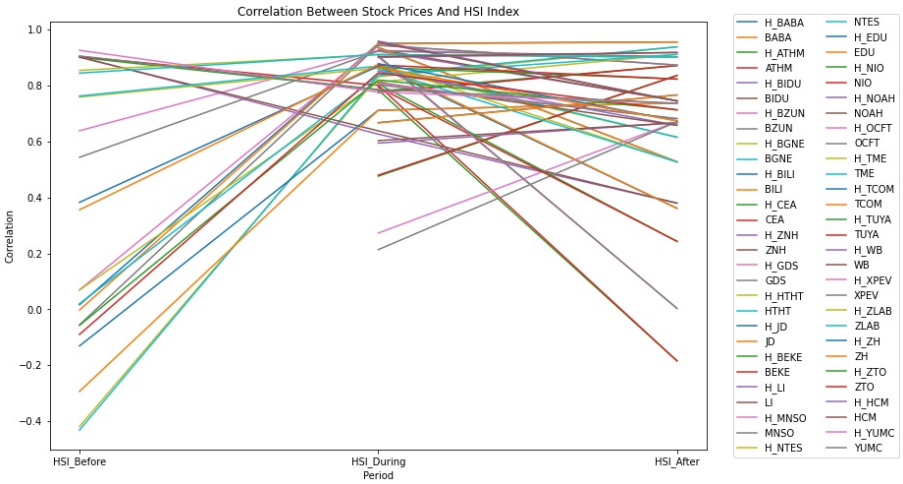

Figure 11: Correlation Between Stock Prices And HSI Index

Figures 12 demonstrate that the correlation between stock prices and SHCOMP increased less significantly than that with HSI in the second period. However, there is no converging trend in the third period. This is probably the result of changes in Mainland China's political landscape and relationship with Hong Kong, especially Beijing's influence on autonomy of the territory and its financial systems. Given that BGNE, CEA, and ZNH are triple-listed on the Shanghai Stock Exchange, it is likely that they are strongly influenced by the SHCOMP.

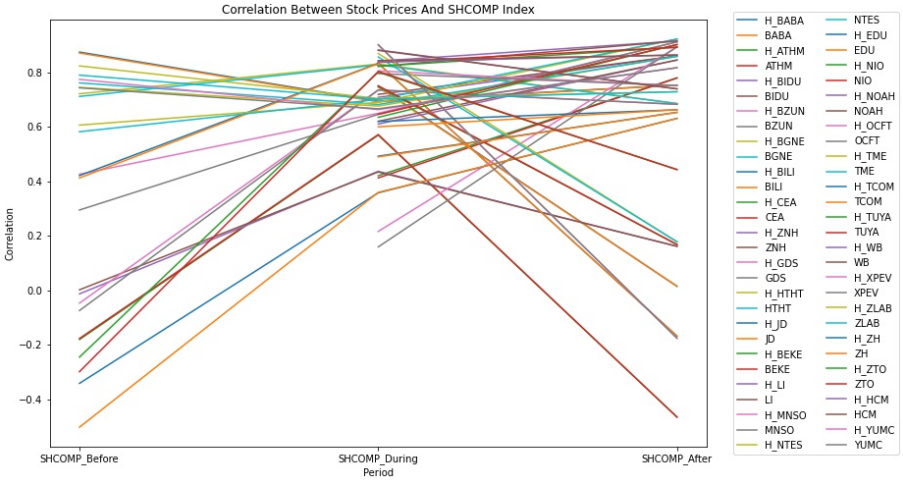

Figure 12: Correlation Between Stock Prices And SHCOMP Index

4.4.3 Exchange Rate

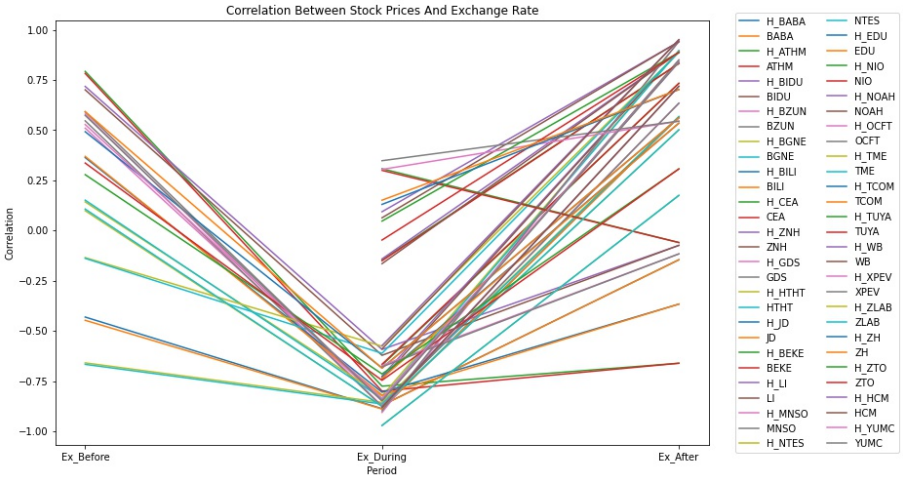

Figure 13: Correlation Between Stock Prices And Exchange Rate

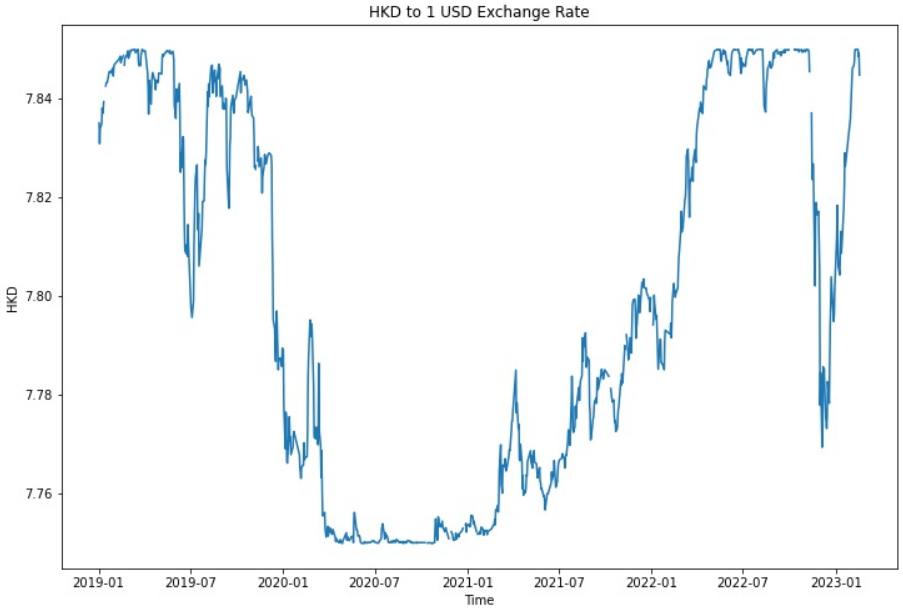

Figure 14: HKD to 1 USD Exchange Rate

The correlation between stock prices and exchange rate appears to have shifted from positive to negative between period 1 and period 2. This suggests that the stock prices are now more

closely aligned with the Hong Kong market, whereas previously they were more closely linked to the U.S. market. However, during period 3, there is no clear trend towards convergence as both the U.S. and Hong Kong markets continue to impact stock prices, making it difficult to determine the impact of exchange rate changes on stock prices. The influence of these factors has resulted in a more complex relationship between exchange rates and stock prices during this period.

The coefficients for the Hong Kong Dollar and U.S. Dollar exchange rate are statistically significant. Basic theory suggest that an increase in exchange rate will lead to an increase in stock prices because investor's confidence on the country's economic growth is rising. In my sample, an increase in exchange rate data suggests a depreciation of the Hong Kong Dollar and can indicate lower confidence among foreign investors in China's economic growth. This can, in turn, result in a decrease in stock prices of the affected companies. Therefore, the coefficients are negative for exchange rate in the regressions.

It should be noted that the Hong Kong government exercises a certain degree of control over the exchange rate. Figure 14 shows that the exchange rate stabilized after March 2022. While the exchange rate control may have various effects, analyzing its full impact is beyond the scope of this paper.

4.4.4 Volatility

For period 1 and 2, the coefficients for Hong Kong Volatility are statistically significant for BABA, BGNE, CEA, JD, and ZTO, but the coefficients for U.S. Volatility are not significant for these companies. On the other hand, the coefficients for U.S. Volatility are significant for ZNH and NTES, while the coefficients for Hong Kong Volatility are not significant for these two companies. Neither the Hong Kong nor the U.S. bid-ask spread coefficients are statistically significant for Hong Kong stock prices.

For period 3, the coefficients for Hong Kong and U.S. Voaltility are statistically significant

for fewer companies. It might be attributed to lower volatility levels in this period. This contrasts with the high market volatility experienced during periods 1 and 2, which were characterized by the shock of the HFCAA. However, the market achieved greater stability in period 3 following the positive news from PCAOB.

4.5 Difference In Difference

This study adopts a panel data approach to examine the impact of dual-listing before and after the enactment of the HFCAA. All the cross-sectional stock data are pooled into a panel dataset, with two dummy variables employed for analysis. The first dummy variable represents whether a stock is dual-listed on both Hong Kong and U.S. exchanges (represented as 1) or is single-listed on U.S. exchanges only (represented as 0), with dual-listed stocks serving as the treatment group and single-listed stocks serving as the control group. There are 29 dual-listed stocks and 16 single-listed stocks. The second dummy variable indicates whether the data point corresponds to a period before or after the enactment of the HFCAA, with a value of 0 for pre-HFCAA data points and 1 for post-HFCAA data points. Pre-HFCAA data spans from January 1, 2019, to December 17, 2020, while post-HFCAA data covers the period from December 18, 2020, to February 17, 2023.

$$U.S.Return = \beta_0 + \beta_1 * Post + \beta_2 * DualListed + \beta_3 * [Post * DualListed] + \mu$$

$$U.S.Volatility = \beta_0 + \beta_1 * Post + \beta_2 * DualListed + \beta_3 * [Post * DualListed] + \mu$$

$$U.S.BidAskSpread = \beta_0 + \beta_1 * Post + \beta_2 * DualListed + \beta_3 * [Post * DualListed] + \mu$$

$$U.S.Volume = \beta_0 + \beta_1 * Post + \beta_2 * DualListed + \beta_3 * [Post * DualListed] + \mu$$

4.5.1 Regression Variables

U.S.Return: is daily stock return in percentage.

U.S.Volatility: The sample standard deviation of U.S. listings' daily return, which is calculated over a rolling window of 5 consecutive trading days.

U.S.BidAskSpread: The difference between closing ask price and closing bid price for U.S. listings.

U.S.Volume: The log of daily turnover volume in thousands USD amount.

The parameter β_0 is the average single-listed stock variable before HFCAA.

Table 8: Difference In Difference Regressions

	USReturnReg	USVolatilityReg	USBidAskSpreadReg	USVolumeReg
	(1)	(2)	(3)	(4)
DualListed	-0.129	-0.849***	-0.021***	-0.390***
	(0.086)	(0.050)	(0.005)	(0.033)
DualListed:Post	0.063	0.021	0.059***	-0.234***
	(0.110)	(0.064)	(0.006)	(0.043)
Intercept	0.350***	3.789***	0.155***	7.508***
	(0.072)	(0.042)	(0.004)	(0.028)
Post	-0.338***	1.119***	0.008	0.412***
	(0.091)	(0.053)	(0.005)	(0.036)
Observations	36,437	36,330	36,445	36,482
R^2	0.001	0.058	0.011	0.023
Adjusted R^2	0.001	0.058	0.011	0.023
Note:				*p<0.1; **p<0.05; ***p<0.01

The parameter β_1 captures changes in all stock variables before and after HFCAA.

The parameter β_2 captures changes in dual-listing effect that is not due to the enactment of HFCAA.

The Parameter β_3 measures difference in the changes in dual-listing stock variables comparing to the single-listed stock variables due to the enactment of HFCAA.

$\beta_3 = (\bar{y}_{Post,Treatment} - \bar{y}_{Post,Control}) - (\bar{y}_{Pre,Treatment} - \bar{y}_{Pre,Control})$

$\beta_3 = (\bar{y}_{Post,Treatment} - \bar{y}_{Pre,Treatment}) - (\bar{y}_{Post,Control} - \bar{y}_{Pre,Control})$

According to a study analyzing the impact of dual-listing on U.S. stocks, dual-listing had a positive impact on U.S. Return, U.S. Volatility, and U.S. BidAskSpread, which was attributed to the enactment of HFCAA. However, only U.S. BidAskSpread showed a significant impact, with an increase observed in the bid-ask spread for dual-listed stocks. This increase in bid-ask spread typically indicates less liquidity, which can be disadvantageous for investors. Additionally, the study found that dual-listing led to a decrease in U.S. Volume, indicating that dual-listed stocks became less liquid and traded less frequently in the U.S. As a result, I conjecture that a portion of trade and liquidity transferred to the Hong Kong listings, with some investors opting to trade in Hong Kong rather than the U.S. These findings suggest that dual-listing may have negative implications for U.S. listings and investors. Further research is needed to fully understand the effects of dual-listing on the market.

4.6 Mispricing

Here is a graph of the mispricing for all 39 companies. According to the graph, mispricing appears to be the lowest in period 1, but increases significantly in period 2. This increase coincides with the enactment of HFCAA, which generated delisting risk and caused a shock in the market. However, in period 3, there appears to be a decrease in mispricing following the announcement of positive news from PCAOB, which resolved the delisting risk.

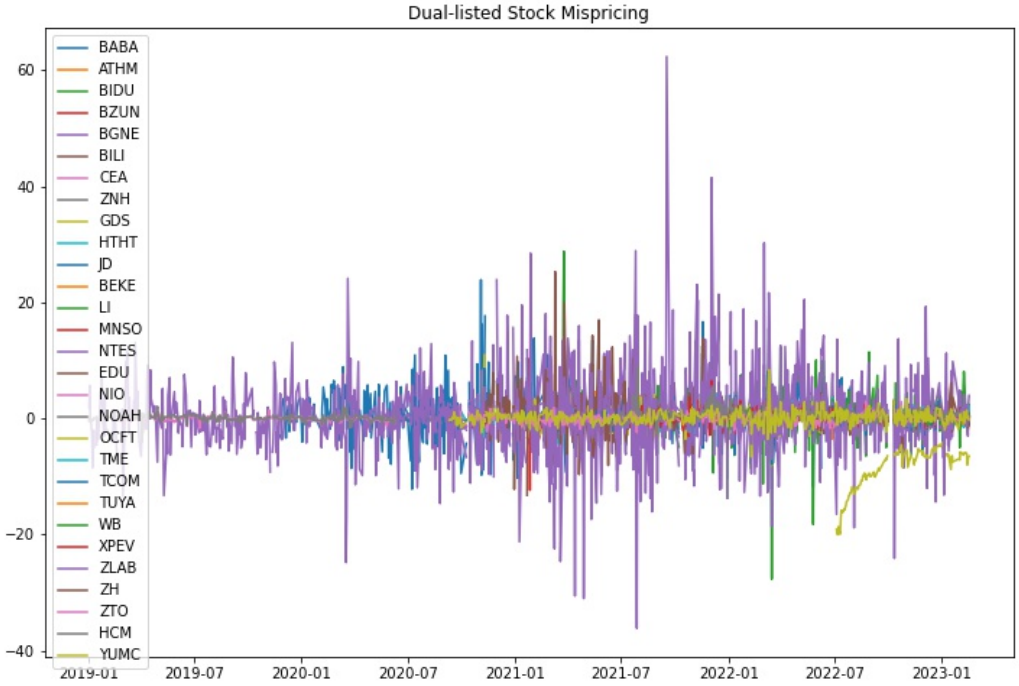

Figure 15: Dual-listed Stock Mispricing

4.6.1 Mispricing and Volatility

As mentioned in the Regression section, the mispricing regression is the following: $Mispricing = \beta_0 + \beta_1 * HKUSExRate + \beta_2 * SP500 + \beta_3 * HSI + \beta_4 * SHCOMP + \beta_5 * TenYearYield + \beta_6 * HKVolatility + \beta 7 * USVolatility + \beta_8 * HKBidAskSpread + \beta_9 * USBidAskSpread + \beta_1 0 * HKVolume + \beta_1 1 * USVolume + \mu$

The results of the regression analysis show that the SP 500 is the only significant market

Table 9: Mispricing Period 1

	Dependent variable:												
	BABA	BZUN	BGNE	CEA	ZNH	GDS	HTHT	JD	NTES	EDU	ZLAB	ZTO	YUMC
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
HKBidAskSpread	2237.178*	91.122	-35.860	5.399	12.270	338.560	19.991	80.573	-8.778	71.589	8.753	-19.461	-13.983
	(1338.839)	(88.956)	(28.748)	(14.154)	(13.894)	(305.534)	(43.606)	(280.366)	(248.562)	(380.755)	(25.811)	(35.510)	(75.474)
HKUSExRateReturn	49.701	210.390	-31.924	-109.159**	-58.794	4842.062	-594.217	-1757.156	-2434.827**	3284.431	2839.272	-239.479	-233.679
	(725.735)	(1449.809)	(562.370)	(44.610)	(49.941)	(4216.485)	(1236.452)	(1651.384)	(1205.979)	(15922.440)	(2218.855)	(706.980)	(880.741)
HKVolatility	13.700	-0.134	47.189**	0.646	-2.012	65.507	11.978	25.335	51.531***	14.287	24.244	-11.518	-20.345
	(33.983)	(19.919)	(21.398)	(2.320)	(2.588)	(45.558)	(23.684)	(17.034)	(16.507)	(229.079)	(38.380)	(13.474)	(20.527)
HKVolume	-1.053	0.421	-0.170	0.027	0.058	-0.990	0.327	0.172	-0.925***	-0.518	-0.241	0.218	-0.081
	(0.840)	(0.322)	(0.211)	(0.035)	(0.044)	(1.223)	(0.282)	(0.429)	(0.331)	(2.624)	(0.397)	(0.140)	(0.132)
HSIReturn	39.263	-8.677	88.388***	0.863	2.102	-9.126	-6.651	16.607	28.873**	-17.526	15.309	-11.774	-0.873
	(26.279)	(27.059)	(24.591)	(1.944)	(2.212)	(68.587)	(22.228)	(19.024)	(13.887)	(219.989)	(44.164)	(13.220)	(13.475)
Intercept	-2.915	-8.297*	-8.442***	0.015	-0.117	-4.998	1.696	-3.030	-2.090	-12.620	-0.462	-1.908	7.615**
	(9.053)	(4.470)	(2.941)	(0.290)	(0.370)	(7.921)	(2.917)	(4.991)	(2.953)	(39.257)	(6.608)	(2.010)	(3.380)
SHCOMPReturn	-21.451	30.945	-31.326	-0.927	0.814	-26.444	-8.382	6.367	-20.060*	-44.836	-32.516	22.398	20.788
	(28.596)	(33.478)	(23.653)	(1.870)	(2.106)	(72.080)	(28.465)	(15.762)	(11.873)	(128.547)	(56.808)	(16.414)	(17.058)
SP500Return	-74.855***	-30.203	-46.344***	-11.002***	-14.785***	-142.782**	-24.454	-56.319***	-54.236***	-17.286	-84.142**	-32.756**	-42.992***
	(15.145)	(21.463)	(16.423)	(1.293)	(1.463)	(62.932)	(18.649)	(16.742)	(12.579)	(267.717)	(34.671)	(12.597)	(11.952)
TenYearYieldReturn	5.882	0.675	-4.461	0.778**	0.880**	37.490***	-2.040	9.998**	9.385***	63.414	18.264**	0.620	1.867
	(4.225)	(4.959)	(4.562)	(0.358)	(0.403)	(12.470)	(4.468)	(3.839)	(2.850)	(47.190)	(7.641)	(2.316)	(2.710)
USBidAskSpread	-298.275	303.802	28.290	-10.218	-23.111***	-254.414	-104.713	-24.757	349.431	555.671	285.247	-247.297	-582.184
	(965.230)	(409.054)	(237.480)	(6.251)	(5.196)	(831.946)	(303.543)	(891.029)	(286.846)	(1246.358)	(394.977)	(485.244)	(449.671)
USVolatility	69.308*	13.114	-43.067**	-0.840	3.691*	41.921	-0.829	14.812	-11.169	167.953	-8.516	8.551	52.867**
	(38.307)	(28.721)	(18.720)	(1.708)	(2.025)	(60.069)	(26.176)	(21.432)	(16.829)	(402.699)	(30.125)	(15.906)	(20.154)
USVolume	1.092	0.755	1.629***	-0.091***	-0.115***	1.587	-0.562	0.095	1.166**	1.831	-0.079	0.139	-0.970**
	(0.842)	(0.576)	(0.522)	(0.027)	(0.037)	(1.374)	(0.432)	(0.632)	(0.466)	(4.933)	(0.987)	(0.234)	(0.458)
Observations	236	41	434	435	435	27	46	109	114	22	42	41	54
R^2	0.140	0.195	0.085	0.185	0.255	0.625	0.211	0.252	0.378	0.316	0.313	0.336	0.358
Adjusted R^2	0.097	-0.110	0.061	0.164	0.235	0.350	-0.044	0.167	0.310	-0.436	0.061	0.084	0.189

Note: *p<0.1; **p<0.05; ***p<0.01

Table 10: Mispricing Period 2

	Dependent variable:																												
	BABA	ATHM	BIDU	BZUN	BGNE	BILI	CEA	ZNH	GDS	HTHT	JD	BEKE	LI	MNSO	NTES	EDU	NIO	NOAH	OCFT	TME	TCOM	TUYA	WB	XPEV	ZLAB	ZH	ZTO	HCM	YUMC
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
HKBidAskSpread	619.197	-9.495	243.569	5.866	462.116***	-114.192	6.329	-19.638	36.474	12.661	46.589	0.327	-145.952***	-3.746	-207.448	134.645***	20.549	nan***	39.518**	-3.883	16.675	0.235	9.671	-17.910	26.899	0.399	0.211	-37.155*	-1.209
	(517.833)	(8.382)	(361.740)	(6.195)	(169.690)	(143.729)	(6.184)	(17.366)	(47.694)	(15.479)	(165.545)	(4.787)	(54.773)	(4.270)	(127.191)	(50.204)	(19.581)	(nan)	(14.213)	(4.006)	(24.772)	(0.539)	(6.212)	(90.897)	(64.656)	(0.378)	(13.992)	(22.421)	(36.248)
HKUSExRateReturn	-397.113	-169.764	70.476	-68.309	503.069	-154.798	19.932	42.066	380.270	-17.574	25.228	-41.818	165.190	-74.594	184.599	47.808	-67.213	nan***	-1045.668**	-49.098	142.766	13.915	-79.587	40.265	-87.947	-32.828**	32.841	86.127	40.107
	(414.687)	(179.628)	(520.227)	(125.734)	(1071.985)	(300.103)	(26.287)	(55.064)	(232.342)	(164.356)	(222.044)	(107.270)	(136.606)	(77.408)	(278.757)	(397.645)	(110.390)	(nan)	(492.943)	(53.342)	(103.010)	(38.249)	(116.166)	(174.877)	(514.041)	(12.914)	(85.999)	(149.649)	(123.034)
HKVolatility	17.593	-8.186	24.460	9.567***	64.211***	-2.943	-1.113	1.469	4.646	-5.325	-1.260	2.531	-1.333	-4.744*	-0.049	5.028	-0.044	nan***	16.482	3.614	-0.223	-1.021	-1.617	1.184	11.187	0.670**	-2.450	-2.281	-10.681**
	(12.731)	(5.634)	(18.050)	(2.579)	(23.848)	(6.951)	(1.533)	(2.873)	(4.530)	(3.645)	(6.926)	(3.230)	(3.489)	(2.462)	(9.461)	(6.856)	(2.369)	(nan)	(10.717)	(2.282)	(2.852)	(0.685)	(3.954)	(3.598)	(10.017)	(0.300)	(2.983)	(3.478)	(4.469)
HKVolume	-0.540	0.062	0.446	-0.029	0.961	-0.674***	-0.018	0.072*	-0.132	0.011	-0.018	0.200***	-0.050	0.032	0.148	-0.347	-0.038	nan***	-0.875***	0.068	-0.030	0.032***	0.007	-0.031	-0.362*	0.009	-0.011	0.145*	0.055
	(0.421)	(0.059)	(0.423)	(0.052)	(0.672)	(0.214)	(0.017)	(0.040)	(0.137)	(0.064)	(0.182)	(0.068)	(0.061)	(0.038)	(0.225)	(0.211)	(0.073)	(nan)	(0.284)	(0.051)	(0.050)	(0.009)	(0.047)	(0.082)	(0.216)	(0.007)	(0.037)	(0.088)	(0.064)
HSIReturn	6.556	-4.966	-9.875	-1.854	-30.096	-7.870	0.259	1.844	-10.055	-0.622	3.392	0.680	-0.070	-9.313***	18.185**	-4.292	-1.774	nan***	7.776	1.672	-0.416	-0.444	-5.859	1.219	-18.604	0.305	-5.384*	-1.445	2.912
	(13.377)	(6.138)	(17.579)	(4.125)	(34.677)	(10.049)	(0.856)	(1.789)	(7.531)	(5.384)	(7.284)	(4.308)	(4.472)	(3.490)	(9.008)	(12.718)	(3.626)	(nan)	(22.925)	(3.302)	(3.342)	(1.168)	(3.773)	(5.590)	(16.494)	(0.474)	(2.766)	(4.832)	(3.993)
Intercept	-5.975	1.563	-12.239***	0.216	-12.386**	-1.859	0.233	-0.052	-1.605	-0.387	-1.693	-0.951	-0.574	0.318	-3.550*	-0.306	-0.577	nan***	-5.613**	1.667	-0.595	0.232	0.337	-1.380	1.678	-0.050	0.184	-0.903	-1.493*
	(4.377)	(1.080)	(4.069)	(0.507)	(5.196)	(2.044)	(0.147)	(0.347)	(1.335)	(0.945)	(1.998)	(1.163)	(1.230)	(0.581)	(2.076)	(1.810)	(1.753)	(nan)	(2.164)	(1.139)	(0.800)	(0.177)	(0.639)	(1.388)	(2.388)	(0.085)	(0.490)	(0.621)	(0.850)
SHCOMPReturn	0.523	-3.954	19.498	-4.058	75.976	-1.849	0.479	1.218	8.655	8.919	6.691	2.525	5.178	12.127*	-2.995	6.363	2.907	nan***	-3.701	-5.805	6.036	0.182	8.707	2.746	2.850	-0.390	2.639	-1.003	9.117
	(20.442)	(9.647)	(27.831)	(6.203)	(53.326)	(15.972)	(1.315)	(2.748)	(11.486)	(8.225)	(11.113)	(8.352)	(7.239)	(7.017)	(13.921)	(19.493)	(6.275)	(nan)	(44.640)	(7.303)	(5.307)	(2.117)	(6.410)	(9.094)	(25.487)	(0.879)	(4.267)	(7.941)	(6.176)
SP500Return	-94.478***	-16.609***	-127.484***	-12.026***	-188.603***	-34.860***	-7.532***	-15.609***	-43.898***	-31.526***	-50.414***	-12.881***	-25.189***	-3.835	-65.690***	-26.181**	-24.887***	nan***	-28.396	-3.126	-21.781***	-2.513*	-15.314***	-32.618***	-83.611***	-1.536***	-17.110**	-12.524***	-35.834***
	(13.080)	(5.850)	(17.117)	(3.982)	(33.998)	(9.783)	(0.839)	(1.751)	(7.333)	(5.284)	(7.169)	(3.673)	(4.283)	(3.415)	(8.935)	(12.419)	(3.371)	(nan)	(20.838)	(3.030)	(3.213)	(1.088)	(3.558)	(5.336)	(16.247)	(0.410)	(2.726)	(4.709)	(3.943)
TenYearYieldReturn	-0.006	-0.963	1.734	-0.450	8.054	-4.316	-0.317	0.157	3.785	-2.119	1.929	1.151	1.054	1.795	0.628	6.108	3.817**	nan***	-4.954	-0.282	-2.438*	-0.977	-0.897	-1.573	5.325	-0.226	-0.352	0.496	1.213
	(5.185)	(2.423)	(7.029)	(1.573)	(13.523)	(4.015)	(0.331)	(0.691)	(2.882)	(2.080)	(2.795)	(2.213)	(1.908)	(2.056)	(3.508)	(4.909)	(1.854)	(nan)	(12.158)	(1.981)	(1.353)	(0.621)	(1.749)	(2.303)	(6.385)	(0.247)	(1.073)	(2.031)	(1.544)
USBidAskSpread	-127.619	-30.475	-388.702	44.377	-344.654	157.257	3.464**	-7.805***	2.236	-256.480*	597.379	469.132*	57.901	0.856	542.922**	-147.543**	309.931	nan***	135.394***	45.622	57.677	-4.832	80.749	-256.325	-259.177	0.811	147.973	197.952***	143.386
	(931.203)	(102.860)	(550.227)	(57.647)	(373.734)	(270.882)	(1.722)	(2.920)	(124.695)	(134.995)	(401.199)	(248.686)	(150.338)	(44.728)	(269.068)	(65.147)	(192.896)	(nan)	(30.576)	(113.921)	(135.798)	(3.596)	(111.246)	(206.522)	(189.739)	(3.214)	(175.856)	(64.097)	(241.593)
USVolatility	-43.997***	-0.702	-52.040***	-12.708***	-114.848***	-4.204	2.060	-6.573**	-9.401*	4.795	-7.244	-7.483**	0.799	4.878	-16.765*	-3.940	-3.656	nan***	6.452	-4.185**	0.807	-0.188	-1.869	-5.571*	-14.714	-0.843***	2.263	-0.878	9.718**
	(12.272)	(6.151)	(14.968)	(2.684)	(23.935)	(6.039)	(1.482)	(2.941)	(4.822)	(4.066)	(7.321)	(3.249)	(3.551)	(3.190)	(9.264)	(6.378)	(2.867)	(nan)	(7.411)	(1.998)	(3.242)	(1.091)	(3.816)	(3.305)	(10.676)	(0.258)	(2.840)	(3.496)	(4.635)
USVolume	1.282***	-0.171	1.223***	-0.014	1.688*	0.861***	-0.021*	-0.102**	0.420**	0.077	0.239	-0.025	0.142	-0.082	0.377	0.398	0.079	nan***	-1.079**	-0.221**	0.104	-0.028	-0.043	0.239	0.184	-0.002	-0.020	0.033	0.179
	(0.465)	(0.171)	(0.416)	(0.085)	(0.935)	(0.296)	(0.011)	(0.040)	(0.187)	(0.142)	(0.219)	(0.124)	(0.156)	(0.101)	(0.263)	(0.254)	(0.161)	(nan)	(0.457)	(0.108)	(0.092)	(0.027)	(0.095)	(0.181)	(0.391)	(0.011)	(0.065)	(0.116)	(0.118)
Observations	443	389	386	441	443	381	443	442	443	443	443	137	295	94	443	443	173	56	101	47	370	77	226	320	442	146	442	324	442
R^2	0.154	0.060	0.193	0.087	0.146	0.087	0.207	0.222	0.126	0.091	0.129	0.214	0.141	0.157	0.155	0.053	0.327	nan	0.453	0.316	0.143	0.317	0.119	0.131	0.083	0.205	0.104	0.071	0.196
Adjusted R^2	0.132	0.033	0.170	0.064	0.124	0.060	0.186	0.203	0.104	0.068	0.107	0.145	0.108	0.044	0.133	0.028	0.281	nan	0.386	0.102	0.117	0.201	0.074	0.100	0.059	0.140	0.082	0.038	0.175

Note: *p<0.1; **p<0.05; ***p<0.01

Table 11: Mispricing3

	Dependent variable:																												
	BABA	ATHM	BIDU	BZUN	BGNE	BILI	CEA	ZNH	GDS	HTHT	JD	BEKE	LI	MNSO	NTES	EDU	NIO	NOAH	OCFT	TME	TCOM	TUYA	WB	XPEV	ZLAB	ZH	ZTO	HCM	YUMC
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
HKBidAskSpread	370.238	43.845	1109.360	1.889	-2184.993**	88.546	30.119	-126.227	83.153	313.464	-195.646	1.533	-115.964	-19.392	15.711	-409.364	89.150	nan***	2.882	-6.152	187.541	1.118	-24.638	30.563	-83.621	-0.001	41.113	21.802	180.444
	(1647.783)	(33.966)	(1083.657)	(7.192)	(1046.771)	(221.346)	(46.173)	(104.855)	(146.246)	(221.457)	(1041.279)	(38.256)	(211.236)	(14.556)	(315.568)	(299.212)	(90.515)	(nan)	(8.334)	(7.661)	(231.470)	(1.045)	(39.579)	(206.658)	(181.471)	(2.457)	(27.742)	(47.097)	(246.618)
HKUSExRateReturn	-166.714	-592.957***	449.417	-39.475	-2438.580	-295.127	167.932**	-30.136	-164.433	-32.665	-261.238	96.843	38.336	-14.357	-604.907	314.174	72.119	nan***	67.889	-25.410	-39.468	-70.758	-302.056	-2.049	777.414	6.497	-180.134**	-61.105	124.438
	(458.978)	(237.875)	(831.410)	(70.429)	(1968.899)	(230.849)	(75.352)	(107.067)	(296.103)	(281.255)	(377.761)	(142.559)	(188.308)	(149.458)	(496.360)	(407.170)	(79.498)	(nan)	(291.342)	(71.191)	(211.487)	(41.573)	(185.031)	(147.315)	(573.806)	(26.115)	(75.305)	(115.947)	(378.993)
HKVolatility	1.144	0.348	36.880	-1.719	-55.095	-11.809	-24.886	-11.875	8.269	31.416	-19.205	-18.651*	-14.824	11.204	-5.243	-0.373	10.341**	nan***	2.485	-0.280	3.269	0.303	-8.477	-0.031	32.205**	1.034**	-2.651	25.617***	-2.275
	(50.620)	(15.264)	(44.460)	(5.027)	(127.655)	(11.465)	(14.216)	(19.201)	(12.758)	(31.267)	(25.618)	(10.359)	(14.743)	(7.947)	(41.738)	(18.521)	(4.931)	(nan)	(8.215)	(2.894)	(17.645)	(0.817)	(13.700)	(7.548)	(12.925)	(0.420)	(10.070)	(8.497)	(45.720)
HKVolume	0.232	-0.175	1.885	-0.006	-0.205	-0.873**	-0.005	-0.149	-0.076	0.205	-0.433	0.124	0.576	0.208	-0.249	-1.877**	-0.360***	nan***	0.252	0.223***	0.531	-0.036	0.246	0.093	-0.112	0.053	-0.014	-0.152	-0.231
	(0.993)	(0.108)	(1.494)	(0.093)	(2.505)	(0.375)	(0.124)	(0.218)	(0.391)	(0.535)	(0.905)	(0.177)	(0.454)	(0.132)	(0.785)	(0.761)	(0.125)	(nan)	(0.185)	(0.066)	(0.413)	(0.022)	(0.186)	(0.229)	(0.800)	(0.033)	(0.085)	(0.181)	(0.392)
HSIReturn	-27.694	-1.098	-5.212	-6.459	-100.316	20.874	1.029	0.560	-34.550**	-15.444	-17.016	7.898	-5.986	-15.623*	31.738	22.190	5.220	nan**	27.951*	-2.520	0.168	-3.091	1.435	-6.830	35.094	-1.975	-2.654	-5.118	-12.209
	(33.953)	(13.135)	(58.913)	(4.166)	(100.845)	(16.087)	(5.400)	(7.458)	(16.632)	(16.986)	(25.469)	(8.775)	(10.947)	(8.767)	(27.923)	(27.437)	(5.230)	(nan)	(15.747)	(4.632)	(15.791)	(2.216)	(11.824)	(9.320)	(36.411)	(1.510)	(4.536)	(7.028)	(19.282)
Intercept	5.135	2.622	-18.750	1.294*	2.034	0.167	0.078	1.812	-0.641	-3.184	8.149	3.965**	-5.307	0.348	8.245	9.826	-7.933*	nan**	-7.255***	-0.044	-2.771	-0.062	0.527	-0.279	18.719***	-0.208	2.811***	0.808	1.387
	(14.589)	(2.988)	(12.494)	(0.720)	(17.642)	(4.195)	(1.181)	(2.182)	(4.208)	(3.646)	(8.803)	(1.656)	(4.750)	(1.400)	(7.983)	(6.226)	(3.490)	(nan)	(1.542)	(1.157)	(3.894)	(0.275)	(1.590)	(3.306)	(5.999)	(0.542)	(0.866)	(1.272)	(6.521)
SHCOMPReturn	7.614	16.917	-19.555	8.449	224.037	-34.307	5.431	-0.746	30.556	31.438	42.586	-21.335	-4.671	16.631	-16.676	24.799	0.485	nan***	-41.805	7.824	15.466	2.004	-20.474	12.599	-38.170	2.069	4.036	7.846	44.064
	(49.541)	(21.926)	(83.800)	(6.773)	(153.527)	(24.626)	(10.637)	(14.095)	(26.472)	(32.752)	(36.799)	(14.804)	(18.064)	(15.519)	(44.578)	(47.522)	(7.637)	(nan)	(27.278)	(7.090)	(21.304)	(3.574)	(18.092)	(14.047)	(57.666)	(2.884)	(6.955)	(10.942)	(31.553)
SP500Return	-38.816	-14.626	-164.082***	-14.613**	-41.451	-19.976	-9.032	-18.904	-27.929*	-27.208	-42.221*	-8.852	-27.421**	-19.866**	-41.941	-3.908	-17.881***	nan**	-7.374	-11.030***	-5.379	-4.712**	-9.369	-11.788	-22.879	-2.157	-14.781***	-14.106*	-33.717
	(30.313)	(12.225)	(50.527)	(3.903)	(92.001)	(13.443)	(5.499)	(12.140)	(15.389)	(16.496)	(21.959)	(8.265)	(11.996)	(8.625)	(26.208)	(28.629)	(5.104)	(nan)	(15.170)	(3.783)	(12.389)	(2.014)	(11.098)	(8.765)	(36.397)	(1.647)	(4.253)	(7.042)	(20.463)
TenYearYieldReturn	2.380	5.037	33.285	1.713	-66.860	6.132	0.719	2.390	6.503	3.926	2.293	4.860	-0.656	-2.813	8.592	10.701	1.599	nan***	1.159	1.208	11.903*	1.202	1.479	0.856	-21.618	-0.560	0.512	2.137	7.118
	(14.049)	(6.433)	(31.681)	(2.068)	(58.337)	(6.807)	(2.525)	(3.507)	(8.578)	(8.956)	(13.886)	(4.205)	(5.490)	(4.463)	(13.490)	(13.473)	(2.418)	(nan)	(8.030)	(1.972)	(5.935)	(1.061)	(6.069)	(4.204)	(17.851)	(0.773)	(2.137)	(3.402)	(9.637)
USBidAskSpread	5436.864**	-276.840	2187.884	62.428	1681.321	271.325	-0.370	-12.437	725.527	1735.528*	-1236.842	214.452	-174.012	-61.264	132.385	540.101	1207.589	nan***	13.290	76.455	183.977	2.468	96.155	-86.632	-28.417	16.478	-97.879	-95.975	-1101.180
	(2313.957)	(301.586)	(2942.044)	(44.916)	(1839.102)	(779.432)	(5.980)	(12.977)	(436.431)	(949.439)	(1918.693)	(643.781)	(524.570)	(176.456)	(1472.370)	(905.787)	(852.937)	(nan)	(47.026)	(272.710)	(751.413)	(10.588)	(324.002)	(311.555)	(644.037)	(19.528)	(198.262)	(86.598)	(1850.523)
USVolatility	-71.355*	-12.920	-12.088	2.757	40.794	-28.974**	9.489*	-4.523	-7.356	17.827	-15.545	10.982	1.850	-21.780**	-50.275	23.278	-10.239**	nan***	-12.048**	3.482	-33.286	2.703*	1.633	1.586	-7.571	-2.186**	-3.748	-10.078**	-35.293
	(37.303)	(15.123)	(54.499)	(2.986)	(110.502)	(12.540)	(5.115)	(18.227)	(12.452)	(33.287)	(16.359)	(10.124)	(11.271)	(8.833)	(33.186)	(20.694)	(4.036)	(nan)	(5.031)	(4.805)	(20.924)	(1.335)	(15.458)	(5.893)	(10.539)	(0.873)	(10.103)	(4.612)	(26.340)
USVolume	-0.649	-0.312	-0.421	-0.237**	0.579	0.938*	0.124	0.308***	0.061	-0.086	-0.277	-0.501**	0.115	-0.130	-0.646	0.688	0.864**	nan**	0.159	-0.111	-0.068	-0.020	-0.165	-0.063	-2.904***	-0.016	-0.333**	0.070	0.103
	(1.394)	(0.441)	(1.247)	(0.095)	(2.689)	(0.533)	(0.075)	(0.087)	(0.370)	(0.482)	(0.941)	(0.215)	(0.547)	(0.195)	(0.870)	(0.578)	(0.353)	(nan)	(0.221)	(0.118)	(0.456)	(0.042)	(0.215)	(0.357)	(0.734)	(0.055)	(0.115)	(0.148)	(0.862)
Observations	37	37	37	37	37	37	26	26	37	37	37	37	37	37	37	37	37	14	37	37	37	29	37	37	37	37	37	37	37
R^2	0.516	0.507	0.507	0.654	0.339	0.445	0.633	0.657	0.384	0.286	0.360	0.430	0.303	0.466	0.380	0.407	0.573	nan	0.386	0.540	0.378	0.634	0.318	0.134	0.614	0.563	0.628	0.413	0.243
Adjusted R^2	0.303	0.290	0.290	0.501	0.049	0.201	0.346	0.388	0.113	-0.028	0.079	0.180	-0.004	0.231	0.108	0.146	0.386	nan	0.115	0.338	0.105	0.397	0.018	-0.247	0.444	0.370	0.464	0.155	-0.090

Note: *p<0.1; **p<0.05; ***p<0.01

index. Hong Kong Volatility and U.S. Volatility exhibit consistent statistical significance with regard to mispricing. Moreover, upon graphing the stock volatility, we can observe that the stocks were most volatile during period 2, which is also the period with the highest mispricing.

Based on my conjecutre, I believe that mispricing in the market is caused by a discrepancy of opinions between U.S. investors and Hong Kong investors. This discrepancy of opinions is most pronounced during periods of market volatility. To support this conjecture, future research could compare analyst reports from the two locations to identify differences in opinion and how they impact pricing. By understanding the sources of mispricing, investors may be able to capitalize on market inefficiencies and improve their returns.

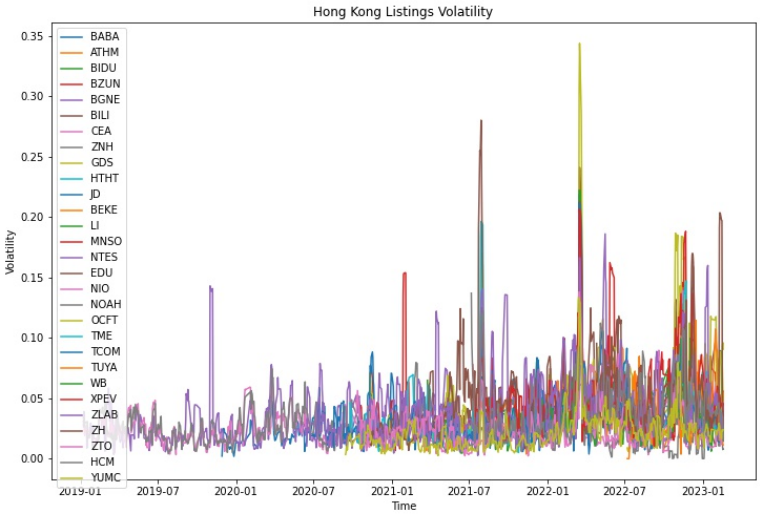

Figure 16: Hong Kong Listings Volatility

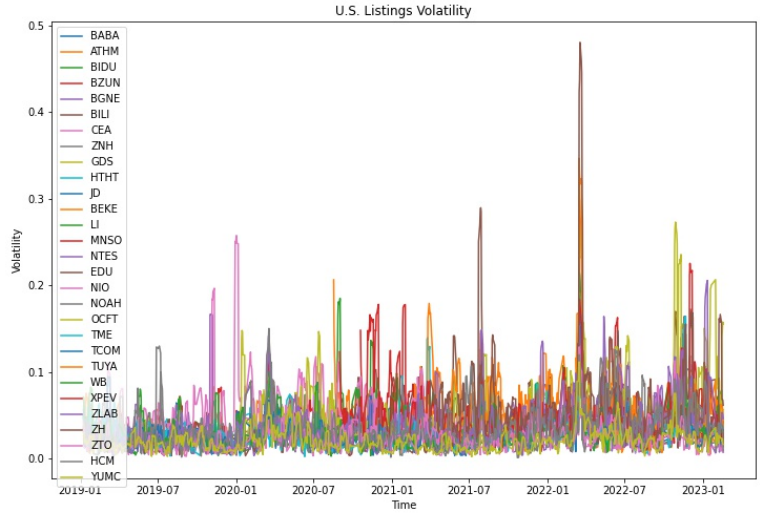

Figure 17: U.S Listing Volatility

It is worth noting that the stock price volatility of the 39 companies exhibits the highest similarity with the volatility of the Hang Seng Index. This finding provides further evidence

that the stock prices of these companies are strongly correlated with the Hang Seng Index.

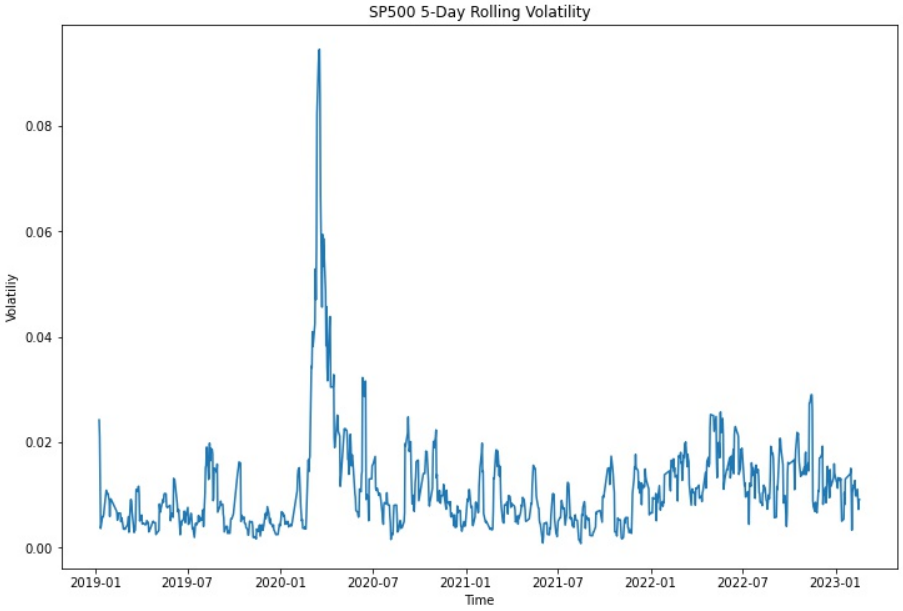

Figure 18: S&P 500 Volatility

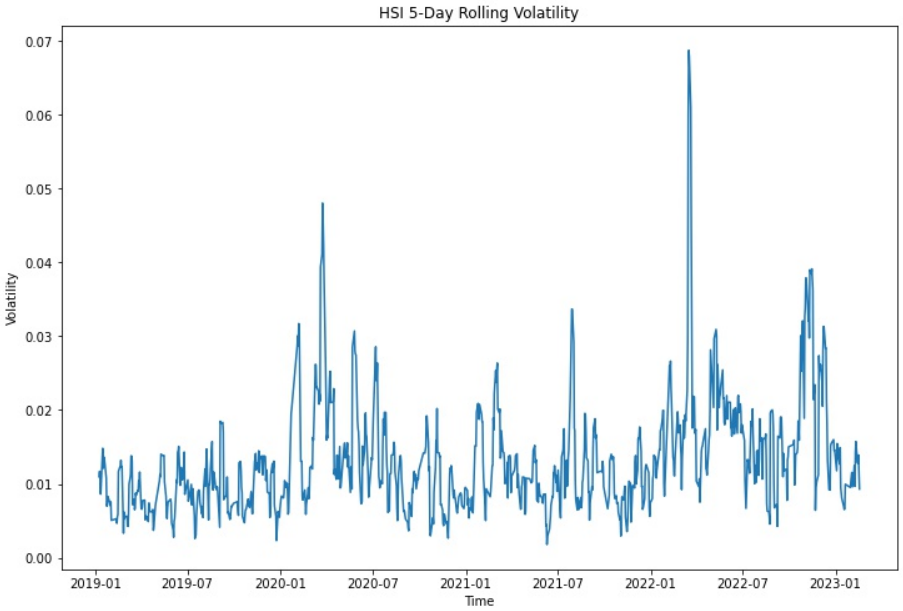

Figure 19: HSI Volatility

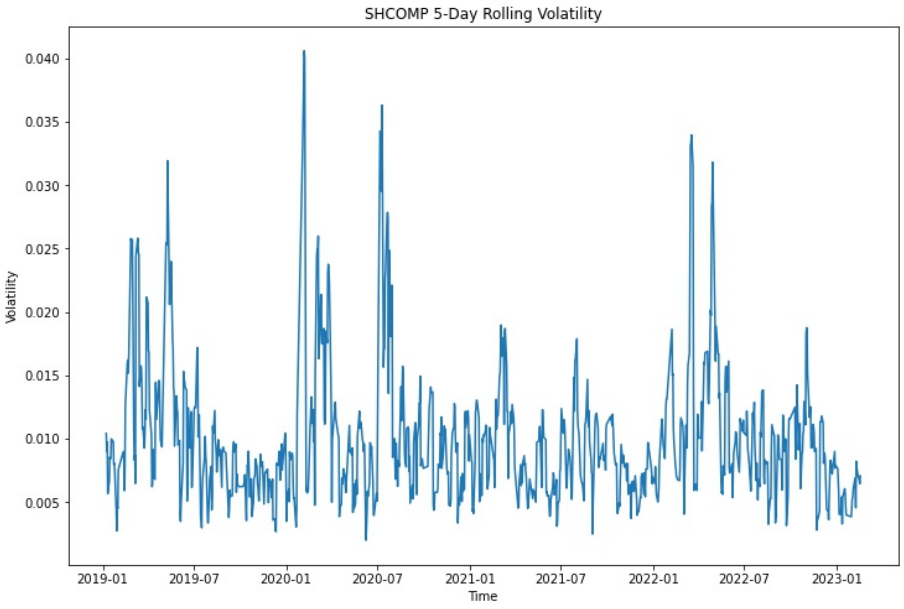

Figure 20: SHCOMP Volatility

4.6.2 Low R^2

In contrast to the regression analysis for stock prices, which generally yielded R^2 values exceeding 0.8, the regressions for mispricing showed considerably lower R^2 values. In fact, the majority of R^2 values were less than 0.2, indicating that the model does not explain much of the variance in mispricing.

4.6.3 Critique To Linear Regression Method

A possible explanation for the low R^2 is that linear regression is not a good model to study mispricing. Linear regression method like most parametric models relies heavily on the input data quality. In this case, most of the variables except volatility were not relevant to mispricing, producing low quality output. Moreover, parametric regressions assumes the relationship between dependent variable and independent variable follows a specific functional form. Mispricing might not be expressed as a functional form. More complicated machine learning models such as Recurrent Neural Network (RNN) or Long Short-Term Memory (LSTM) might be able to capture more complex relationship between dependent variables and independent variables, but they still relies on the input data quality. Additional variables may have improved the accuracy of the models, but the available data in the database and online resources constrains the inclusion of more variables. As a result, the selected variables represent the best possible approach for the analysis at hand.

4.6.4 Non-parametric Models

Non-parametric models seems suitable for studying mispricing because the approach does not make assumptions about the underlying distribution of the data. They can be used to

detect various patterns in time-series data, including level, trend, and seasonality. In this case, the mispricing is centered at zero, which means that the average value is zero. The trend in the data is also centered at zero, which implies that there is no overall upward or downward trend in the data. The autocorrelation functions (ACF) of the data can help determine the presence of seasonality. In this case, the ACF plots show that there is no significant seasonality in mispricing. Furthermore, the ACF plots reveal that there is a small correlation between two consecutive days, but this correlation quickly diminishes as the lag between the days increases.

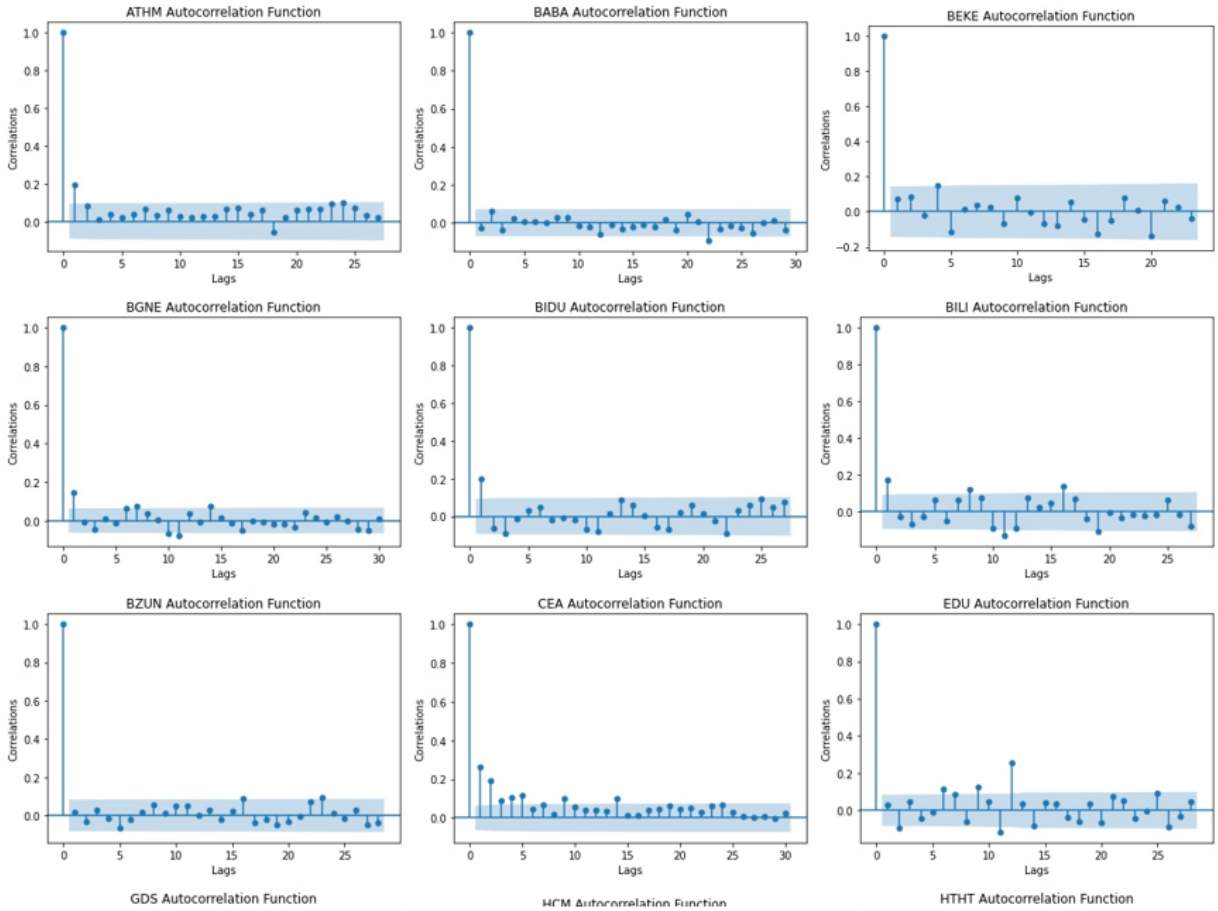

Figure 21: Autocorrection 1

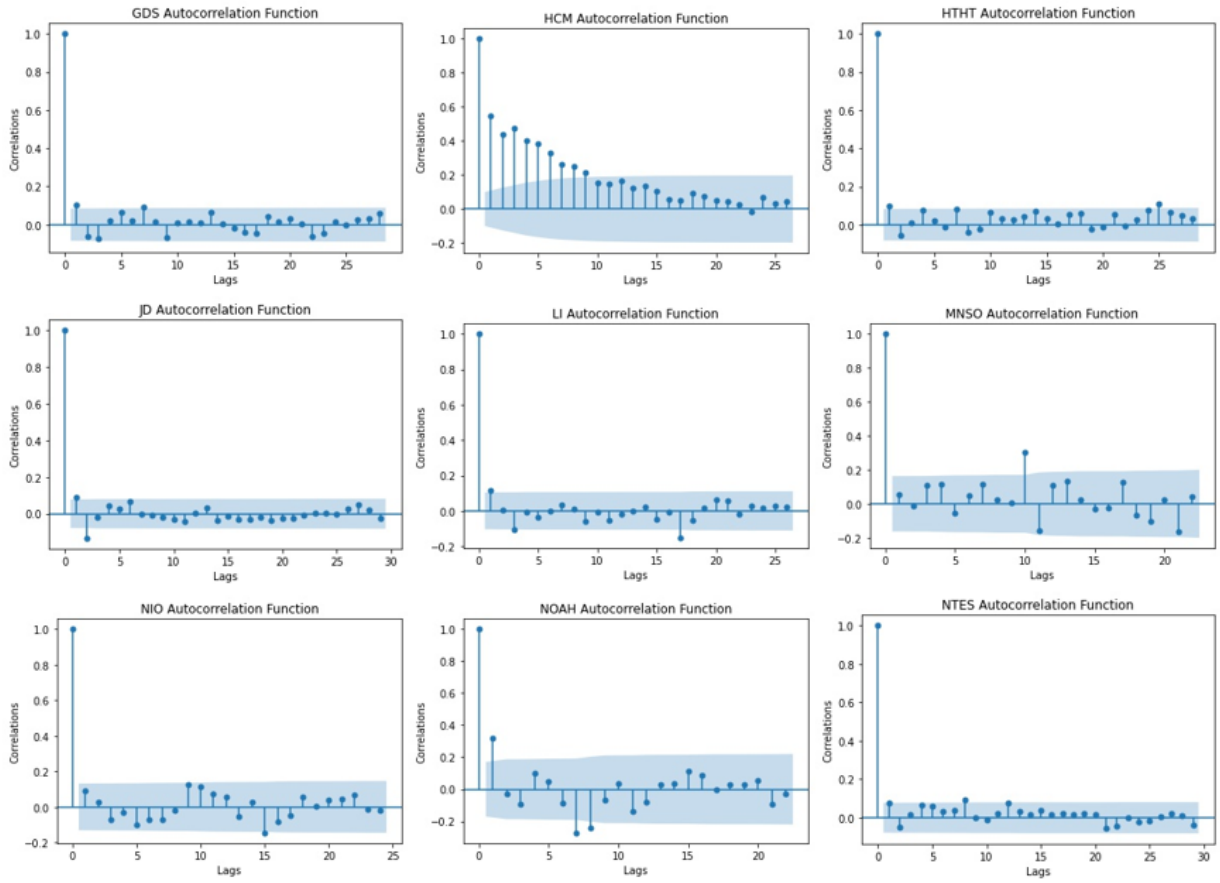

Figure 22: Autocorrection 2

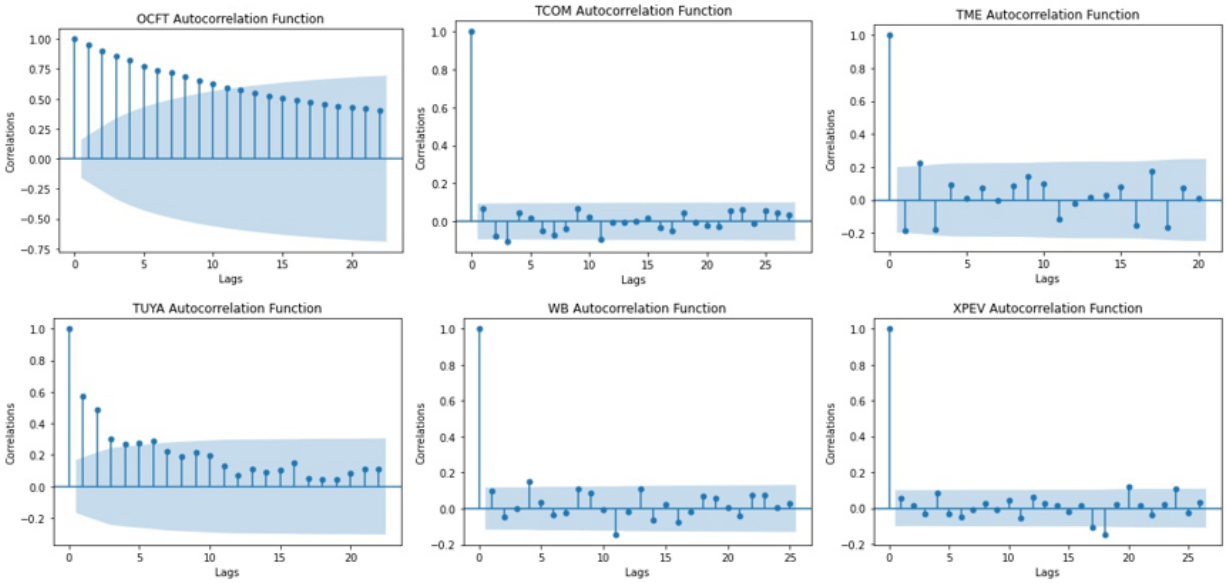

Figure 23: Autocorrection 3

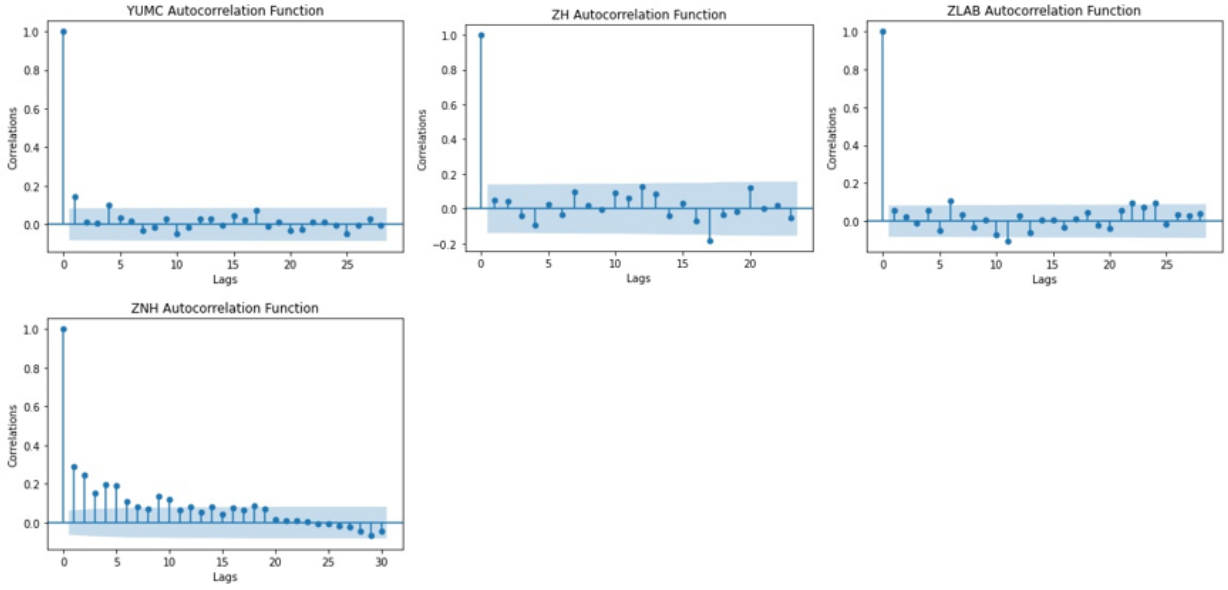

Figure 24: Autocorrection 4

5 Summary and Conclusions

I studied 39 Chinese companies that dual-listed on U.S. stock exchanges and Hong Kong stock exchange. I examined stock behavior during the dual-listing period. During the dual-listing periods, most of the stocks faced delisting risks after the HFCAA was signed into law. Therefore, they are subject to lower listing standards which had negative or no impact on stock prices. The delsting risks and related news update shocked the market and caused an increase in stock volatility. As a result, bigger mispricing between U.S. listings and Hong Kong listings was observed. PCAOB's announcement that U.S. authorities gained full access to audit these Chinese companies was a turning point to the delisting risk and brought stability to the market. The U.S. listed Chinese companies are now subject to higher listing standards. The previous literature predict this higher listing standards will have a positive impact on their stock prices. Due to the time limit of this paper, I did not have enough data to support this prediction. In future research, it would be important to differentiate the positive effects of higher listing standards from the positive impact of news related to the resolution of delisting risks.

This paper also observed a shift in correlation between stock prices and market indices. During the period when the Chinese companies faced delisting risks, their stock prices were more correlated with the Hang Seng Index than S&P 500 and DJIA. Although most trading volume is still executed on U.S. stock exchanges, Hong Kong stock exchange is a competitor for order flow after dual-listing. The higher correlation can be explained by market index compositions. The U.S. market indices does not include any of these Chinese companies because they are based in China not U.S., so U.S. market indices do not capture the movements of these Chinese companies. On the other hand, a significant portion of the Hong Kong market index is comprised of these dual-listed companies. Consequently, movements in the stock prices of these Chinese companies can have a significant influence on the Hong Kong market index.

The expansion in investor base is not significant because today's global market is very

integrated. The overlap between U.S. and Hong Kong investor bases is considerable, so dual-listing did not attract more investors who are comparatively better at valuating the companies.

The competition for order flow between U.S. and Hong Kong exchanges is complicated. Future research might be able to learn how the trading volume, trading liquidity, and trading location change over time. The liquidity during the listing period did not experience significant changes.

S&P 500 and Volatility appears to be the only variable that could account for some of the mispricing observed. However, despite the effort to find additional variables or better models, it remained a challenge to improve the low R^2 in my mispricing regressions. The input data quality remains poor. Mispricing does not seem to follow a specific functional form. It is centered at zero with no upward or downward trend. There is no seasonality and each value seems discrete. Based on these findings, I conclude that mispricing appears to be a random phenomenon, devoid of any significant patterns or trends. Future research might want to explore more on the discrepancy of opinions between U.S. investors and Hong Kong investors.

Mispricing is corrected quickly without consistent premium or discounts. Therefore, it is reasonable to assume that the arbitrageurs are able to overcome market segmentation and barriers to international capital investment and improve market efficiency.

6 Appendix

Before HFCAA						
Company	Location	Stock Info	Obs.	Mean	Median	Std. Dev.
BGNE	Hong Kong	Ask Price	1018	130.21	115.80	47.53
	Hong Kong	Bid Price	1018	129.82	115.45	47.55
	Hong Kong	Closing Price	1079	130.22	115.40	47.85
	Hong Kong	Turnover By Volume	1018	566.21	332.75	1012.49
	Hong Kong	Market Value	1079	145724.56	134707.20	67852.18
	U.S.	Ask Price	1040	216.68	192.00	79.73
	U.S.	Bid Price	1040	216.22	191.67	79.48
	U.S.	Closing Price	1079	216.43	191.72	79.49
	U.S.	Turnover By Volume	1041	303.77	246.70	279.82
	U.S.	Market Value	1079	18638.60	17117.13	8671.91
CEA	Hong Kong	Ask Price	1018	3.45	3.25	0.73
	Hong Kong	Bid Price	1018	3.43	3.24	0.73
	Hong Kong	Closing Price	1079	3.45	3.26	0.74
	Hong Kong	Turnover By Volume	1018	13299.21	9964.50	12868.98
	Hong Kong	Market Value	1079	17462.22	16876.30	3117.12
	U.S.	Ask Price	1030	22.13	20.98	4.70
	U.S.	Bid Price	1030	21.99	20.84	4.72
	U.S.	Closing Price	1079	22.05	20.85	4.70
	U.S.	Turnover By Volume	1041	16.63	10.80	20.79
	U.S.	Market Value	1079	2232.94	2158.72	398.73
ZNH	Hong Kong	Ask Price	1018	4.74	4.66	0.76
	Hong Kong	Bid Price	1018	4.73	4.65	0.76
	Hong Kong	Closing Price	1079	4.75	4.67	0.77
	Hong Kong	Turnover By Volume	1018	16888.72	12971.80	13361.96
	Hong Kong	Market Value	1079	19544.67	19409.15	2955.09
	U.S.	Ask Price	1029	30.41	29.87	4.81
	U.S.	Bid Price	1029	30.19	29.62	4.83
	U.S.	Closing Price	1079	30.35	29.86	4.79
	U.S.	Turnover By Volume	1041	26.00	18.40	25.04
	U.S.	Market Value	1079	2398.25	2391.52	422.74
BABA	Hong Kong	Ask Price	796	172.28	189.40	65.61
	Hong Kong	Bid Price	796	172.14	189.30	65.55
	Hong Kong	Closing Price	844	172.20	189.90	65.53
	Hong Kong	Turnover By Volume	796	38078.33	30921.30	25276.92
	Hong Kong	Market Value	844	3714376.98	4092395.00	1423159.01
	U.S.	Ask Price	1041	175.52	177.05	60.26
	U.S.	Bid Price	1041	175.49	177.03	60.25
	U.S.	Closing Price	1079	175.41	177.03	60.17
	U.S.	Turnover By Volume	1041	20447.98	17345.90	13362.83
	U.S.	Market Value	1079	469405.40	462238.40	164038.83
NTES	Hong Kong	Ask Price	663	147.32	146.00	20.72
	Hong Kong	Bid Price	663	147.17	145.80	20.70
	Hong Kong	Closing Price	702	147.33	146.00	20.70
	Hong Kong	Turnover By Volume	663	6100.48	5098.60	4382.07
	Hong Kong	Market Value	702	501520.24	497193.55	76532.63
	U.S.	Ask Price	1041	81.51	87.21	21.24
	U.S.	Bid Price	1041	81.45	87.16	21.23
	U.S.	Closing Price	1079	81.52	87.22	21.28
	U.S.	Turnover By Volume	1041	3012.14	2574.40	1731.50
	U.S.	Market Value	1079	54287.40	58067.52	15168.68
JD	Hong Kong	Ask Price	658	274.18	278.40	50.95
	Hong Kong	Bid Price	658	273.94	278.20	50.93
	Hong Kong	Closing Price	697	274.21	278.80	50.71
	Hong Kong	Turnover By Volume	658	7560.28	6114.65	5473.23
	Hong Kong	Market Value	697	856052.18	872585.60	162729.98
	U.S.	Ask Price	1041	57.30	59.61	20.84
	U.S.	Bid Price	1041	57.29	59.60	20.84
	U.S.	Closing Price	1079	57.32	59.59	20.89
	U.S.	Turnover By Volume	1041	12477.02	10787.30	7160.91
	U.S.	Market Value	1079	75664.96	80309.56	29277.15

Figure 25: Summary Statistics 1 Before HFCAA

Before HFCAA						
Company	Location	Stock Info	Obs.	Mean	Median	Std. Dev.
YUMC	Hong Kong	Ask Price	600	422.36	429.20	55.98
	Hong Kong	Bid Price	600	421.71	428.70	55.93
	Hong Kong	Closing Price	637	422.05	428.80	55.87
	Hong Kong	Turnover By Volume	600	322.80	188.70	734.96
	Hong Kong	Market Value	637	177748.58	180737.40	23156.59
	U.S.	Ask Price	1040	50.35	48.64	7.76
	U.S.	Bid Price	1040	50.33	48.62	7.76
	U.S.	Closing Price	1079	50.34	48.63	7.78
	U.S.	Turnover By Volume	1041	2424.61	2095.20	1525.78
	U.S.	Market Value	1079	20398.37	19883.55	3853.00
HTHT	Hong Kong	Ask Price	592	33.91	34.18	6.45
	Hong Kong	Bid Price	592	33.78	34.08	6.42
	Hong Kong	Closing Price	629	33.91	34.15	6.42
	Hong Kong	Turnover By Volume	592	1200.01	777.20	1687.25
	Hong Kong	Market Value	629	110314.60	110865.70	20797.32
	U.S.	Ask Price	1041	40.06	38.00	8.13
	U.S.	Bid Price	1041	40.03	37.99	8.13
	U.S.	Closing Price	1079	40.05	38.04	8.14
	U.S.	Turnover By Volume	1041	1635.55	1318.50	1129.82
	U.S.	Market Value	1079	12499.70	11725.38	2914.87
ZLAB	Hong Kong	Ask Price	587	67.60	54.45	39.93
	Hong Kong	Bid Price	587	67.34	54.25	39.81
	Hong Kong	Closing Price	625	67.48	54.45	39.86
	Hong Kong	Turnover By Volume	587	762.79	473.00	940.78
	Hong Kong	Market Value	625	60356.26	47929.14	34178.48
	U.S.	Ask Price	1041	69.90	50.00	45.54
	U.S.	Bid Price	1041	69.76	49.95	45.46
	U.S.	Closing Price	1079	69.84	49.86	45.64
	U.S.	Turnover By Volume	1041	465.84	355.40	453.41
	U.S.	Market Value	1079	6057.38	4335.66	4392.41
BZUN	Hong Kong	Ask Price	585	52.40	36.80	35.21
	Hong Kong	Bid Price	587	52.04	36.75	35.08
	Hong Kong	Closing Price	624	52.32	36.70	35.33
	Hong Kong	Turnover By Volume	587	184.06	91.20	419.11
	Hong Kong	Market Value	624	11819.28	8551.12	8556.94
	U.S.	Ask Price	1041	27.90	32.74	14.42
	U.S.	Bid Price	1041	27.86	32.72	14.41
	U.S.	Closing Price	1079	27.86	32.80	14.40
	U.S.	Turnover By Volume	1041	1198.23	975.60	924.08
	U.S.	Market Value	1079	1767.40	1913.08	933.03
ZTO	Hong Kong	Ask Price	587	220.38	220.60	24.84
	Hong Kong	Bid Price	587	219.77	220.00	24.82
	Hong Kong	Closing Price	624	220.45	220.90	24.59
	Hong Kong	Turnover By Volume	587	227.21	115.60	761.45
	Hong Kong	Market Value	624	140952.89	141982.10	17674.40
	U.S.	Ask Price	1040	26.53	26.89	5.18
	U.S.	Bid Price	1040	26.51	26.88	5.18
	U.S.	Closing Price	1079	26.52	26.88	5.18
	U.S.	Turnover By Volume	1041	2992.75	2481.30	2228.52
	U.S.	Market Value	1079	17400.93	18502.91	4105.26
GDS	Hong Kong	Ask Price	567	51.17	45.00	27.47
	Hong Kong	Bid Price	567	51.06	44.95	27.42
	Hong Kong	Closing Price	600	51.08	44.40	27.46
	Hong Kong	Turnover By Volume	567	2697.70	1903.30	2569.91
	Hong Kong	Market Value	600	73145.51	63385.01	38920.77
	U.S.	Ask Price	1041	51.97	46.83	24.08
	U.S.	Bid Price	1041	51.91	46.75	24.05
	U.S.	Closing Price	1079	51.94	46.82	24.12
	U.S.	Turnover By Volume	1041	1306.72	1065.60	959.26
	U.S.	Market Value	1079	8458.50	7529.22	4345.53
EDU	Hong Kong	Ask Price	562	47.33	19.72	48.01
	Hong Kong	Bid Price	562	47.19	19.70	47.86
	Hong Kong	Closing Price	595	47.28	19.80	47.91
	Hong Kong	Turnover By Volume	562	3190.98	2017.95	5962.62
	Hong Kong	Market Value	595	79946.85	33599.95	80868.19
	U.S.	Ask Price	1041	85.02	90.20	55.81
	U.S.	Bid Price	1041	84.88	90.14	55.70
	U.S.	Closing Price	1079	85.01	90.09	55.79
	U.S.	Turnover By Volume	1041	2538.15	1541.80	4044.22
	U.S.	Market Value	1079	13863.76	14346.95	9124.61

Figure 26: Summary Statistics 2 Before HFCAA

After HFCAA						
Company	Location	Stock Info	Obs.	Mean	Median	Std. Dev.
ATHM	Hong Kong	Ask Price	472	84.28	69.50	38.58
	Hong Kong	Bid Price	475	83.52	68.85	38.43
	Hong Kong	Closing Price	505	84.11	69.40	38.70
	Hong Kong	Turnover By Volume	475	72.40	31.30	207.48
	Hong Kong	Market Value	505	42809.28	35351.50	19619.89
	U.S.	Ask Price	1041	67.26	75.99	28.29
	U.S.	Bid Price	1041	67.21	75.87	28.27
	U.S.	Closing Price	1079	67.23	75.97	28.30
	U.S.	Turnover By Volume	1041	754.22	658.30	448.18
	U.S.	Market Value	1079	8148.55	9049.87	3291.48
BIDU	Hong Kong	Ask Price	470	146.21	144.90	30.21
	Hong Kong	Bid Price	470	146.07	144.80	30.18
	Hong Kong	Closing Price	499	146.36	144.80	30.28
	Hong Kong	Turnover By Volume	470	5596.04	4302.90	4842.34
	Hong Kong	Market Value	499	413456.13	409615.80	84138.01
	U.S.	Ask Price	1041	145.48	137.65	41.33
	U.S.	Bid Price	1041	145.42	137.56	41.31
	U.S.	Closing Price	1079	145.65	137.74	41.39
	U.S.	Turnover By Volume	1041	4683.61	3504.50	5364.60
	U.S.	Market Value	1079	40128.90	37901.08	11377.44
BILI	Hong Kong	Ask Price	465	387.34	233.00	267.76
	Hong Kong	Bid Price	465	386.86	232.60	267.39
	Hong Kong	Closing Price	495	387.81	233.20	267.96
	Hong Kong	Turnover By Volume	465	2123.99	1594.90	1952.69
	Hong Kong	Market Value	495	116887.00	71133.00	79697.27
	U.S.	Ask Price	1041	43.26	26.96	34.14
	U.S.	Bid Price	1041	43.23	26.95	34.11
	U.S.	Closing Price	1079	43.30	26.94	34.23
	U.S.	Turnover By Volume	1041	5980.24	4790.50	4555.89
	U.S.	Market Value	1079	12165.16	7890.13	9940.99
TCOM	Hong Kong	Ask Price	454	225.04	214.00	42.09
	Hong Kong	Bid Price	454	224.61	213.70	41.97
	Hong Kong	Closing Price	480	225.40	215.00	42.26
	Hong Kong	Turnover By Volume	454	767.83	510.35	732.33
	Hong Kong	Market Value	480	148901.00	142917.60	26993.15
	U.S.	Ask Price	1041	31.08	30.86	5.79
	U.S.	Bid Price	1041	31.07	30.85	5.79
	U.S.	Closing Price	1079	31.09	30.94	5.79
	U.S.	Turnover By Volume	1041	5238.67	4450.40	3301.94
	U.S.	Market Value	1079	18664.69	18303.94	3167.49
HCM	Hong Kong	Ask Price	404	35.13	28.18	17.72
	Hong Kong	Bid Price	404	35.03	28.05	17.69
	Hong Kong	Closing Price	428	35.03	27.70	17.56
	Hong Kong	Turnover By Volume	404	2122.78	1212.00	3080.47
	Hong Kong	Market Value	428	30252.68	23950.88	15136.56
	U.S.	Ask Price	1041	24.70	25.95	8.17
	U.S.	Bid Price	1041	24.64	25.90	8.15
	U.S.	Closing Price	1079	24.69	25.95	8.16
	U.S.	Turnover By Volume	1041	312.74	213.80	476.36
	U.S.	Market Value	1079	3731.28	3554.19	1333.74
XPEV	Hong Kong	Ask Price	400	109.83	107.60	53.57
	Hong Kong	Bid Price	400	109.70	107.50	53.51
	Hong Kong	Closing Price	423	109.04	107.70	53.12
	Hong Kong	Turnover By Volume	400	8064.71	4505.30	10241.71
	Hong Kong	Market Value	423	142503.48	140898.40	68466.07
	U.S.	Ask Price	623	30.44	31.40	13.42
	U.S.	Bid Price	623	30.42	31.38	13.42
	U.S.	Closing Price	647	30.55	31.41	13.51
	U.S.	Turnover By Volume	624	17814.39	13400.95	16240.06
	U.S.	Market Value	647	17930.73	17674.99	7957.09
LI	Hong Kong	Ask Price	374	106.46	108.00	21.36
	Hong Kong	Bid Price	374	106.33	107.85	21.33
	Hong Kong	Closing Price	397	105.95	106.20	21.15
	Hong Kong	Turnover By Volume	374	5257.63	4122.40	4975.97
	Hong Kong	Market Value	397	181718.04	182275.60	35830.98
	U.S.	Ask Price	644	26.36	26.70	6.02
	U.S.	Bid Price	644	26.34	26.68	6.02
	U.S.	Closing Price	667	26.40	26.80	6.03
	U.S.	Turnover By Volume	644	12951.30	9669.90	11637.42
	U.S.	Market Value	667	20853.65	21895.96	5506.93
WB	Hong Kong	Ask Price	293	173.26	168.10	44.31
	Hong Kong	Bid Price	294	172.00	165.95	44.43
	Hong Kong	Closing Price	313	173.28	167.60	44.07
	Hong Kong	Turnover By Volume	294	44.81	19.00	80.76
	Hong Kong	Market Value	313	25702.01	24883.07	6509.30
	U.S.	Ask Price	1041	39.56	41.45	14.06
	U.S.	Bid Price	1041	39.53	41.41	14.06
	U.S.	Closing Price	1079	39.55	41.43	14.07
	U.S.	Turnover By Volume	1041	1616.52	1287.40	1330.15
	U.S.	Market Value	1079	5092.81	5161.87	1588.39

Figure 27: Summary Statistics 3 After HFCAA

After HFCAA						
Company	Location	Stock Info	Obs.	Mean	Median	Std. Dev.
NIO	Hong Kong	Ask Price	232	126.53	134.50	34.38
	Hong Kong	Bid Price	232	126.27	134.10	34.25
	Hong Kong	Closing Price	247	126.30	134.00	34.41
	Hong Kong	Turnover By Volume	232	943.28	726.05	714.78
	Hong Kong	Market Value	247	194981.44	206869.10	53129.01
	U.S.	Ask Price	1040	19.73	15.45	16.33
	U.S.	Bid Price	1040	19.72	15.44	16.32
	U.S.	Closing Price	1079	19.77	15.49	16.39
	U.S.	Turnover By Volume	1041	67137.04	51761.50	61184.14
	U.S.	Market Value	1079	25520.57	20226.87	22202.43
ZH	Hong Kong	Ask Price	204	21.84	21.20	4.21
	Hong Kong	Bid Price	204	21.55	20.88	4.30
	Hong Kong	Closing Price	216	21.79	21.20	4.19
	Hong Kong	Turnover By Volume	204	159.33	67.55	381.16
	Hong Kong	Market Value	216	6642.65	6468.86	1279.76
	U.S.	Ask Price	478	4.86	2.87	3.77
	U.S.	Bid Price	478	4.85	2.86	3.76
	U.S.	Closing Price	496	4.86	2.87	3.78
	U.S.	Turnover By Volume	479	3669.58	2366.20	4386.33
	U.S.	Market Value	496	2586.59	1504.37	1915.31
BEKE	Hong Kong	Ask Price	193	40.80	40.60	6.74
	Hong Kong	Bid Price	193	40.55	40.15	6.78
	Hong Kong	Closing Price	203	40.86	40.60	6.78
	Hong Kong	Turnover By Volume	193	561.87	429.20	497.95
	Hong Kong	Market Value	203	148143.33	147594.20	24368.43
	U.S.	Ask Price	634	32.16	19.89	20.59
	U.S.	Bid Price	634	32.13	19.88	20.57
	U.S.	Closing Price	657	32.18	19.88	20.58
	U.S.	Turnover By Volume	634	10205.08	8132.85	9422.62
	U.S.	Market Value	657	29915.21	20503.26	16757.95
OCFT	Hong Kong	Ask Price	154	2.57	2.05	1.11
	Hong Kong	Bid Price	157	2.48	2.00	1.10
	Hong Kong	Closing Price	165	2.49	2.04	1.09
	Hong Kong	Turnover By Volume	156	224.61	86.10	417.10
	Hong Kong	Market Value	165	2913.68	2386.76	1275.74
	U.S.	Ask Price	801	93.43	95.20	80.37
	U.S.	Bid Price	801	93.20	95.00	80.23
	U.S.	Closing Price	831	93.29	94.80	80.22
	U.S.	Turnover By Volume	801	104.81	61.80	139.91
	U.S.	Market Value	831	3572.39	3508.29	3079.26
TUYA	Hong Kong	Ask Price	142	13.34	13.05	4.92
	Hong Kong	Bid Price	133	12.68	12.50	4.73
	Hong Kong	Closing Price	164	12.84	12.50	4.88
	Hong Kong	Turnover By Volume	143	25.43	6.60	50.75
	Hong Kong	Market Value	164	6406.70	6239.33	2436.06
	U.S.	Ask Price	484	7.62	4.16	7.54
	U.S.	Bid Price	484	7.60	4.15	7.53
	U.S.	Closing Price	502	7.61	4.16	7.55
	U.S.	Turnover By Volume	485	1567.92	1118.30	1912.91
	U.S.	Market Value	502	3314.79	2033.94	3138.87
MNSO	Hong Kong	Ask Price	150	17.03	13.26	7.22
	Hong Kong	Bid Price	147	16.95	13.38	7.22
	Hong Kong	Closing Price	158	17.17	13.38	7.26
	Hong Kong	Turnover By Volume	150	241.86	102.90	448.16
	Hong Kong	Market Value	158	21742.16	16951.25	9180.05
	U.S.	Ask Price	589	14.70	13.23	7.71
	U.S.	Bid Price	589	14.67	13.21	7.70
	U.S.	Closing Price	612	14.72	13.26	7.73
	U.S.	Turnover By Volume	590	873.15	631.25	1126.83
	U.S.	Market Value	612	3500.28	3378.24	1669.61
NOAH	Hong Kong	Ask Price	136	258.85	251.10	32.62
	Hong Kong	Bid Price	101	252.33	250.00	33.29
	Hong Kong	Closing Price	158	254.47	246.00	32.80
	Hong Kong	Turnover By Volume	93	2.86	0.50	7.00
	Hong Kong	Market Value	158	8158.28	7896.34	1041.01
	U.S.	Ask Price	1040	32.24	30.70	11.05
	U.S.	Bid Price	1040	32.20	30.67	11.04
	U.S.	Closing Price	1079	32.26	30.69	11.07
	U.S.	Turnover By Volume	1041	255.09	191.30	250.23
	U.S.	Market Value	1079	1507.97	1388.89	404.10
TME	Hong Kong	Ask Price	101	24.97	26.80	8.08
	Hong Kong	Bid Price	101	24.72	26.60	8.04
	Hong Kong	Closing Price	108	25.22	29.10	8.08
	Hong Kong	Turnover By Volume	99	98.49	67.20	96.06
	Hong Kong	Market Value	108	43300.56	49965.10	13869.46
	U.S.	Ask Price	1040	12.00	12.70	5.63
	U.S.	Bid Price	1040	11.98	12.69	5.63
	U.S.	Closing Price	1079	12.00	12.69	5.62
	U.S.	Turnover By Volume	1041	12267.13	9249.90	18604.78
	U.S.	Market Value	1079	7342.24	6197.55	3873.65

Figure 28: Summary Statistics 4 After HFCAA

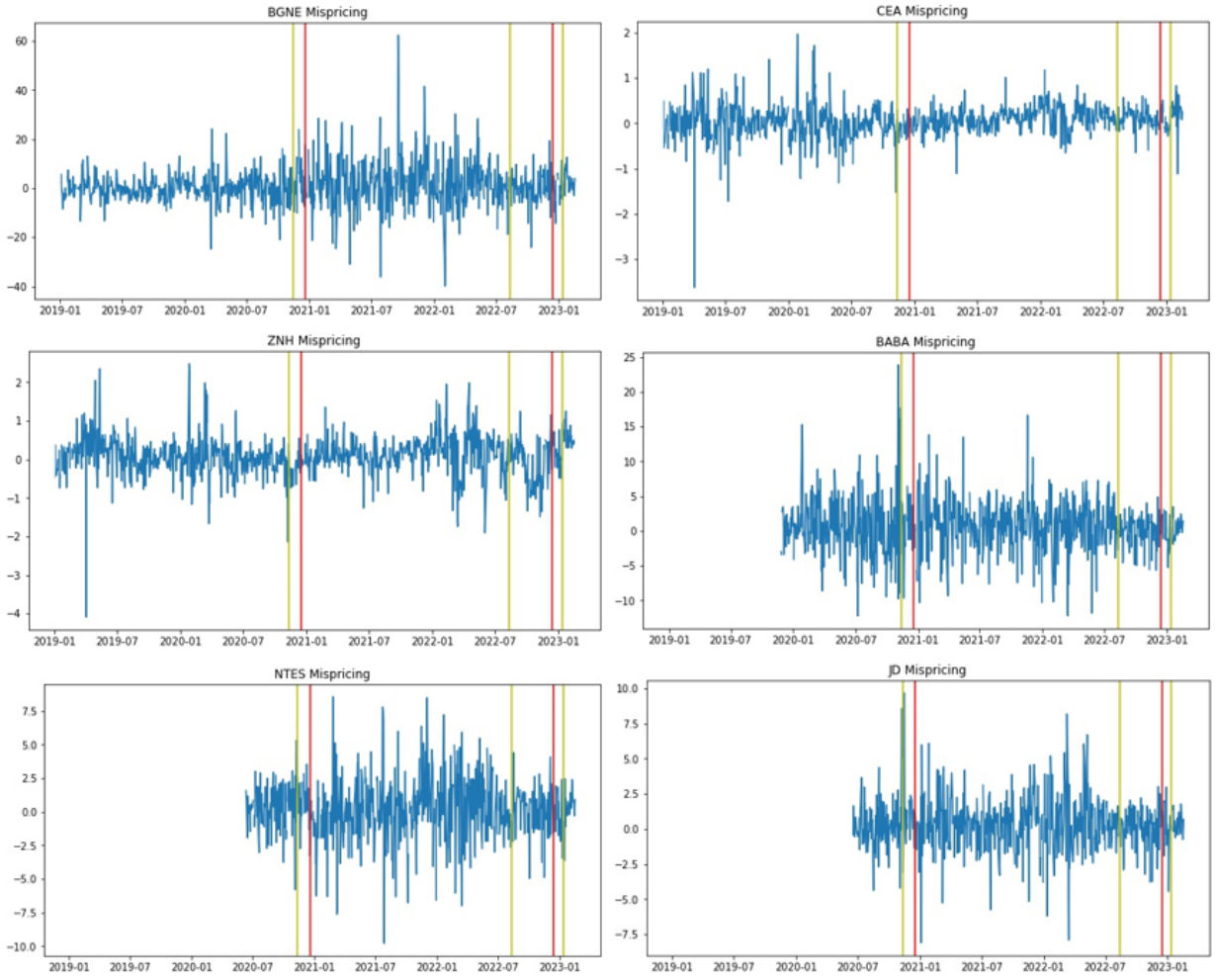

Figure 29: Mispricing 1

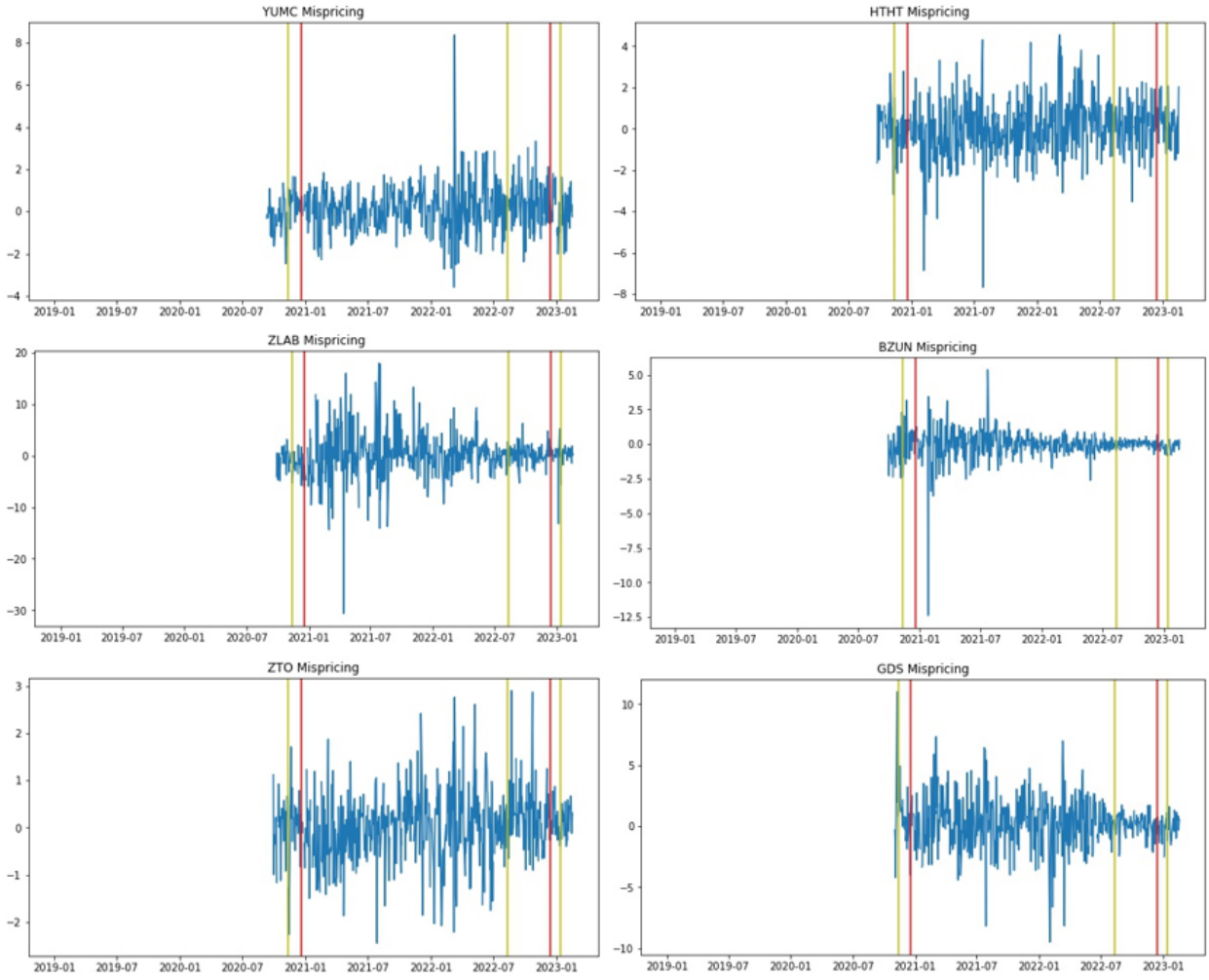

Figure 30: Mispricing 2

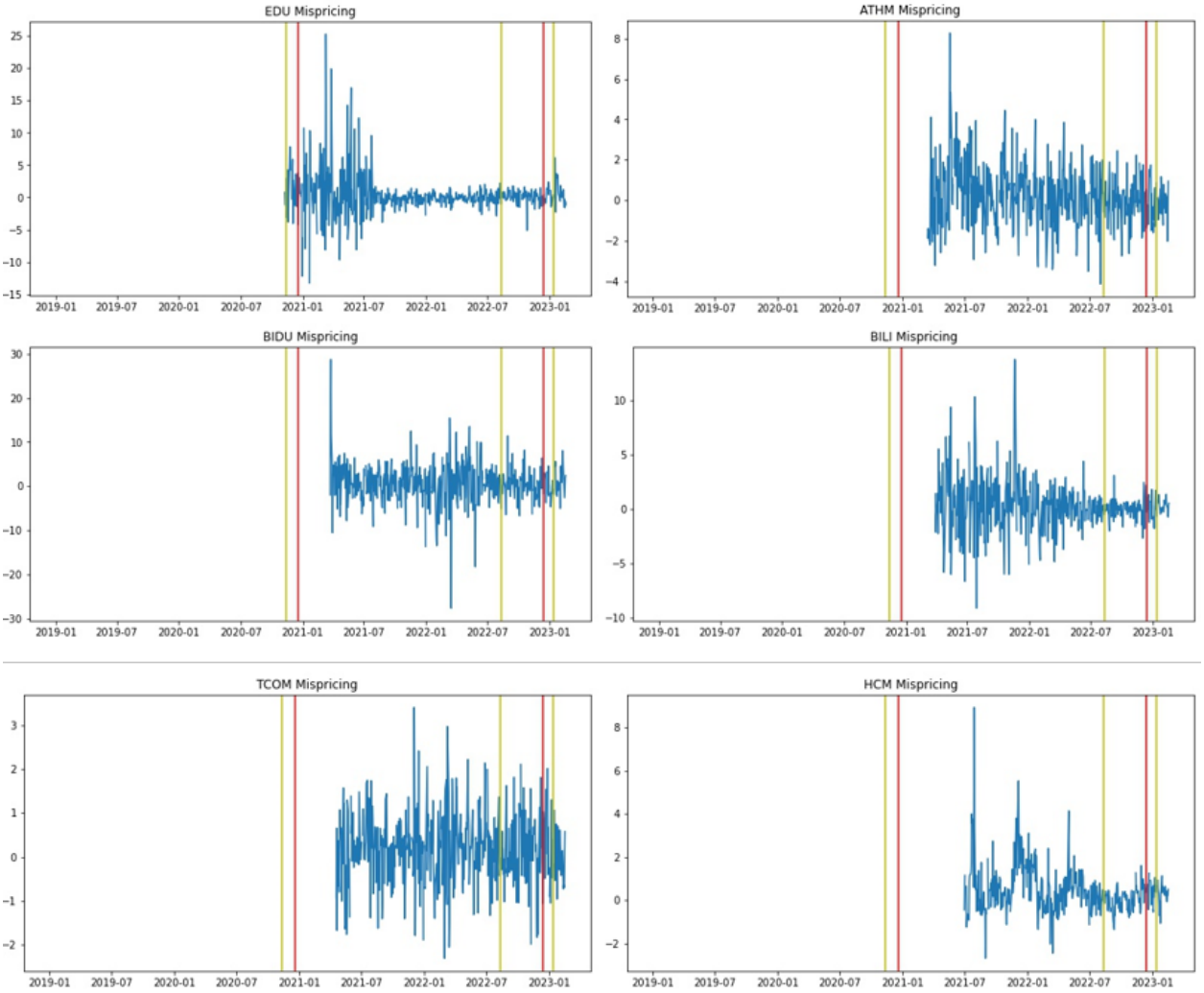

Figure 31: Mispricing 3

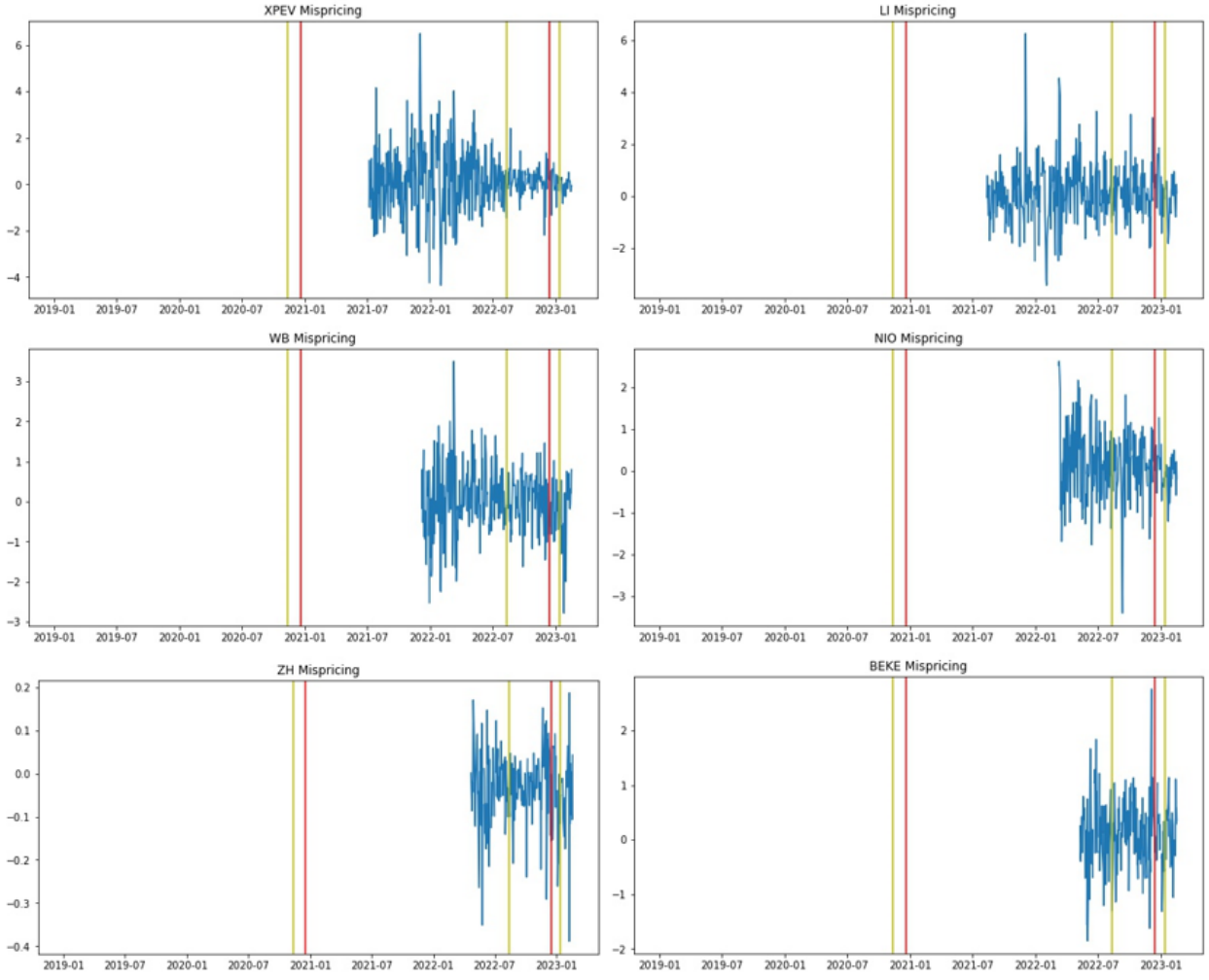

Figure 32: Mispricing 4

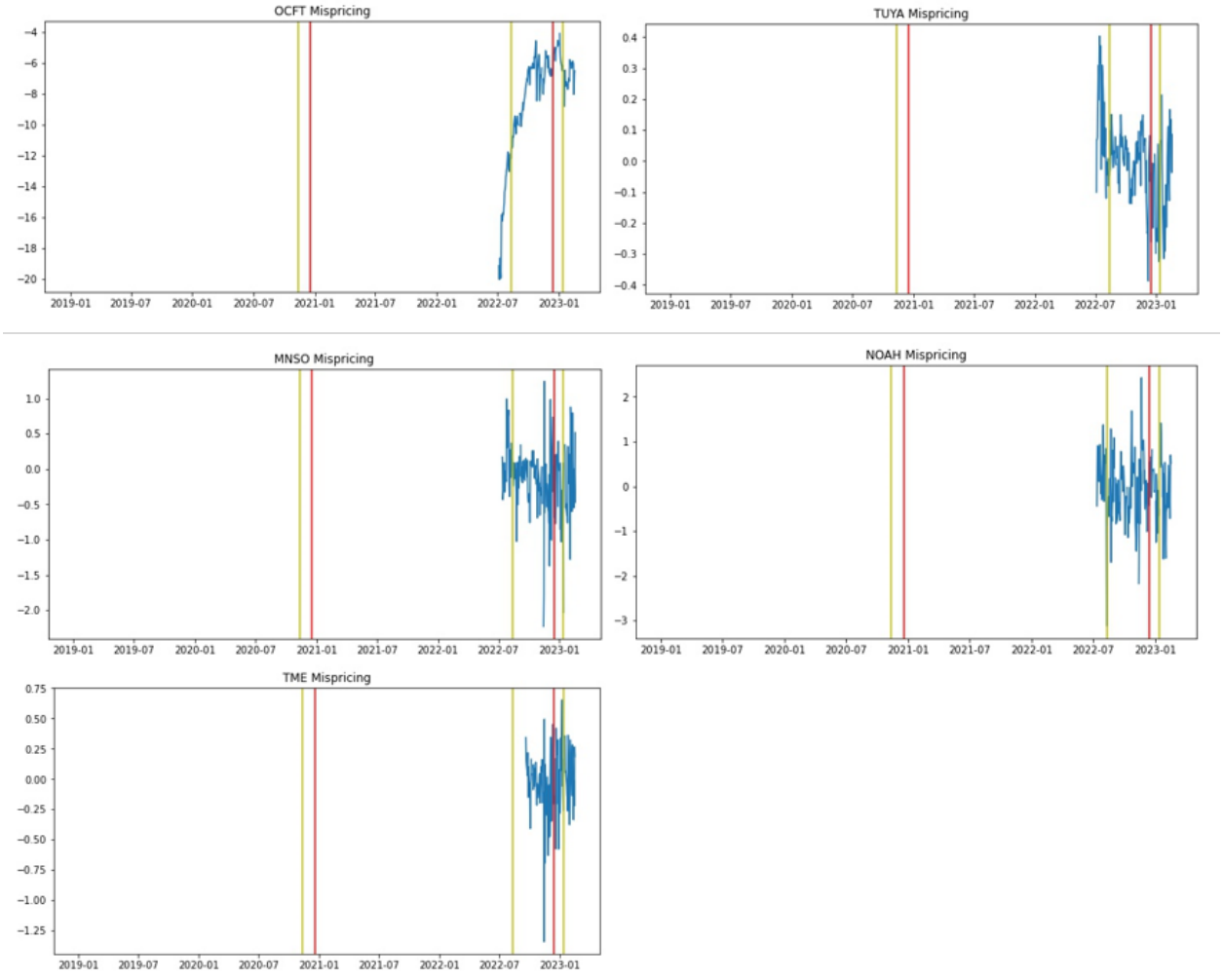

Figure 33: Mispricing 5

NYSE MKT CONTINUED LISTING STANDARDS

DISTRIBUTION CRITERIA	Required to meet all of the following public distribution criteria(1): • Shareholders 300 • Shares 200,000 • Market value $1MM
FINANCIAL CRITERIA	Required to meet all of the following*: I. $2MM in stockholders' equity if reported losses from continuing operations and/or net losses in 2 of last 3 fiscal years II. $4MM stockholders' equity if reported losses from continuing operations and/or net losses in 3 of last 4 fiscal years III. $6MM in stockholder's equity if reported losses from continuing operations and/or net losses in last 5 fiscal years IV. Financial condition of the company cannot be impaired *The NYSE MKT will not normally suspend an issuer which is below criteria (I) through (III) above if issuer is in compliance with all of the following: • 1.1MM publicly-held shares • $15MM market value of publicly-held shares • 400 round lot holders • $50MM market cap OR total assets & revenue of $50MM each in last fiscal year or 2 of last 3 fiscal years
OTHER CONSIDERATIONS	NYSE MKT reserves the right to delist companies should any of the following occur: • Issuer ceases as an operating company or disposes of principal operating assets where issuer has substantially discontinued business it conducted as the time it was listed(3) • Liquidation of the issuer has been authorized • Advice has been received, deemed by the Exchange to be authoritative, that the security is without value • Failure to comply with listing or other agreements with the Exchange and/or SEC requirements in any material respect • Common stock sells for a low price for a substantial period of time and/or issuer fails to effect a reverse split of such shares within a reasonable time after being notified of such potential actions by the Exchange • Issuer or its management engage in operations which, in the opinion of the Exchange, are contrary to the public interest • Issuer fails or refuses to pay, when due, any applicable NYSE MKT listing fees

Figure 34: NYSE Continued Listing StandardsNYS

Continued Listing Standards

For Nasdaq Capital Market Companies

Companies must meet all of the criteria under at least one of the three standards below.

Requirements	Equity Standard	Market Value of Listed Securities Standard	Net Income Standard
Listing Rules	5550(a) and 5550(b)(1)	5550(a) and 5550(b)(2)	5550(a) and 5550(b)(3)
Stockholders' Equity	$2.5 million	---	---
Market Value of Listed Securities	---	$35 million	---
Net Income from Continuing Operations (in the latest fiscal year or in two of the last three fiscal years)	---	---	$500,000
Publicly Held Shares	500,000	500,000	500,000
Market Value of Publicly Held Securities	$1 million	$1 million	$1 million
Bid Price	$1	$1	$1
Public Holders	300	300	300
Market Makers	2	2	2

Figure 35: NASDAQ Continued Listing Standards NAS
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CONTINUING OBLIGATIONS

Once listed, a listed issuer and its directors will face various continuing obligations. The Listing Rules cover such obligations the major ones of which are set out below.

	Main Board	GEM
Continuing Obligations	Our Listing Rules set out certain of the continuing obligations which an issuer is required to observe once its securities have been listed on our Exchange. Major areas covered include: 1. General obligations of disclosure including those relating to the disclosure of information necessary to avoid a false market in the issuer's securities and inside information under Part XIVA of the Securities and Futures Ordinance (see "Disclosure to Avoid False Market" below). 2. Response to enquiries made of the issuer by the Exchange concerning unusual movements in the price or trading volume of its listed securities, the possible development of a false market in its securities, or any other matters. 3. Compliance with the prescribed minimum percentage of listed securities in public hands at all times. 4. Pre-emptive rights, being circumstances under which the directors of the listed issuer must obtain the consent of shareholders in general meeting prior to allotting, issuing or granting securities. 5. Arrangements for annual general meetings and board meetings. 6. Disclosure of financial information (see "Financial Disclosure" below). 7. Notification to the Exchange of changes with regard to a listed issuer's memorandum or articles of association or equivalent documents, its directorate or supervisory committee, rights attaching to any class of listed securities, auditors or financial year end, its secretary or registered address. 8. Submission to the Exchange of draft circulars and other documents for review, as required under Main Board Rules 13.52(1) and (2) and GEM Rules 17.53(1) and (2). 9. Trading and settlement arrangements. 10. Directors' dealings, service contracts, nomination and contact information.	

Figure 36: Hong Kong Stock Exchange Continuing Obligation HKE

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