Stock-Price-Based M&A Performance Evaluation of the A-H Dual-Listed Acquirers

-- Based on China's A-Share Stock Market and Hong Kong Stock Market

Yiming Song[1]   Chen Liu[2]

Abstract

Using the data from A-share market and H-share market during 2014 - 2017, this thesis mainly analyzes how stock returns of the acquirers changed before and after the M&A announcements and how the changes were linked to the selected impact factors, such as dual listing, payment method, controlling position or minor position, overseas or domestic, etc. The main method is to use *event study method* and *CAPM* to calculate the excess returns of the acquires during M&A event window, then do regression of the impact factors on excess returns.

After analyzing the results, we conclude that nearly both A-H dual-listed acquired and non-dual-listed acquirers in our sample pool had positive actual and excess returns during the pre-five-days event window and post-five-days event window. In terms of impact factors, using cash as payment methods may negatively affect the excess returns of the acquirers and obtaining controlling position may positively affect the excess returns of the acquirers. Other impact factors such as dual listing and overseas are not statistically significant on excess returns of the acquirers.

1. Master student in Finance of Stockholm School of Economics, 40978@student.hhs.se
2. Master student in Finance of Stockholm School of Economics, 41029@student.hhs.se

Table of Contents

Tables and Figures

Acronym

A-H acquirer: A-H dual-listed acquirer

A-H: A share market and H share market

A-H* acquirer: A-H acquirer in H-share market

A: A-share market

A*-H acquirer: A-H acquirer in A-share market

BCNY: Billion Chinese Yuan

CAPM: Capital asset pricing model

CAR: Cumulative excess returns

CBBC: Callable Bull/Bear Contract

CNY: The Chinese Yuan[1]

CSRC: China securities regulatory commission

DLC: Dual-listed company

H: H-share market

HIBOR: Hong Kong interbank offered rate

HK: Hong Kong

HK* acquirer: HK* acquirer

HKD: Hong Kong Dollar

HKEX: Hong Kong Stock Exchange

M&A: Merge & Acquisition

MCNY: Million Chinese Yuan

RMB: Renminbi[2]

SHIBOR: Shanghai interbank offered rate

YCNY: Trillion Chinese Yuan

USD: United States Dollar

Wind: Wind financial terminal

---

[1] The Chinese yuan is the basic unit of the renminbi, but is also used to refer to the Chinese currency generally, especially in international contexts where "Chinese yuan" is widely used to refer to the renminbi, Wikipedia.

[2] The renminbi is the official currency of the People's Republic of China, Wikipedia.

1 Introduction

Since 1990s, Chinese M&A activities have grown more and more frequent. According to the data of Wind[3], 48830 M&A transactions, at a total amount of 591 TCNY, were completed by Chinese companies from 1993 to 2017. Specifically, there were 4145 M&A transactions (2615 BCNY) in 2014, 7036 M&A transactions (3205 BCNY) in 2015 and 5229 M&A transactions (3176 BCNY) in 2016, while the number reached 8435 and 4290 BCNY in 2017. In terms of A-H dual listing, also in 1990s, Tsingtao Brewery (600600.SH, 0168.HK) became the first A-H dual-listed company in 1993. At present, there are already 254 companies listed in both the A-share market and H-share market, accounting for 19.91% (2017) of the Hong Kong Stock Exchange's market cap. A-H dual-listed companies play important roles both in Chinese mainland market and Hong Kong market and are also key players in M&A activities. Since the segmentation of A-share market and H-share market, excess returns of acquirers' M&A transactions might vary in both markets and the impact factors affecting the excess returns of the M&A transactions would also act in different ways. However, research topics about A-H dual-listed acquirers' M&A transactions have not yet received proportional academic attention neither in Chinese research field or global research field. Therefore, our research aims to raise new perspectives in the long-standing discussion of A-H dual-listed acquirers' M&A through following contributions to existing literature.

In our research, we use the latest data from A-share market and H-share market from 2014 to 2017 to figure out how the financial performance of the acquirers changed before and after the M&A announcements and how the changes were linked to the selected impact factors, such as dual listing, payment method, controlling position or minor position, overseas or domestic, etc. To be specific, firstly, we use event study method to calculate the excess returns of the acquirers before and after five days or thirty days of M&A event window, to analyze whether the M&A transactions could help acquirers obtain excess returns during the event window and the difference of excess returns between A-share market and H-share market. After that, we run a linear regression of the excess returns during the event window on the selected impact factors to analyze which impact factors would affect the acquirers' excess. Thirdly, in our research, we set 34 Hong Kong non-dual-listed acquirers as comparable group to the 32 A-

---

[3] Wind: Wind financial terminal, a Chinese financial database, widely used in Chinese academic and commercial field.

H dual-listed acquirers to analyze the different performance between A-H dual-listed acquirers and Hong Kong non-dual-listed acquirers.

Based on the testing result derived from our research, we conclude that nearly both A-H dual-listed acquired and non-dual-listed acquirers in our sample pool had positive actual and excess returns during the pre-five-days event window and post-five-days event window, except A-H* acquirers (0.00%) and HK* acquirers (-0.01%) during the post-five-days event window. In addition, nearly both A-H dual-listed acquired and non-dual-listed acquirers in our sample pool had positive actual and excess returns during the pre-thirty-days event window and post-thirty-days event window, except A-H* acquirers during the pre-thirty-days event window (-0.02%) and during the post-thirty-days event window (-0.02%), and HK* acquirers during the post-five-days event window (-0.01%). Furthermore, during pre-five-days event window, using cash as payment methods may negatively affect (-0.077) the excess returns of the acquirers and obtaining controlling position may positively affect (0.056) the excess returns of the acquirers. Other dummy variables such as dual listing and overseas are not statistically significant on excess returns of the acquirers during the post-five-days event window and all four dummy variables are not statistically significant during the pre-five-days event window.

This research of A-H deal-listed acquirers will contribute to both A-share market and H-share market theoretically and practically for the following reasons:

1) The research could contribute to the study of the A-H acquirers' M&A transactions. These years, Chinese acquirers are more and more active in M&A activities. However, even with the growing trend of M&A transactions, technically, Chinese M&A have only around thirty-years history and many M&A transactions were failed. Academic research covering M&A transactions topics, especially A-H dual-listed companies', have not provided enough support to Chinese companies. Therefore, we hope our research could help entrepreneurs, regulators and scholars have a better picture of the A-H acquirers' M&A transactions.

2) The research could help regulators issue and adjust policies and guidance better. Based on the results of the research, we conclude that there is possibility that part of the M&A transactions' information has leaked before the M&A announcement both in A-share market and H-share market. Market efficiency in both markets has been increasing in the

past years, however, there is still a long path to go. In addition, through the analysis of the M&A impact factors, such as dual listing, payment method, M&A purpose, overseas or domestic, etc. the research could help Chinese regulator issue and adjust policies and guidance in order to help the M&A deals carried out more smoothly and encourage normative M&A transactions.

3) The research could contribute to the global study of Chinese M&A transactions, especially A-H acquirers' transactions. Due to differences in language, research background, academic interest, samples and other factors, there are limited global research related to Chinese M&A transactions. In contrary, most related research is in Chinese language, which might be not friendly to global scholars who don't use Chinese.

4) The sample pool is up to date and the source is official. The sample pool of our research covers related M&A transactions from 2014 to 2017. The source is Wind, which is the most extensive and official database for Chinese data.

2 Literature review

2.1 Literature review about M&A performance

Efficient-market Hypothesis (Fama, 1965) suggests that stock prices reflect all available information about the prospects of firms. Based on this basic premise, scholars can study how a particular event changes a firm's prospects by quantifying its impact on the firm's stock price. Event study has been the main approach since the 1970s (Martynova and Renneboog, 2008) and is broadly applied in M&A research. Using event study, scholars can analyze difference between the normal returns that would have been expected if the analyzed event would not have taken place and the excess returns that were caused by the respective event, such as M&As (Neuhierl, Scherbina, and Schlusche, 2011). The difference between the normal returns and excess returns are reflected by CAR (cumulative abnormal returns) and AAR (average abnormal return).

Jensen and Ruback (1983) analyzed 13 U.S. M&A transactions completed in the late 1970s and found that in the successful tender offer and M&A transactions, the targets' shareholders received 30% and 20% of the excess returns respectively. Porter (1987) conducted a research of 33 U.S. companies that had M&A transactions before 1976 and the results showed that 56.6% of the acquirers' share price fell after the M&A transactions, which implied that M&A activities don't create no wealth for shareholders and even cause losses. Brickley and Netter (1988) analyzed a total of 663 M&A transactions from 1962 to 1985 and found that the acquirer's average yield was 4% in the 1960s while -1% in the 1980s. The average premium of the targets' share price was 19% in the 1960s, 35% in the 1970s and 30% during 1980 to 1985. Loughran and Vihg (1997) studied the M&A transactions between 1970 and 1989 and found in acquisition cases, the acquirers and the targets had cumulative abnormal returns (CAR) of 61.3% and 126.9% respectively after the completion date of the deal, while in the acquisition cases, the acquirers and the targets had CAR of -14.2% and 29.6% respectively. Agrawal and Jaffe (2000) found that the excess returns after mergers were negative, and that the excess returns after the acquisition were positive. Andrade and Mitchell (2001) studied the M&A transactions between 1983 and 1998 and found that during the acquisition event window (-20, deal completed day), acquirers and targets' CAR were -3.8% and 23.8% respectively. Bhagat (2001) analyzed the 794 M&A transactions in the American Stock Exchange (AMEX), the

New York Stock Exchange (NYSE), and the Nasdaq Stock Market (NASDAQ) during the period from 1962 to 1997 and found that the acquirer's CAR during the M&A window period (-5 days, -1 days) and (1 days, 5 days) were 0.65% and 29.3% respectively.

Stock's excess return method is based on the condition that the stock market is effective, and this premise may cause doubts as the Chinese securities market is not effective enough. Therefore, using stock excess returns method may not fully explain the changes of stock returns, which limits the practical significance of the research. However, there are still many scholars using *stock's excess returns method* to analyze Chinese companies' M&A transactions given that *stock's excess returns method* is very common and convincing. Xinyuan Chen and Tianyu Zhang (1999) conducted an empirical research of 95 M&A transactions of Chinese listed companies in 1997 and found that the M&A companies had an upward trend in the CAR during the M&A window period (-10 days, 20 days), but the result is not significant. Guang Yu and Rong Yang (2000) conducted empirical research on 29 listed companies in the Shanghai Stock Exchange (SSE) and 9 listed companies in the Shenzhen Stock Exchange (SZSE) from 1993 to 1999 and found that the acquirers couldn't obtain excess returns from the M&A activities while the targets' excess returns would increase. Yongqing Guo (2000) analyzed the operating conditions of listed companies after M&A transactions and drew the conclusion that vertical M&A activities could not bring significant value to acquirers, horizontal M&A activities would lead to further deterioration of acquirers' operations, while mixed M&A have significantly positive effects on the acquirers' operating conditions. Shanmin Li and Yuzhi Chen (2002) conducted an empirical analysis of the 349 M&A transactions in the A-share market from 1999 to 2000 and the results showed that M&A activities during the M&A window period (-10 days, -1 day) and (1 day, 30 days) couldn't bring excess returns to the acquirers but could bring significantly excess returns to the targets. Xin Zhang (2003) analyzed 1216 M&A transactions of Chinese listed companies 1993 to 2002 and drew the conclusion that M&A is not conducive to the acquirer's wealth accumulation and the average premium was -16.18%. Xi Zhu (2006) analyzed a total of 1415 Chinese listed companies' M&A transactions from 1998 to 2002 and drew the conclusion that M&A activities could bring significant positive gains in the short-term period while may cause damage to the acquirers' value in the long run. Tingting Xin (2010) analyzed the excess returns of 43 M&A transactions in China and the results showed that the acquirer's excess returns were negative during the event window (-10 days, 10 days).

2.2 Literature review about segmentation of A-share market and H-share market
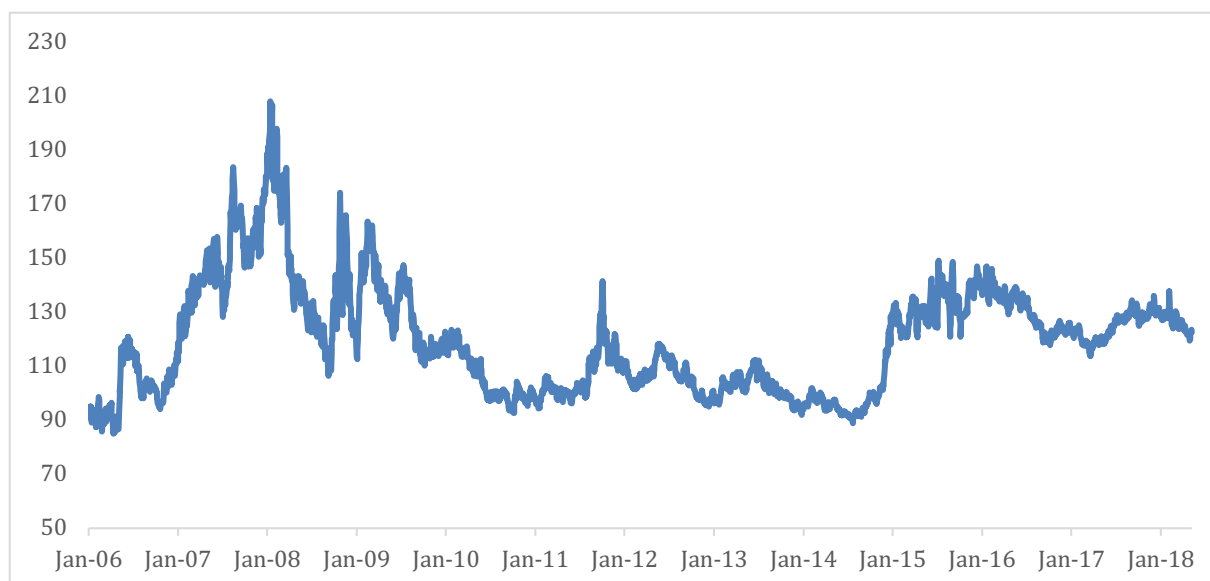
Figure 1: Hang Seng China A-H Premium Index

A-H dual-listed companies' stock prices in A-share market and H-share market are different. As shown in the figure above, Hang Seng China A-H Premium Index measures the absolute price premium (or discount) of A shares over H shares for the largest and most liquid Chinese mainland companies with both A-share market and H-share market listings. Most dual-listed companies' stock prices in A-share market have premium compared with their stock prices in H-share market. Market segmentation exists between A-share market and H-share market, as many other countries' stock markets also have similar market segmentation structures. Hietala (1989) established modified CAPM for the empirical research, and he drew the conclusion that the required returns from investors caused this premium. Bailey (1994) found that there is also discounted phenomenon in B-share[4] market compared with A-share market, and market segmentation is quite significant in Chinese mainland stock market. Sun & Tong (1999) thought investment channels in China mainland were restricted to foreign investors, and investment portfolio was quite simple, therefore B-share was discounted to A-share. Foreign investors need higher returns to compensate the lower liquidity of their stock in hand. When the liquidity theory is applied to A-H share market, Li (2004) found that the increase of H-share market's liquidity would reduce the premium between A-share market and

---

[4] B shares (Officially Domestically Listed Foreign Investment Shares) on the Shanghai and Shenzhen stock exchanges refers to those that are traded in foreign currencies. Shares that are traded on the two mainland Chinese stock exchanges in Renminbi, the currency in China mainland, are called A shares, Wikipedia.

H-share market. Information asymmetry is another explanation of market segmentation. Chui & Kwok (1998) argued that domestic investors could gain more information advantages than foreign investors, and these advantages could include language advantage, accounting standard understanding, and reliable information about the local economy and firms, etc. As most of the dual-listed companies in A-share market and H-share market have the headquarters and operations in China mainland, Chinese mainland investors might have better understanding of these dual-listed companies' business. Based on information asymmetry, Chinese mainland investors and Hong Kong investors would hold different expectation of future cash flow in stock.

In terms of the reason of the difference between A-share market and H-share market, Wang & Bai (2004) argued the key elements are industry, stock liquidity, IPO place, demand elasticity, and risk appetite. Hong Kong market could absorb the capital from world, and at the same time Hong Kong dollar (HKD) has pegged the exchange rate of US dollar (USD), therefore, H-share market is more tightly related to international capital market. On the contrary, foreign investment is more restricted in Chinese mainland market compared to Hong Kong market, and Renminbi (RMB) has not totally achieved its market-oriented exchange rate. Therefore, investors hold different risk appetite as well as demand for stock in A-share market and H-share market. Compared with H-share market, A-share market has rare investment substitutes, and thus demand elasticity of A-share market is significantly lower than that of H-share market.

2.3 Literature review about market efficiency of A-share market and H-share market

In terms of the market efficiency of A-share market, scholars' empirical test results vary on whether A-share market is weak-form efficient, which implies future prices cannot be predicted by analyzing prices from the past and excess returns cannot be earned in the long run by using investment strategies based on historical share prices or other historical data. Chan, Gup, and Pan (1992) analyzed the weak-form hypothesis in Hong Kong, South Korea, Singapore, Taiwan, Japan, and the United States. Their findings indicate that stock prices in these major Asian markets and the United States are efficient in the weak form. Mahmood (2010) analyzed stock price of A-share market for the period from 2004 to 2009 and drew the conclusion that the Chinese stock market was weak-form efficient and global financial crisis

had no significant impact on the efficiency of Chinese stock market. Niblock and Sloan (2007) analyzed daily stock price of the A-share market, Hang Seng and Dow Jones Industrial Average indices from 2002 to 2005 to test the weak-form efficient hypothesis and the results supported the assertion that despite continual financial liberalization and unparalleled growth, Chinese stock market was still not weak-form efficient.

In terms of the market efficiency of Hong Kong stock market, most scholars hold the same view that Hong Kong stock market is weak-form efficient. Karemera and Ojah (1999) used the multiple variance-ratio test to examine the stochastic properties of 15 emerging capital markets and the results implied that Hong Kong stock market is weak-form efficient. Hoque (2007) examined weak form efficiency for the period before and after the Asian financial crisis in eight Asian countries and drew the conclusion that the crisis did not have any significant impact on the degree of market efficiency of Hong Kong.

3 A-H dual-listed companies

3.1 Definition

A dual-listed company is a corporate structure in which two corporations function as a single operating business through a legal equalization agreement, but retain separate legal identities and stock exchange listings.[5] A-H dual-listed companies mean the companies are listed in both A-share market, i.e. SSE or SZSE and H-share market, i.e. HKEX. There are two ways of dual listing: the first one is that companies that have already issued shares in their home countries issue shares again overseas, while the other way is that companies firstly listed share on overseas stock market and returned to their home stock markets to issue shares. A-shares refer shares of the RMB currency that are purchased and traded on SSE or SZSE.[6] H shares refer to the shares of companies incorporated in China mainland that are traded on the Hong Kong Stock Exchange.[7]

In 1993, Tsingtao Brewery (0168.HK), which was firstly listed on Hong Kong stock market, returned to A-share market. It was the first Chinese dual-listed company. At present, 254 companies listed on both the A-share market and H-share markets are mainly in the manufacturing, financial service and real estate industry. The listing of Chinese mainland companies in Hong Kong will benefit both the Hong Kong stock market and the companies themselves. For enterprises, on one hand, they can raise funds at a relatively low cost. On the other hand, Hong Kong stock market is more mature than Chinese mainland market, therefore, Chinese mainland enterprises could be listed in a more international market, which would help them increase visibility, enhance competitiveness and lay a good foundation for the international development, etc. For the Hong Kong stock market, the listing of Chinese mainland companies could increase the diversity of its listed entities. In addition, Hong Kong listed companies are generally in limited industries, therefore, Chinese mainland listed companies in various industries could help optimize the structure of the Hong Kong stock market.

---

[5] Wikipedia, dual-listed company
[6] Wikipedia, A-share
[7] Wikipedia, H-share
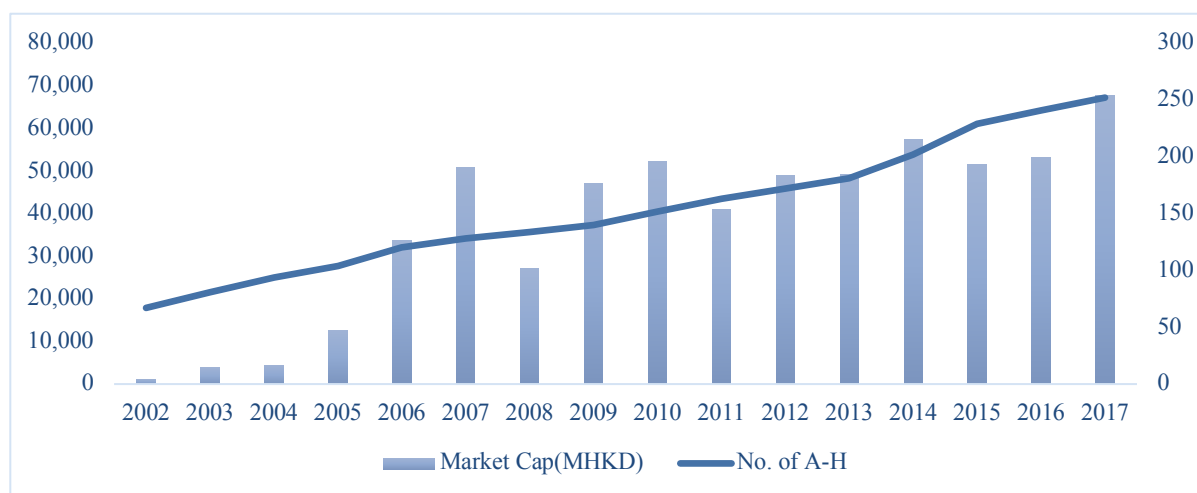
Figure 2: A-H dual-listed companies in HKEX

3.2 Difference between A-share market and H-share market

Table 1: Main differences between A-share market and H-share market

Mechanism	A-share market	H-share market
Listing system	Examination and approval system	Registration system
Transaction currency	RMB	HKD
Investors	Chinese mainland investors and Qualified Foreign Institutional Investors (QFII).	All investors
Transaction date	T+1	T+0
Short-Mechanism	Securities margin trading (Fewer options)	Option, Forward, and Callable Bull/Bear Contract (CBBC)
Information disclosure interval of large-scale changes in shares	1%	1%
Information disclosure during M&A process by the acquirer	1. The name and domicile of the acquirer 2. The acquirer's decision on the acquisition 3. The name of the target company 4. The purpose of the acquisition 5. The detailed name and amount of the shares to be acquired 6. The period of the acquisition and	1. The acquirer's background, identity, nationality, and nature of the beneficial ownership 2. The amount and source of funds or other considerations used in the acquisition 3. The purpose of the M&A, if the purpose of the M&A is to control the company, then what is the future

	the price of the acquisition 7. The amount of funds for the M&A and the deposit 8. The proportion of the target's shares hold by the acquirer to the total number of shares issued by the target company when the M&A offer submitted 9. Follow-up plans after the completion of the M&A 10. Other matters required by the China Securities Regulatory Commission	plan of the target 4. The amount of the total beneficial shares and details of any relevant partners 5. Details of any contract, agreement or informal agreement related to the securities of the target
Information disclosure during M&A process by the target	The board of directors of the target company should give opinions on the influence that the acquisition may have on the company, and independent directors should express their opinions alone. If it is deemed necessary by the board of directors of the target company, target company can employ professional organizations such as independent financial advisors for consulting. The opinions of the board of directors and independent directors of the target company, and opinions of independent financial advisors should be announced. After the acquirer makes a M&A announcement, the board of directors of the target company may not deliberately take measures such as issuance of shares, issuance of convertible corporate bond, repurchase of listed company shares, amending the company's articles of incorporation, signing contracts that	After the board of directors of the target company received the tender offer, the company's board of directors needs to employ independent financial advisors to make a written report on whether the tender offer is fair and reasonable. The contents of the opinions issued by the board of directors of the target company are stipulated and directors with conflict of interests with the M&A should avoid making comments during the M&A process. If the general meeting of shareholders votes whether to accept the M&A transaction, the shareholder with whom the vote has more interests than the rest of the shareholder should also withdraw, and the resolution should be approved by a majority of 3/4 of the independent shareholders to be effective. At the same time, before being approved by the shareholders' meeting, the board of directors of the

may have significant influence on the company, etc. in order to obstruct the M&A offer.	target company may not deliberately take measures, such as issuing new shares, selling company assets, etc., in order to obstruct the M&A offer.

Sources*: Companies Law of the People's Republic of China, Law of the People's Republic of China on Securities, Rules Governing the Listing of Stocks on Shanghai Stock Exchange, Measures for the Acquisition of Listed Companies of People's Republic of China, Securities and Futures Ordinance of Hong Kong, Company Acquisition and Merger Code of Hong Kong, Main Board Listing Rules of Hong Kong Exchange.*

4 Stock-price-based M&A performance evaluation model

4.1 Introduction

Efficient-market Hypothesis (Fama, 1965) suggests that stock prices reflect all available information about the prospects of firms. Based on this basic premise, scholars can study how a particular event changes a firm's prospects by quantifying its impact on the firm's stock price. Event study has been the main approach since the 1970s (Martynova and Renneboog, 2008) and is broadly applied in M&A research. Using event study, scholars can analyze difference between the normal returns that would have been expected if the analyzed event would not have taken place and the excess returns that were caused by the respective event, such as M&As (Neuhierl, Scherbina, and Schlusche, 2011). The difference between the normal returns and excess returns is reflected by CAR (cumulative abnormal returns) and AAR (average abnormal return).

4.2 Assumptions

4.2.1 M&A event affects acquirer's stock price

The assumption that M&A event affects the acquirer's stock price refers during the M&A event window, the stock price of the acquirer will reflect investors' views on the M&A transaction to the acquirer based on the synergies of the M&A. The market reaction could be positive or negative. In academic field, Dodd (1980) found that the M&A deals did not enhance the acquirers' value. Bharath and Wu (2005) drew the conclusion that M&A announcements did not significantly alter the trading liquidity and pricing efficiency of the acquirers. Sanjay Sehgal and Siddhartha Banerjee (2012) argued that equity-financing M&A could create value to the acquirer, while cash-financing M&A may decrease value of the acquirer.

4.2.2 Efficient-market hypothesis

The assumption that *Efficient-market Hypothesis* implies that stock prices reflect all public or private information to investors (Bergen and Jason Van, 2004). In our research, we assume that both A-share market and H-share market are weak-form efficient. As our literature

review discussed, in academic field, A-share market is still on doubt whether is weak-form efficient and Hong Kong stock market is proved weak-form efficient. However, in our research, we assume that both A-share market and H-share market are weak-form efficient.

4.2.3 M&A event is unanticipated

The assumption that the event under study is unanticipated refers before the event announcement date, information related to the event is not leaked. However, M&A is usually part of the company's business strategy, which can be anticipated before announcement, in addition, rumor or inside trading may lead to leak information. (Lubatkin and Shrieves, 1986). In our research, we firstly assume that the M&A event is not leaked before announcement. Then we use the results of excess returns from our event study to test whether the M&A information is truly not leaked before the announcement.

4.2.4 No confounding effects during the event window

The assumption that no confounding effects refers during the event window, expect the event itself, there is no other confounding events effects the stock returns. In practice, it is difficult to guarantee this assumption especially for a long period event window, which might cause empirical results problematic. In our research, we use five-days event window (short term) and thirty-days event window (long term) to analyze the excess returns of M&A transactions. Even we use excess returns instead of actual returns, it's very hard to guarantee that no other significant event happened during the event window. Therefore, the results of our research might be affected by events except M&A transactions.

4.3 Event window
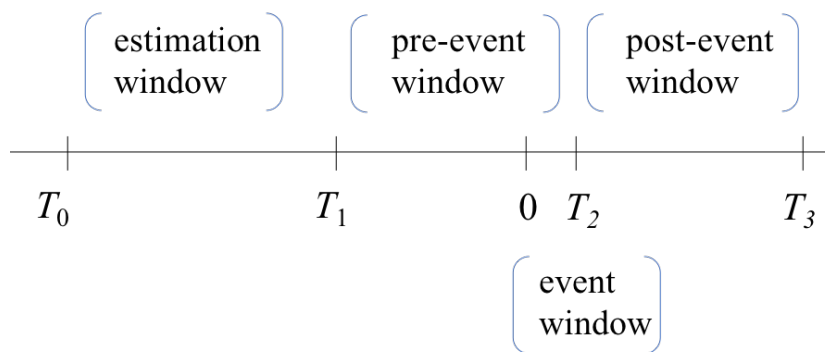
Figure 3: Event window model

In terms of the event window, we set every M&A transaction as an event. In the sample pool, there are 32 A-H acquirers and 34 Hong Kong non-dual-listed acquirers. Since A-H dual-listed companies and Hong Kong non-dual-listed companies normally make announcements after the stock market closed, we set the day after the M&A announcement date (0 in our event window model) as the event window, which means T_2 in our event window model.

In order to analyze the market's first reaction to the M&A transactions, the research only focuses on the acquirer's first M&A announcement date to study, i.e. further announcements related to the M&A transactions are not included in our research.

In terms of pre-event window, we set 5 days and 30 days before the event window as the pre-event window. The reason that we set 5 days and 30 days is to analyze both the short-term and long-term effect of the M&A transactions.

In terms of post-event window, we set 5 days and 30 days after the event window as the post-event window. Similarly, the reason that we set 5 days and 30 days is to analyze both the short-term and long-term effect of the M&A transactions.

4.4 Expected returns calculation

We use the *Capital Asset Price Model* (CAPM) to calculate the expected returns of the stock. The CAPM was introduced by Jack Treynor (1961 and 1962), William F. Sharpe (1964), John Lintner (1965) and Jan Mossin (1966), building on the earlier work of Harry Markowitz on diversification and modern portfolio theory.[8] Using the CAPM, investors can reach a theoretically appropriate required rate of returns of an asset, then make decisions about adding assets to a well-diversified portfolio.

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f)) + \rho_{i,m}$$

- *E(R_i)*: the expected returns on the capital asset
- *R_f* : the risk-free rate of interest such as interest arising from government bonds

---

[8] Wikipedia, Capital asset pricing model

- β_i (the beta): the sensitivity of the expected excess asset returns to the expected excess market returns
- $E(R_m)$: the expected returns of the market
- $E(R_m) - R_f$ *(market premium)*: the difference between the expected market rate of returns and the risk-free rate of returns.
- $E(R_i) - R_f$: risk premium
- $\rho_{i,m}$: the correlation coefficient between the investment i and the market

In our model, we use CAPM to calculate the expected returns of the acquirers during the event window as the expected returns.

In terms of risk-free rate, for A-share market, normally Chinese scholars use Chinese commercial bank deposit interest rate, Shanghai interbank offered rate (SHIBOR) or short-term Chinese treasury bond repurchase interest rate as risk-free rate (Xuezhi Qin and Youqun Hu, 2011). We choose the average value of SHIBOR from 2014 to 2017 as A-share market's risk-free rate. The reason that we choose SHIBOR instead of Chinese commercial bank deposit interest rate and Chinese10-year treasury bond is that Chinese commercial bank deposit interest rate contains the risk premium of commercial banks themselves and Chinese treasury bond market has a low degree of marketization, limited varieties, inactive market activities and the institutional market segmentation phenomenon, compared to other treasury bond market such as U.S.'s（Xufen Wu and Yinfeng Liu, 2007）. In terms of Hong Kong stock market, normally scholars use Hong Kong exchange fund bills & notes rate or Hong Kong interbank offered rate (HIBOR) as risk-free rate. We choose the average value of HIBOR from 2014 to 2017 as Hong Kong stock market's risk-free rate since it is more consistent in the condition that we use SHIBOR as risk-free rate of A-share market.

In terms of the beta, we use five-years average of the beta of the acquirers' stocks both in A-share market and Hong Kong stock market as the beta during the event window.

In terms of the expected returns of the market, for A-share market, we use the returns of CSI 300 Index. The CSI 300 Index is a free-float weighted index that consists of 300 A-share market stocks listed on the SSE or SZSE[9] and is the main indicator of the overall market

---

[9] Bloomberg, CSI 300 Index

performance in China mainland. For Hong Kong stock market, we use the returns of Hang Seng Index. The Hang Seng Index is a free-float capitalization-weighted index of a selection of companies from the HKEX. It is used to record and monitor daily changes of the largest companies of the Hong Kong stock market and is the main indicator of the overall market performance in Hong Kong[10].

4.5 Excess returns calculation

After using CAPM to calculate the acquirer's expected returns during the event window, we use the actual stock returns of the acquirers during the event window to calculate the excess returns of the acquirers:

$$AR_{i,t} = R_{i,t} - \hat{R}_{i,t}$$

- $AR_{i,t}$: the abnormal return of the acquirer$_i$ at the time t
- $R_{i,t}$: the expected return of the acquirer$_i$ at the time t
- $\hat{R}_{i,t}$: the actual return of the acquirer$_i$ at the time t

4.5.1 Average excess returns

After calculating the excess returns of each day during the post-event window, we take the mean of every day's excess returns during the post-event window as average excess returns.

$$AAR = \frac{1}{N}\sum_{i=1}^{N} AR_{i,t}$$

- AAR: the average abnormal return during the event window
- $AR_{i,t}$: the abnormal return of the acquirer$_i$ at the time t
- N: Days of the event window

---

10 Bloomberg, Hang Seng Index

4.5.2 Cumulative excess returns

After calculating the excess returns of each day during the post-event window, we take the sum of every day's excess returns during the post-event window as cumulative excess returns.

$$CAR(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t}$$

- $CAR(t_1, t_2)$: the average abnormal return during the event window (t_1, t_2)
- $AR_{i,t}$: the abnormal return of the acquirer$_i$ at the time t
- t_1: first day of the event window
- t_2: last day of the event window

5 Data selection and process

5.1 Sample pool selection

Our research analyzes 32 M&A transactions of A-H dual-listed acquirers. To better emphasize the impact of M&A transactions for A-H dual-listed companies, we also analyze 34 M&A transactions of Hong Kong non-dual-listed acquirers as comparable companies of A-H dual-listed acquirers.

5.2 Data sources

The main source of the data is the Wind. Wind integrates comprehensive and accurate market data, fundamental data, research, news, and analytics tools across all asset classes in China, including Hong Kong. Wind accounts over 90% of investment professionals in China as clients.[11] Wind and its Chinese M&A database cover M&A-transactions details of Chinese mainland companies and Hong Kong companies since 2003. In addition, acquirers' official announcements, annual reports and websites are the sources that we could double check the data and information.

5.3 Data selection criteria

The data selection criteria for the *A-H dual listed acquirers sample pool* and *Hong Kong non-dual-listed acquirers sample pool* are as below:

1) Only M&A transactions that the acquirers are A-H dual-listed companies for the *A-H dual-listed acquirers sample pool* and only M&A transactions that the acquirers are Hong Kong non-dual-listed companies for the *Hong Kong non-dual-listed companies sample pool.*

2) Four-years study time period beginning from Jan 1, 2014 and ending by Dec 31, 2017

3) The amount of the M&A transaction is above 100 MCNY, no matter whether the acquirers obtained the controlling position of the target or not.

---

[11] Wind's website

4) Only include both successfully closed and ongoing M&A transactions, as we mainly analyze the short-term market reaction of the acquirer's first announcement of the M&A transaction and whether acquirer could gain an excess return through the M&A transaction. Future market reaction of the transaction processes including failure, general meeting of shareholder's approval, China securities regulatory commission (CSRC)'s approval, etc. are not the subject of our research.

5) The total asset, net asset or the operating revenue of the targets should NOT exceed those of the acquirers in the previous fiscal yearly period. If it is the case, there is a possibility that a reverse merger is going on and results in a research disruption.

6) After screening via the criteria above, 34 M&A transactions are from A-H dual-listed acquirers. For Hong Kong non-dual-listed listed companies as comparison, we aim to look for the Hong Kong acquirers matching the A-H dual-listed acquirers in terms of industry, market cap, deal amount, etc.

5.4 Data selection process

We search M&A transactions of Chinese mainland companies and Hong Kong companies from Wind. Firstly, we search all M&A transactions from 2014 to 2017. It excludes M&A transactions that are failed or in rumor. Secondly, we filter M&A transactions by only including acquirers are dual-listed in A-share market and H-share market. Thirdly, using the selection criteria above, we obtain the 32 M&A transactions from A-H dual-listed companies. Fourthly, based on the A-H dual-listed acquirers' industries, we match other 34 M&A transactions whose acquirers are Hong Kong non-dual-listed companies. Lastly, through listed companies' official announcements, annual reports and official websites, we double check the M&A transactions' information.

5.5 Selected M&A transactions

The 32 *A-H dual listed acquirers sample pool* based on the criteria we set is in the appendix. For A-H dual-listed acquirers, the acquirers that had M&A activities between 2014 and 2017 vary in terms of industry. The three most active industries in our sample pool are

financial services industry (22%), manufacturing industry (16%) and transportation industry (16%). Industry distribution of our selected sample pool can be seen in the following chart:
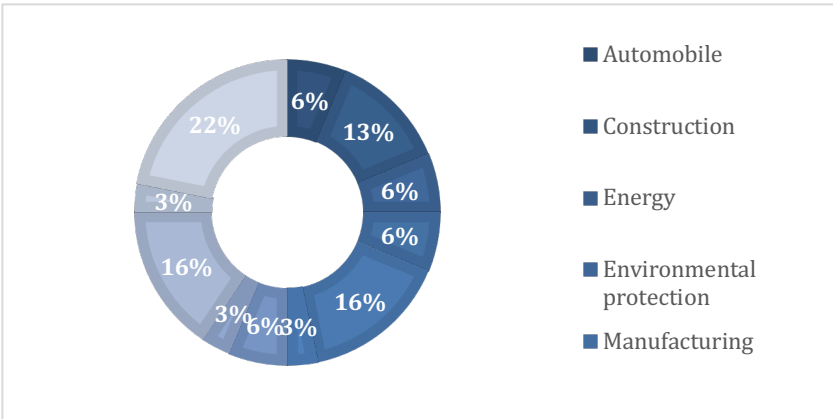
Figure 4: A-H dual listed acquirers sample pool classified via industry

The 34 *Hong Kong non-dual-listed acquirers sample pool* as comparison to the A-H dual-listed acquirers is also in the appendix. For Hong Kong non-dual-listed acquirers, similar to A-H dual-listed acquirers, the acquirers that had M&A activities between 2014 and 2017 vary in terms of industry. The three most active industries in our sample pool are financial services industry (23%), manufacturing industry (15%) and energy industry (14%). There are limited number of M&A transactions happened in transportation industry, therefore, for the A-H dual-listed acquirers' M&A transactions in transportation industry, we could not match them with Hong non-dual-listed acquirers' M&A transactions perfectly. Industry distribution of our selected sample pool can be seen in the following chart:
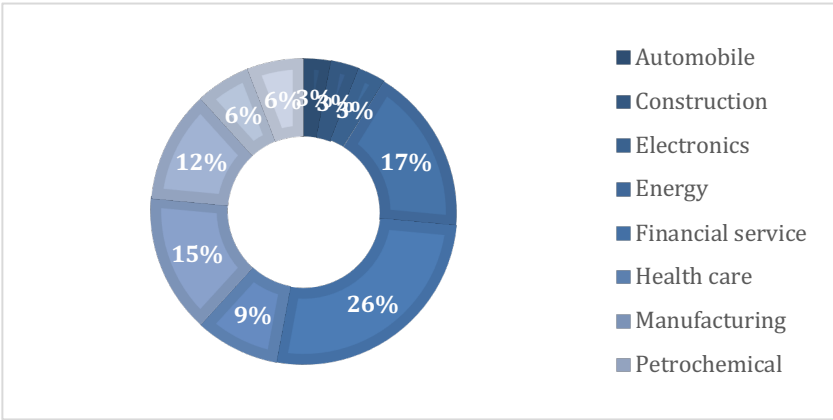
Figure 5: Hong Kong non-dual-listed sample pool classified via industry

6 M&A excess return analysis

6.1 Actual and excess returns

Table 2: Actual returns of A-H acquirers

	A-H acquirers in A-share market			A-H acquirers in H-share market		
	Mean	T-statistics	P-value	Mean	T-statistics	P-value
Pre-5 days	0.26%	0.9112	0.3692	0.35%	1.6556	0.1079
Post-5 days	0.77%	2.1565	0.0389	0.21%	1.2661	0.2149
Pre-30 days	0.22%	2.017	0.0524	0.21%	2.8075	0.0086
Post-30 days	0.18%	0.0524	0.2582	0.12%	1.1699	0.2509

The table above has summarized the mean of daily actual returns of A-H acquirers both in A-share market and H-share market. As the results shown, either before or after the M&A announcement date, acquirers had positive actual returns both in A-share market and H-share market.

Specifically, during the pre-five-days event window, acquirers had positive actual returns both in A-share market (0.26%) and H-share market (0.35%). In addition, acquirers had higher actual returns in H-share market rather than in A-share market. When comes to post-five-days event window, acquirers also obtained positive actual returns both in A-share market (0.77%) and H-share market (0.21%). In contrast to pre-five-days event window, the actual returns in A-share market were higher than those in H-share market. During the pre-thirty-days event window, acquirers also had positive actual returns both in A-share market (0.22%) and H-share market (0.18%). And during the post-thirty-days event window, acquirers' daily actual returns reached to 0.21% in A-share market and 0.12% in H-share market.

Table 3: Actual returns of A-H* acquirers and HK* acquirers

	A-H acquirers in H-share market			HK* non-dual-listed acquirers		
	Mean	T-statistics	P-value	Mean	T-statistics	P-value
Pre-5 days	0.35%	1.6556	0.1079	1.51%	2.512	0.0171
Post-5 days	0.21%	1.2661	0.2149	0.11%	0.0071	0.9944
Pre-30 days	0.21%	2.8075	0.0086	0.59%	2.9975	0.0051
Post-30 days	0.12%	1.1699	0.2509	0.01%	0.0679	0.9462

The table above has summarized the mean of daily actual returns of A-H* acquirers and HK* acquirers. As the results shown, in Hong Kong stock market, either before or after the M&A announcement date, acquirers had positive actual returns no matter whether they are dual-listed or not.

Specifically, non-dual-listed acquirers (1.51%) had higher actual returns than dual-listed acquirers (0.35%) during the pre-five-days event window, and same results were applied to pre-thirty-days event window (0.59% vs. 0.21%). On the contrary, dual-listed acquirers performed better than non-dual-listed acquirers during the post event window. Dual-listed acquirers obtained 0.21% daily actual returns versus non-dual-listed acquirers' 0.11% during the post-five-days event window and 0.12% daily actual returns versus non-dual-listed acquirers' 0.01% during the post-thirty-days event window.

Table 4: Excess returns of A-H acquirers

| | A-H acquirers in A-share market | | | A-H acquirers in H-share market | | |
	Mean	T-statistics	P-value	Mean	T-statistics	P-value
Pre-5 days	0.11%	0.6810	0.5009	0.30%	1.4446	0.1586
Post-5 days	0.50%	1.5331	0.1354	0.00%	-0.0072	0.9943
Pre-30 days	-0.02%	-1.3502	0.1867	0.09%	1.3449	0.1884
Post-30 days	-0.02%	-1.4628	0.1536	-0.01%	0.1884	0.9084

The table above has summarized the mean of daily excess returns of A-H acquirers both in A-share market and H-share market. As the results shown, either before or after five days of the M&A announcement date, acquirers had positive excess returns both in A-share market and H-share market. However, during the thirty-days event window, except post-thirty-days event window, all acquirers had negative excess returns.

Specifically, during the pre-five-days event window, A-H acquirers had positive excess returns both in A-share market (0.11%) and H-share market (0.30%). In addition, similar to the results in excess returns, acquirers had higher excess returns in H-share market rather than in A-share market. When comes to post-five-days event window, acquirers' daily excess returns in A-share market were 0.50% while in H-share market were 0.00%. In contrast to pre-five-

days event window, similar to the situation in excess returns, the excess returns in A-share market were higher than those in H-share market. During the pre-thirty-days event window, acquirers had negative excess returns in A-share market (-0.02%) but positive excess returns in H-share market (0.09%). And during the post-thirty-days event window, acquirers' negative daily excess returns reached to -0.02% in A-share market and -0.01% in H-share market.

Table 5: Excess returns of A-H* acquirers and HK* acquirers

	A-H acquirers in H-share market			HK* non-dual-listed acquirers		
	Mean	T-statistics	P-value	Mean	T-statistics	P-value
Pre-5 days	0.30%	1.4446	0.1586	1.31%	2.2764	0.02944
Post-5 days	0.00%	-0.0072	0.9943	-0.01%	-0.0294	0.984
Pre-30 days	0.09%	1.3449	0.1884	0.43%	2.2669	0.0301
Post-30 days	-0.01%	0.1884	0.9084	0.02%	0.1370	0.8918

The table above has summarized the mean of daily excess returns of A-H* acquirers and HK* acquirers. As the results shown, except during the post-thirty-days event window, A-H* acquirers had positive excess returns in the other event windows. In addition, except during the post-five-days event window, HK* acquirers had positive excess returns in the other event windows.

Specifically, non-dual-listed acquirers (1.31%) had higher excess returns than dual-listed acquirers (0.30%) during the pre-five-days event window, and same results were applied to pre-thirty-days event window (0.43% vs. 0.09%). On the contrary, dual-listed acquirers performed better than non-dual-listed acquirers during the post event window. Dual-listed acquirers obtained 0.00% daily excess returns versus non-dual-listed acquirers' -0.01% during the post-five-days event window, but they had -0.01% daily excess returns while non-dual-listed acquirers were 0.02% during the post-thirty-days event window.

6.2 Excess returns classified via different categories

In order to have a full picture of the acquirers' excess returns, we classify acquirers' excess returns via different categories, such as industry, overseas vs. domestic, payment method, target type, controlling position vs. minor position, M&A method and M&A purpose.

6.2.1 Excess returns classified via different industries

For excess returns classified via different industries, we use the classification of CITIC Securities from Wind database to classify the acquirer in our sample pool. CITIC Securities is the largest investment bank in China and its industry classification is widely used by financial analysts in China. The main drawback of our classification is the small sample pool, after classification, every industry doesn't have enough samples to diversify. Therefore, it is difficult to find some general regularity behind the results and the results might not be convincing enough. However, even with a small sample pool, the summary could still briefly picture excess returns classified via different industries.

Table 6: Mean of excess returns for A-H acquirers classified via industries

	Pre 5_A	Pre 5_H	Post 5_A	Post 5_H	Pre 30_A	Pre 30_H	Post 30_A	Post 30_H
Automobile	-0.40%	-0.41%	-0.06%	0.70%	-0.02%	0.10%	-0.01%	0.22%
Construction	0.11%	0.17%	0.69%	0.15%	0.00%	-0.28%	0.01%	0.08%
Energy	-0.50%	0.18%	-0.58%	-0.59%	0.00%	-0.15%	-0.02%	0.04%
Environmental protection	1.84%	0.38%	-0.29%	-0.32%	0.04%	-0.24%	0.03%	-0.08%
Manufacturing	-0.24%	1.08%	2.03%	-0.29%	-0.02%	0.46%	-0.02%	-0.14%
Non-ferrous metals	-1.01%	0.54%	0.88%	-0.43%	0.16%	0.31%	-0.09%	0.23%
Petrochemical	0.02%	0.34%	0.10%	-0.05%	0.00%	-0.10%	-0.11%	0.01%
Real estate	1.07%	-0.09%	-0.04%	0.99%	0.00%	0.29%	0.00%	0.32%
Transportation	-0.28%	0.00%	-0.21%	0.02%	-0.02%	-0.08%	-0.01%	-0.02%
Health care	0.66%	0.38%	0.43%	0.13%	-0.01%	0.19%	-0.01%	1.01%
Financial services	0.44%	0.10%	0.66%	0.08%	-0.08%	0.30%	-0.06%	-0.24%
Min	-1.01%	-0.41%	-0.58%	-0.59%	-0.08%	-0.28%	-0.11%	-0.24%
Max	1.84%	1.08%	2.03%	0.99%	0.16%	0.46%	0.03%	1.01%
Range	2.85%	1.49%	2.61%	1.58%	0.24%	0.74%	0.14%	1.25%
Mean	0.16%	0.24%	0.33%	0.04%	0.00%	0.07%	-0.03%	0.13%
Std. Dev	0.0080	0.0038	0.0073	0.0047	0.0006	0.0025	0.0004	0.0034

(Continued)	Pre 5_A	Pre 5_H	Post 5_A	Post 5_H	Pre 30_A	Pre 30_H	Post 30_A	Post 30_H
Prob. of AAR >0	50.70%	75.00%	56.00%	52.40%	50.00%	54.70%	25.00%	61.20%

As results shown in the table above, for A*-H acquirer, excess returns from different industries' acquirer vary at a median degree especially for the five-days event window. The range and standard deviation for excess returns during the pre-five-days event window are 2.85% and 0.008, while the range and standard deviation for excess returns during the post-five-days event window is 6.14% and 0.0172. Probability of obtaining positive excess returns ranges from 50.7% to 56.0% for a five-days event window, however, probability of obtaining positive excess returns ranges from 25.0% to 50.0% during the thirty-days event window.

Specifically, environmental protection industry (1.84%), real estate industry (1.07%) and health care industry (0.66%) had the three highest excess returns during the pre-five-days event window, while manufacturing industry (2.03%), non-ferrous metals industry (0.88%) and financial service industry (0.66%) had the three highest excess returns during the post-five-days event window. For A-H* acquirers, manufacturing industry (1.08%), non-ferrous metals industry (0.54%) and environmental protection industry (0.38%) had the three highest excess returns during the pre-five-days event window, while real estate industry (0.99%), automobile industry (0.70%) and construction industry (0.15%) had the three highest excess returns during the post-five-days event window. In conclusion, whether in A-share market or H-share market, manufacturing industry, real estate industry, environmental industry and health care industry could obtain higher excess returns during the short-term M&A event window.

Table 7: Mean of excess returns for HK* acquirers classified via industries

Industry	Pre 5_H*	Post 5_H*	Pre 30_H*	Post 30_H*
Automobile	-0.08%	-1.73%	-0.87%	0.10%
Construction	0.12%	-4.32%	0.18%	-1.06%
Electronics	-0.96%	-0.41%	-0.82%	0.33%
Energy	1.57%	-0.28%	0.04%	-0.56%
Financial service	3.04%	0.12%	1.01%	0.43%
Health care	0.64%	1.09%	0.35%	0.26%
Manufacturing	2.61%	-0.13%	0.80%	0.30%
Petrochemical	-0.23%	-0.36%	-0.22%	-0.24%
Real estate	-2.75%	1.82%	1.28%	-0.26%

(Continued)	Pre 5_H*	Post 5_H*	Pre 30_H*	Post 30_H*
Utilities	0.11%	1.00%	0.04%	-0.07%
Min	-2.75%	-4.32%	-0.87%	-1.06%
Max	3.04%	1.82%	1.28%	0.43%
Range	5.79%	6.14%	2.15%	1.49%
Mean	0.41%	-0.32%	0.18%	-0.08%
Std. Dev	1.69%	1.72%	0.72%	0.47%
Prob. of AAR >0	59.90%	40.80%	65.10%	50.90%

As results shown in the table above, for Hong Kong non-dual-listed acquirers, excess returns from different industries' acquirers vary at a high degree especially for the five-days event window. The range and standard deviation for excess returns during the pre-five-days Event window were 5.79% and 0.0169, while the range and standard deviation for excess returns during the post-five-days event window were 6.14% and 0.0172. Probability of having positive excess returns ranges from 40.8% to 59.9%, no matter whether before or after the M&A event announcement or whether for a five-days or thirty-days event window.

Specifically, financial service industry (3.04%), manufacturing industry (2.61%) and energy industry (1.57%) had the three highest excess returns during the pre-five-days event window, while real estate industry (1.82%), health care industry (1.09 %) and utilities industry (1.00%) had the three highest excess returns during the post-five-days event window. In addition, financial service industry (3.04%), manufacturing industry (2.61%) and energy industry (1.57%) had the three highest excess returns during the pre-five-days event window, while real estate industry (1.82%), health care industry (1.09 %) and utilities industry (1.00%) had the three highest excess returns during the post-five-days event window.

6.2.2 Excess returns classified via overseas or domestic

For excess returns classified via different industries, we differentiate the M&A transactions based on whether the acquirer and the target are in the same country or region. For A-H acquirers, the overseas M&A transactions mean that the targets are outside China mainland. For Hong Kong non-dual-listed acquirers, the overseas M&A transactions mean that the target are outside Hong Kong.

Table 8: Mean of excess returns for A-H acquirer classified via overseas or domestic

	Pre 5_A	Pre 5_H	Post 5_A	Post 5_H	Pre 30_A	Pre 30_H	Post 30_A	Post 30_H
Overseas	-0.05%	0.29%	0.64%	0.15%	-0.08%	-0.07%	0.44%	-0.21%
Domestic	0.14%	0.27%	0.48%	-0.03%	-0.01%	-0.02%	0.03%	0.03%

As results shown in the table above, for A-H acquirer, during the pre-five-days event window, domestic M&A transactions had positive excess returns whether in A-share market (0.14%) or H-share market (0.27%), while overseas M&A transactions had negative excess returns in A-share market (-0.05%) and positive excess returns in H-share market (0.29%). During the post-five-days event window, overseas M&A transactions could obtain positive excess returns whether in A-share market (0.64%) or H-share market (0.15%), while domestic M&A transactions had negative excess returns in H-share market (-0.03%) and positive excess returns in A-share market (0.48%).

Table 9: Mean of excess returns for HK* acquirer classified via overseas or domestic

	Pre 5_H*	Post 5_H*	Pre 30_ H*	Post 30_H*
Overseas	0.46%	0.26%	0.01%	0.27%
Domestic	1.67%	-0.12%	0.61%	-0.09%

As results shown in the table above, for Hong Kong non-dual-listed acquirers, during the pre-five-days event window, both overseas (0.46%) and domestic (1.67%) M&A transactions had positive excess returns. For domestic M&A transactions, Hong Kong non-dual-listed acquirers could obtain high excess returns (1.67%), however, after M&A announcement date, excess returns during the post-five-days event window are negative (-0.12%).

6.2.3 Excess returns classified via payment method

In terms of excess returns classified via payment methods, we differentiate the M&A transactions mainly based on whether the payment methods are assets, cash or equity for A-H acquirer. Hong Kong non-dual-listed acquirers' payment methods vary a lot compared to A-H acquirer', they include cash, cash & assets, equity, equity & bonds, equity & cash, equity & creditor's right, equity & funds, and equity & cash & assets.

Table 10: Mean of excess returns for A-H acquirer classified via payment method

	Pre 5_A	Pre 5_H	Post 5_A	Post 5_H	Pre 30_A	Post 30_A	Pre 30_H	Post 30_H
Assets	-0.29%	-0.16%	0.69%	0.65%	-0.01%	0.01%	-0.37%	-0.20%
Cash	0.18%	0.14%	0.19%	-0.03%	-0.02%	-0.03%	0.10%	0.02%
Equity	-0.43%	2.53%	4.67%	-0.29%	0.02%	-0.01%	0.47%	-0.20%

As results shown in the table above, for A-H acquirer, during the pre-five-days event window, using cash as payment method, acquirers had positive excess returns whether in A-share market (0.18%) or H-share market (0.14%), while using assets as payment method, acquirers had negative excess returns whether in A-share market (-0.29%) or H-share market (-0.16%). Furthermore, using equity as payment method, acquirers could obtain positive excess returns in H-share market are market (2.53%) but negative excess returns in A-share market (-0.43 %). During the post-five-days event window, using assets as payment method, acquirers could obtain positive excess returns whether in A-share market (0.69%) or H-share market (0.65%). In A-share market, whether using cash (0.19%) or equity (4.67%) as payment methods, acquirers could obtain positive excess returns. However, in H-share market, whether using cash (-0.03%) or equity (-0.29%) as payment methods, acquirers had negative excess returns.

Table 11: Mean of excess returns for HK* acquirers classified via payment method

	Pre 5_H*	Post 5_H*	Pre 30_H*	Post 30_H*
Cash	0.48%	-0.47%	0.23%	-0.08%
Cash + Assets	4.19%	0.12%	0.92%	0.28%
Equity	5.62%	0.75%	1.31%	-0.03%
Equity + Bonds	7.09%	-2.79%	3.69%	-0.21%
Equity + Cash	3.16%	2.39%	0.28%	0.21%
(Continued)	**Pre 5_H***	**Post 5_H***	**Pre 30_H***	**Post 30_H***
Equity + Creditors' rights	-2.74%	1.26%	2.14%	-0.48%
Equity + Funds	0.17%	-0.01%	0.09%	0.46%
Equity + Cash + Assets	-0.08%	-1.73%	-0.87%	0.10%

As results shown in the table above, for Hong Kong non-dual-listed acquirers, during the pre-five-days event window, except using equity & creditors' rights (-2,74%) and equity & cash & assets as payment method (-0.87%), acquirers using other payment methods had

positive excess returns. The three largest excess returns came from equity & bond payment methods (7.09%), equity (5.62%) and cash & assets (4.19%). During the post-five-days event window, using equity & cash (2.39%), equity & creditors' rights (1.26%), equity (0.75%) and cash & assets (0.12%), acquirers could obtain positive excess returns, while using equity & bonds (-2.79%), equity & cash & assets (-1.73%), cash (-0.47%) and equity & funds (-0.01%) had negative excess returns.

6.2.4 Excess returns classified via target type

In terms of excess returns classified via target type, we differentiate the target type into assets, equity, equity & asses. The only asset as target type case is that Beijing North Star (0588.HK, 601588.SH) acquired a residual site in Wuhan City worth 626.81 MCNY. For equity as target type, acquirer would acquire shares of the target. For equity & assets as target type, acquirer would not only acquire shares of the target but also part of the assets of the target.

Table 6.10: Mean of excess returns for A-H acquirer classified via target type

	Pre 5_A	Pre 5_H	Post 5_A	Post 5_H	Pre 30_A	Pre 30_H	Post 30_A	Post 30_H
Assets	1.07%	-0.09%	-0.04%	0.99%	0.00%	0.00%	0.29%	0.32%
Equity	0.07%	0.28%	0.55%	-0.05%	-0.02%	-0.03%	0.09%	-0.02%
Equity +Assets	0.33%	0.25%	-0.52%	0.48%	-0.03%	-0.01%	0.00%	0.00%

As results shown in the table above, for A-H acquirer, during the pre-five-days event window, acquiring equity or equity & assets could obtain positive excess returns whether in A-share market (0.07%, 0.33%) and H-share market (0.28%, 0.25%), while acquiring assets, for the Beijing North Star (0588.HK, 601588.SH) case, had positive excess returns in A-share market (1.07%) and H-share market (-0.09%). During the post-five-days event window, in A-share market, only acquirers that acquired equity had positive excess returns (0.28%), while for acquiring assets was -0.04% and for acquiring equity & assets was -0.52%. During the post-five-days event window, in A-share market, only acquirers that acquired equity had positive excess returns 0.28%, while for acquiring assets was -0.04% and for acquiring equity & assets was -0.52%. In H-share market, acquirer that acquired assets (0.99%) and equity & assets

(0.48%) had positive excess returns, while for acquiring equity was negative excess returns (-0.05%).

Table 12: Mean of excess returns for HK* acquirers classified via target type

	Pre 5_H*	Post 5_H*	Pre 30_H*	Post 30_H*
Assets	1.41%	0.04%	0.37%	-0.03%
Equity	0.77%	-0.30%	0.79%	0.26%

As results shown in the table above, for Hong Kong non-dual-listed acquirers, acquirers that acquired assets (1.41%) or equity (0.77%) had positive excess returns whether in a pre-five-days event window (1.41%, 0.77%) or pre-thirty-days event window (0.37%, 0.79%). However, results differed during the post event window. Acquirers that acquired assets could obtain positive excess returns (0.04%) during the post-five-days event window, but negative excess returns (-0.30%) during the post-five-days event window. In addition, acquirers that acquired equity could obtain positive excess returns (0.26%) during the post-thirty-days event window, but negative excess returns (-0.03%) during the post-five-days event window.

6.2.5 Excess returns classified via controlling position

In terms of excess returns classified via controlling position, we classify the sample pool via whether the acquirer had a controlling position or minor position in the target. For the acquirer that holds over 50% shares of the target after the M&A, we define the deal as the acquirer has a controlling position after the M&A. For the acquirer that holds less than 50% shares of the target after the M&A, we define the deal as the acquirer has a minor position after the M&A.

Table 13: Mean of excess returns for A-H acquirer classified via controlling position

	Pre 5_A	Pre 5_H	Post 5_A	Post 5_H	Pre 30_A	Pre 30_H	Post 30_A	Post 30_H
Minority	0.03%	-0.02%	0.11%	-0.18%	-0.02%	-0.02%	-0.04%	-0.06%
Controlling	0.19%	0.56%	0.89%	0.18%	-0.02%	-0.03%	0.22%	0.04%

As results shown in the chart above, for A-H acquirers, during five-days event window, the acquirers that obtained controlling position after M&A had higher excess returns than those who hold minor position after M&A, no matter whether before or after the M&A

announcement or whether in A-share market or H-share market. During thirty-days event window, results differ slightly compared to the results during five-days event window. During the pre-thirty-days event window, both the acquirers that obtained controlling position or had minor position had negative excess returns, and the acquirers with controlling position performed slightly worse. However, during the post-thirty-days event window, the acquirers with controlling position had positive excess returns both in A-share market (0.22%) and H-share market (0.04%). On the contrary, the acquirers with minor position had negative excess returns both in A-share market (-0.04%) and H-share market (-0.06%).

Table 14: Mean of excess returns for HK* acquirers classified via controlling position

	Pre 5_H*	Post 5_H*	Pre 30_H*	Post 30_H*
Minority	-0.83%	0.39%	0.09%	0.10%
Controlling	1.77%	-0.09%	0.50%	0.00%

As results shown in the table above, for Hong Kong non-dual-listed acquirers, during pre-event window, the acquirers that obtained controlling position after M&A had higher excess returns than those who hold minor position after M&A, no matter whether during a five-days period (1.77%, -0.83%) or during a thirty-days period (0.50%, 0.09%). On the contrary, during post-event window, the acquirers that obtained minor position after M&A had higher excess returns than those who hold controlling position after M&A, no matter whether during a five-days period (0.39%, -0.09%) or during a thirty-days period (0.10%, 0.00%).

6.2.6 Excess returns classified via M&A purpose

In terms of excess returns classified via M&A purpose, we classify the sample pool via the purpose of the acquirers for the M&A transactions. Classification are reached from Wind and checked by the authors. The M&A purpose includes assets adjustment, diversification, strategy, financial investment, horizontal integration, strategic cooperation, vertical integration and brand acquisition. Similar to the drawback of classification via M&A purpose, the main drawback of our classification is that the sample pool is small, after classification, every M&A purpose doesn't have enough samples to diversify. However, even with a small sample pool, the summary could still briefly picture excess returns classified via M&A purpose.

Table 15: Mean of excess returns for A-H acquirers classified via M&A purpose

	Pre 5_A	Pre 5_H	Post 5_A	Post 5_H	Pre 30_A	Pre 30_H	Post 30_A	Post 30_H
Asset adjustment	-0.54%	0.55%	2.44%	2.05%	-0.12%	-0.03%	0.30%	-0.10%
Diversification	-0.34%	-0.25%	-0.12%	-0.04%	0.00%	-0.01%	0.23%	0.09%
Financial investment	0.89%	-0.17%	0.41%	0.17%	-0.05%	-0.03%	0.07%	-0.30%
Horizontal integration	0.06%	0.16%	0.08%	-0.22%	-0.01%	-0.03%	-0.04%	0.04%
Strategic cooperation	0.58%	2.75%	4.38%	-0.25%	0.04%	0.00%	0.65%	-0.12%
Vertical integration	-0.13%	0.09%	-0.09%	-0.08%	-0.02%	-0.04%	0.27%	0.15%
Min	-0.54%	-0.25%	-0.12%	-0.25%	-0.12%	-0.04%	-0.04%	-0.30%
Max	0.89%	2.75%	4.38%	2.05%	0.04%	0.00%	0.65%	0.15%
Range	1.43%	3.00%	4.50%	2.30%	0.16%	0.04%	0.69%	0.44%
Mean	0.09%	0.52%	1.18%	0.27%	-0.03%	-0.02%	0.24%	-0.04%
Std. Dev	0.0055	0.0113	0.0184	0.0088	0.0006	0.0001	0.0024	0.0016
Prob. of AAR>0	47.50%	61.90%	63.60%	40.00%	27.20%	0.00%	80.10%	46.50%

As results shown in the table above, for A-H acquirer in A-share market, excess returns of acquirers with different M&A purpose vary at a median degree especially for the five-days event window. The range and standard deviation of excess returns during the pre-five-days event window were 1.43% and 0.0055, while the range and standard deviation for excess returns during the post-five-days event window is 3.00% and 0.0111. Probability of obtaining positive excess returns ranges from 47.50% to 61.90% for a five-days event window, however, probability of obtaining positive excess returns ranges from 0.00% to 80.10% for a thirty-days event window.

Specifically, A*-H acquirers that aimed for financial investment (0.89%), strategic cooperation (1.07%) and horizontal integration (0.66%) had the three highest excess returns during the pre-five-days event window, while acquirers that aimed for strategic cooperation (4.38%), asset adjustment (2.44%) and financial investment (0.41%) had the three highest excess returns during the post-five-days event window. For A-H* acquirers, strategic cooperation (2.75%), asset adjustment (0.55%) and horizontal integration (0.16%) had the three highest excess returns during the pre-five-days event window, while asset adjustment (2.05%), financial investment (0.17%) and diversification (-0.04%) had the three highest excess returns during the post-five-days event window.

Table 16: Excess returns for HK* acquirers classified via M&A purpose

	Pro 5_H*	Post 5_H*	Pre 30_H*	Post 30_H*
Asset adjustment	-1.96%	1.71%	0.03%	0.22%
Brand acquisition	-0.96%	-0.41%	-0.82%	0.33%
Diversification	2.96%	0.52%	0.59%	0.29%
Financial investment	-1.10%	0.58%	0.37%	0.85%
Horizontal integration	0.84%	-0.56%	0.44%	-0.25%
Min	-1.96%	-0.56%	-0.82%	-0.25%
Max	2.96%	1.71%	0.59%	0.85%
Range	4.92%	2.27%	1.42%	1.10%
Mean	-0.04%	0.37%	0.12%	0.29%
Std. Dev	0.0196	0.0091	0.0057	0.0039
Prob. of AAR>0	41.20%	59.30%	67.30%	74.40%

As results shown in the table above, for Hong Kong non-dual-listed acquirers, excess returns of acquirer with different M&A purpose vary at a median degree especially for the pre-5-days event window. The range and standard deviation of excess returns during the pre-five-days event window were 4.92% and 0.0196 while the range and standard deviation for excess returns during the post-five-days event window is 2.27% and 0.0091. Probability of obtaining positive excess returns ranged from 41.20% to 59.30 % for a five-days event window, however, probability of obtaining positive excess returns ranged from 67.30% to 74.40% during the thirty-days event window.

Specifically, acquirers that aimed for diversification (2.96%) and horizontal integration (0.84%) had positive excess returns during the pre-five-days event window, while acquirers that aimed for asset adjustment (1.71%), financial investment (0.58%) and diversification (0.52%) had positive excess returns during the post-five-days event window. During a thirty-days event window, acquirers performed better than those during five-days event window. Only the acquirer that aimed for brand acquisition (-0.82%) during pre-five-days event window and the acquirer that aimed for horizontal integration (-0.25%) during post-five-days event window.

7　Regression of M&A impact factors on excess returns

7.1　Regression formula

According to the summarized table, excess returns during the five-days event window are more statistically significant than those during the thirty-days event window. Therefore, excess returns during the five-days event window are more suitable in the regression model. We use different impact factor dummies to model sum of the excess returns of A-H* acquirers and HK* acquirers during five-days event window in a linear regression. The impact factors are dual listing, payment method, controlling position or minor position, overseas or domestic.

$$CAR_5 = dual\_listing_{dummy} + payment_{dummy} + controlling_{dummy}$$
$$+ \; overseas_{dummy} + \varepsilon$$

- CAR_5: Sum of pre or post excess returns of A-H* acquirers during the five-days event window Sum of pre or post excess returns of HK* acquirers during the five-days event window
- $Dual\_listing_{dummy}$: 1for dual listing and 0 for non-dual listing
- $Payment_{dummy}$: 1 for cash payment and 0 for non-cash payment
- $Controlling_{dummy}$: 1 for controlling position and 0 Minor position
- $Overseas_{dummy}$: 1 for overseas M&A and o for domestic M&A
- ε: Error term

7.2　Variables

In order to quantitatively analyze the influence imposed by impact factors, we firstly set up several research hypotheses based on previous academic research and our own research motivation and understanding.

7.2.1　Dependent Variables

For the dependent variables, we use the sum of the excess returns we reach from our five-days event window of 32 samples of A-H* acquirers and 34 HK* acquirers. The reason that we only use excess returns during the five-days event window is that it is more statistically

significant than those during the thirty-days event window. Therefore, excess returns during the five-days event window are more suitable in the regression model.

7.2.2 Independent Variables

Based on our research hypothesis, our independent variables for the linear regression are shown in the following table:

Table 17: Independent variables

Variables	Details
Dual listing	Dual listing vs. Non-dual listing
Payment	Cash payment vs. Non-cash payment
Controlling	Controlling position vs. Minor position
Overseas	Overseas vs. Domestic

7.2.2.1 Dual listing

In term of whether deal listing affects the M&A performance of the acquirer, Ashrafee (2014) examined the effects of dual-class structure on corporate acquisition activities via analyzing a large sample of corporate takeovers between 1996 and 2009 and found that single-class companies experience higher excess returns around acquisition announcements. He also reported that dual-classes firms primarily undertake value-destroying acquisitions. Using industry and matched-firm adjusted portfolios, Ashrafee found that the long-term post-acquisition operating performances for the single-class firms are significantly higher.

Hypothesis I: Dual-listed acquirers could have higher excess returns during M&A event window than non-dual-listed acquirers.

7.2.2.2 Payment methods

The main payment methods in M&A transactions are cash, stock, asset or mix of them. In terms of payment methods in M&A transactions, many scholars consider stock swap as the acquirers are not confident of their companies and the M&A transactions settled by stock swap usually underperform afterwards (Fangjian Fu, 2013). However, for A-share markets, scholars

such as Haiyan Chen (1999) also drew the conclusion that M&A transactions via non-cash payment method outperform than those transactions via cash payment method.

Hypothesis Ⅱ : Acquirers using cash-payment method could have higher excess returns during M&A event window than acquirers using non-cash-payment method.

7.2.2.3 Controlling position

To obtain the controlling position of the target, normally the acquirer would pay a premium for the controlling position of the target. The reason that paying controlling premium is the potential improvement of a firm's management when its control changes and becomes more efficient (Jensen, Ruback, 1983). David Moreira and Karel Janda (2017) investigated earnings per share to analyze the value creation of M&A and concluded that controlling position create value in the M&A transaction. Chari, Ouim and Tesar (2010) analyzed 4593 M&A transactions from 1986 to 2006 and found that when a multinational firm from developed-countries acquired majority control of a firm in an emerging market, developed-market acquirers obtained significantly positive excess returns at 1.16%, on average, during a three-days event window. On the contrary, positive M&A excess returns appear unique to emerging-market acquirers and are not replicated when the same developed-market acquirers take over a developed-market target.

Hypothesis Ⅲ: Acquirers obtaining controlling position could have higher excess returns during M&A event window than acquirers obtaining minor position.

7.2.2.4 Overseas

Using 91 Chinese listed companies' 165 overseas M&A transactions from 2000 to 2006, Changqi Wu and Ningling Xie (2007) drew the conclusion that pre-acquisition performance has a positive impact on the acquirer's performance. Chen and Young (2009) analyzed 39 overseas M&A transactions and found that there is a negative but statistically insignificant market response to overseas M&A announcements during the (-1 day, 0 day) event window. After analyzing 56 overseas M&A transactions from 1995 to 2007, Luedi (2008) concluded that Chinese acquirers overpaid for foreign M&A transactions at 55%, as measured by stock-price changes around the announcement day. Lulu Gu and W. Robert Reed (2010) examined

145 overseas M&A transactions by Chinese acquirers from 1994 to 2008 and found that market positively reacted to the announcements of overseas M&A transactions.

Hypothesis IV: Acquirers with an overseas M&A could have higher excess returns during M&A event window than acquirers with a domestic M&A.

7.3 Regression results

Table 18 Regression results of A-H* acquirers' excess returns

Coefficients	Estimate	Std. Error	t value	Pr. (>|t|)
Intercept	0.081	0.044	1.849	0.069
Dual listing	-0.020	0.033	-0.614	0.541
Payment	-0.076*	0.035	-2.167	0.034
Controlling	0.056*	0.033	1.670	0.100
Overseas	-0.059	0.036	-1.657	0.103

⋆ Indicates significance at the10% confidence level.
⋆⋆ Indicates significance at the 5% confidence level.
⋆⋆⋆ Indicates significance at the 1% confidence level.

As results shown in the table above, the variable payment methods is negatively statistically significant, and the coefficient is -0.076, which indicates that the payment method by cash has negative correlation with excess returns during the pre-five-days event window and HypothesisⅡdoesn't hold based on our sample pool. In addition, variable controlling position is statistically significant, and the coefficient is 0.056, which indicates that acquirers obtaining controlling position has positive correlation with excess returns during the pre-five-days event window and Hypothesis IV hold based on our sample pool. For other dummies, the results are not statistically significant, therefore, we can conclude that these dummy variables have no impact on excess returns during the pre-five-days event window. Hypothesis I and Hypothesis Ⅲdon't hold during pre-five-days event window based on our sample pool.

Table 19: Regression results of A-H* acquirers' excess returns

Coefficients	Estimate	Std. Error	t value	Pr (>|t|)
Intercept	0.019	0.031	0.604	0.548
Dual listing	0.009	0.023	0.413	0.681
Payment	-0.031	0.025	-1.295	0.200
Controlling	-0.001	0.023	-0.053	0.958
Overseas	0.002	0.0249	0.101	0.920

⋆ Indicates significance at the10% confidence level.

⋆⋆ Indicates significance at the 5% confidence level.

⋆⋆⋆ Indicates significance at the 1% confidence level.

As shown in the table, all results are not statistically significant at 10% level. Therefore, we can conclude that, based on our sample pool, in term of M&A impact factors such as dual-listing, payment method, controlling and overseas, these dummy variables have no impact on A-H* acquirers' excess returns during post-five-days event window. Hypothesis I, Hypothesis Ⅱ, Hypothesis Ⅲ and Hypothesis IV don't hold during post-five-days event window based on our sample pool.

8 Research conclusion

Based on our empirical research and analysis in Chapter 6 and Chapter 7, we reach the conclusions as below:

During pre-five-days event window, both A*-H acquirers and H-share market and HK* acquirers had significantly actual returns and excess returns. Theoretically, if market is efficient enough, stock prices should reflect all available and relevant information, indicating no excess returns before M&A announcement. However, during pre-5-days event window, A-H acquirers had 0.11% daily excess returns in A-share market and 0.30% daily excess returns in H-share market, and HK* acquirers had 1.31% daily excess returns, which is significantly higher than A-H acquirers'. The significantly positive excess returns imply that asymmetric information does exist both in A-share market and H-share market. Asymmetric information in stock market is the case of insider information, which refers to vital information of the company that only inside legal insiders, such as management team, may know. In our case, the vital information is listed companies' M&A transactions, which had significant impact on the acquirers' stock returns. In addition, the inside information is related to agency problem, in which situation there is conflict between listed company's management teams and listed company's shareholders. The reasons why A-H* acquirers had lower excess returns than HK* acquirers during pre-event window could be the efficiency of management system. Specifically, most A-H acquirers are big international companies. On the one hand, compared with smaller-sized HK* acquirers, A-H dual-listed companies are more likely to have more complete and scientific management system, which means decision making and information sharing follow strict process. From this aspect, the insiders have fewer chances to use M&A information to gain excess returns. On the other hand, big companies' insiders are more easily marked by regulators and social media, therefore, they might not want to take the risk to gain excess returns via inside information.

In term of the post-event window, compared to A-H* acquirers, A*-H acquirers had higher excess returns post-five-days event window, but lower excess returns during post-thirty-days event window. In addition, in A-share market, A-H acquirers' excess returns during post-five-days event window were significantly higher than those during post-thirty-days event window. T The phenomenon indicates that A*-H acquirers reacted more volatile to M&A event

in the short-term event window, and the impact of M&A event decayed gradually in the long run. On the contrary, compared with A-share market, in H-share market, A-H acquirers' excess returns were more significant in the long-term event window, and less volatile in the short-term event window. The explanation may be that A-share market investors and H-share market investors hold different investment horizon. A-share market investors focus more on short-term returns derived from speculation, while H-share market investors focus more on long-term returns and dividends.

A-H acquirers had different excess returns before and after the M&A announcement date both in A-share market and H-share market. The different stock performance may be explained by *Market Segmentation Phenomenon* in A-share market and H-share market. The implication of *Market Segmentation Phenomenon* is that Chinese mainland investors and Hong Kong investors are in different positions on their cost of capital, cash flow expectation in stock, and in particular, the views of the value of M&A transactions. Furthermore, Chinese A-share market is mainly open to local investors, and the cost of capital in A-share market is different from that in H-share market due to different risk-free rate and transaction expense. In addition, A-share market and H-share market are different in liquidity, specifically, A-share market is considered with higher liquidity than H-share market due to large number of retail investors. In the contrary, Hong Kong investors with less liquidity may require extra returns to compensate the drawback of less liquidity.

Other theories may also help explain the different excess returns between A-share market and H-share market. For instance, *Equilibrium Pricing Argument* argues that compared to domestic investors, foreign investors could gain additional diversification benefits. And the diversification benefits would lead to different excess returns between A-share market and H-share market. In addition, according to *Behavior Finance Theory*, investors have different expectations and many investors of them are irrational, therefore, A-share market with more retail investors may be over-valued compared with H-share market with more institutional investors.

In terms of regression results, due to limited samples, only a few dummy variables are significant in our regression model. Specifically, in the pre-excess returns regression, dummy variable *payment* is statistically significant at 10% level, and the coefficient for payment dummy is -0.077. Faccio and Masulis (2005) pointed out that since acquirers may not have

enough cash to finance the M&A transactions, using cash payment is often linked to taking on debt. Therefore, using cash payment probably means that acquirers have high leverage and raising more debt for M&A transactions may cause the corporations have higher financial cost in the future. In addition, dummy variable *controlling* is also statistically significant at 10% level, and the coefficient is 0.056. Controlling position means that acquirers hold over 50% of the targets and take full control of the targets after M&A transactions. Compared to minor position, controlling position would allow acquirers manage targets more flexibly and help create more synergy to both the acquirers and the targets. In the post-excess returns regression, regression results are not optimistic, neither five dummy variables are statistically significant.

Due to authors' knowledge and limited data sources, the thesis may have the following limitations: Firstly, there are only 32 A-H dual-listed acquirers and 34 Hong Kong non-dual-listed acquirers in our sample pool due to the limited number of completed M&A transactions and the criteria we set to wipe off unqualified M&A transactions. Therefore, the limited number of samples may cause our results of our event study and regression relatively less convincing. Especially when we classify M&A transactions via different categories, such as industries, payment methods and M&A purpose, after classification, there is only a few M&A transactions in each category. Secondly, due to limited access right to our main data source, Wind, our research period is from 2014 to 2017. It could be longer, and in this way, the test results could be more convincing and be easier to conclude the regularity. Thirdly, the impact factors that affect the excess returns of the acquirers could be more various. Only a few regression results in this thesis are statistically significant. There could be more impact factors that significantly affect the excess returns of the acquirers. Fourthly, our assumptions such as efficient-market hypothesis, M&A event is unanticipated and no confounding effects during the event window are very difficult to hold in practice. To obtain more accurate results, more adjustments are needed for the further research.

9 Reference

Agrawal, A. and Mandelker, G. N. (1987). Managerial Incentives and Corporate Investment and Financing Decisions. *The Journal of Finance,* 42(4), pp.823-837.

Ahern, K. and Fracassi, C. (2012). Lost in Transition? The Effect of Cultural Values on Mergers Around the World. *Journal of Financial Economics*, 117(1), pp.165-189.

Amit, G. (2008). Post-Merger Product Repositioning. *The Journal of Industrial Economics*, 56(1), pp.49-67.

Bao, H. (2017). Evaluation of Pre and Post Demerger-Merger Performance: Using ABN AMRO Bank as an Example. *International Journal of Economics and Finance*, 9(2).

Barclay, M. and Clifford, H. (1989). Private benefits of control of public corporations. *Journal of Financial Economics*, (59), pp.473-494.

Cooper, C and Cregory, A. (2000). *Advances in Mergers and Acquisitions*. pp.7-41.

Casalin, F. (2017). Determinants of holiday effects in mainland Chinese and HongKong markets. *China Economic Review*.

Chen, Xinyuan. and Zhang, Tianyu. (1999). Market reflection of Assets Restructuring: An Empirical Analysis of Assets Restructuring in Shanghai in 1997. China Academic Journal Electronic Publishing House, 9, pp.47:55.

Cheng, H. (2005). Dynamic Linkages Between the Greater China Economic Area Stock Markets—China mainland, Hong Kong, and Taiwan. *Review of Quantitative Finance and Accounting*, (24), pp.343-357.

Dyck, A. and Luigi, Z. (2004). Private benefits of control: An international comparison. *Journal of Finance*, (59), pp.537-600.

Eugene, F. (1965). The behavior of stock-market prices. *The Journal of Business,* 38(1), pp.34-105.

Faiq, M. Xia, X, P. and Humera, S. (2009). Global Financial Crisis: Chinese Stock Market Efficiency. *Asian Journal of Management Research*, pp.90-101.

Gabriela, A. (2015). The Efficient Market Hypothesis: review of specialized literature and empirical research. *Procedia Economics and Finance*, (32), pp.442-449.

Guo, Yongqing. (2000). An Empirical Study on M & A Performance of Chinese Listed Companies. *Qinghai Finance*, 6, pp.41:44.

Groenewold, N. and Wu, Y. (2002). The efficiency of the Chinese stock market and the role of the banks. *Journal of Asian Economics*, (14), pp.593-609.

Harris, M. and Arthur, R. (1988). Corporate control contests and capital structure. *Journal of Financial Economics,* (20), pp.55-86.

Hegde, S. (2010). Competitive Stock Markets: Evidence from Companies' Dual Listings on the NYSE and NASDAQ. *Financial Analysts Journal*, 66(1), pp.77-87.

Henrik, F. and Christopher, J. (2012). Post-acquisition evaluation processes: A case study of the acquisition performance evaluation processes undertaken by Trelleborg AB. *Stockholm School of Economics*.

Homburg, C. and Bucerius, M. (2005). A Marketing Perspective on Mergers and Acquisitions: How Marketing Integration Affects Post-merger Performance. *Journal of Marketing*, 69(1), pp.95-113.

Hung, W. (2016). Are stock price more informative after dual listing in emerging markets?. *Pacific-Basin Finance Journal*, (36), pp.31-45.

Huang, M. (2018). An examination of the cost efficiency of banks in Taiwan and China using the metafrontier cost function. *Journal of Productivity Analysis*, 40(3), pp.387-406.

Jensen, M. and Ruback, R. (1983). The Market for Corporate Control: The Scientific Evidence. *Journal of Financial Economics*, (11), pp.5-50.

Kam, C. Benton, E. and Ming, S. (1992). An Empirical Analysis of Stock Prices in Major Asian Markets and the United States. *The Financial Review,* 27(2), pp.289-307

Kiymaz, H. (2008). Short-Term Performance, Industry Effects, and Motives: Evidence from Large M&As. *Quarterly Journal of Finance and Accounting*, 47(2), pp.17-44.

Li, Shanmin. and Chen, Yuzhi. (2018). The Wealth Effect of Mergers and Acquisitions of Listed Companies. *Economic Research (China)*, 11, pp.27:35.

Liu, Jun. (2008). Empirical research on China M&A. *Shanghai Finance,* 12(12), pp.56-58.

MacKinlay, A. (1997). Event Studies in Economics and Finance. *Journal of Economic Literature*, 35(1).

Mara, F. and Ronald, M. (2005). The Choice of Payment Method in European Mergers & Acquisitions. *Journal of Finance*, 60(3), pp.1345-1388.

Martynova, M. and Renneboog, L. (2008). A century of corporate takeovers: What have we learned and where do we stand? *Journal of Banking & Finance,* 32(10), pp.2148-2177.

McWilliams, A. (1997). Event Studies in Management Research: Theoretical and Empirical Issues. *The Academy of Management Journal*, 40(3), pp.626-657.

Micheal, A. (2011). The 2010 Revised Merger Guidelines and Modern Industrial Economics. *Review of Industrial Organization*, 39(1), pp.159-168.

Niblock, S. and Sloan, K. (2007). Are Chinese stock markets weak-form efficient? *12th Finsia-Melbourne Centre for Financial Studies Banking and Finance Conference.*

Poter, M. (1987). From Competitive Advantage to Corporate Strategy. *Harvard Business Review,* 65(3), pp.43-59

Richard, J. (2006). Merger Momentum and Investor Sentiment: The Stock Market Reaction to Merger Announcements. *The Journal of Business*, 79(2), pp.987-1017.

R. Locke, P. and Sarkar, A. (2018). Market Liquidity and Trader Welfare in Multiple Dealer Markets: Evidence from Dual Trading Restrictions. *The Journal of Financial and Quantitative Analysis*, 34(1), pp.57-88.

Sun, Q. and Wang, T. (2000). The effect of market segmentation on stock prices: The China sydrome. *Journal of Banking and Finance*, (24), pp.1875-1902.

Switzer, J.A. (1996). Evidence on real gains in corporate acquisitions. *Journal of Economocs and Business*, (48), pp.443-460.

Sydney, F. (2002). Understanding Acquisition Performance: The Role of Transfer Effects. *Organization Science*, 13(1), pp,36-47.

Vandebeek, A. (2016). Board role performance and faultlines in family firms: The moderating role of formal board evaluation. *Journal of Family Business Strategy*, (7), pp.249-259.

Volker, N. and Micheal, D. (2010). Dynamic Merger Review. *Journal of Political Economy*, 118(6), pp.1201-1251.

Wang, G. and Lin, T. (2010). Empirical Analysis on A stock and It stock of Chinese Listed Companies. *Research on Economics and Management,* (8).

Wu, H. and Zhuang, X. (2008). An Empirical Analysis of M &A of Chinese Listed Companies. *Journal of Northeastern University (China)*, (29), pp.284:286.

Wu, Xufen. and Liu, Yinfeng. (2007). Empirical Analysis of Equity Premium in China's Capital Markets. *Economic Issues (China)*, (8), pp.85:88.

Xing, T. and He, Y. (2013). Empirical Study: How Different Stakeholders Affect M&A Performance. *Economics of SEZ in China*, (4), pp.28-31.

Xing, H. and Di, W. (2015). The Influence of M&A Impact Factors on Corporate Post-M&A Performance- Based on China's A-share markets Stock Markets. *Stockholm School of Economics.*

Yu, Guang. and Yang, Rong. (2000). Theoretical Analysis and Empirical Analysis on the Effect of M&A on Stock Price. *Contemporary Finance & Economics*, 07, pp.55:61.

Zerdin, M. (2014). *The Mergers & Acquisitions Review*. 8th ed. Law Business Research Ltd.

Zhang, Xin. (2003). Whether M&A and Restructuring Create Values. *Economics Research (China)*, 06, pp.20-29.

Zhou, H. and Kong, D. (2010). An Anatomy of Trading Strategies: Evidence from China. *Emerging Markets Finance & Trade*, 46(2), pp.66-79.

Zhu, Xi. (2007). *Research on short-term and long-term performance of listed company's M&As*. 1st ed. Economic science (China).

Zollo, M. and Meier, D. (2008). What Is M&A Performance？ *Academy of Management Perspectives*, 22(3), pp.55-77.

10 Appendix

Table 20: A-H dual-listed acquirers sample pool

First announcement date	Acquirer name	Stock code
2014-01-30	Shandong Xinhua Pharmaceutical	0719.HK,000756.SZ
2014-03-24	Sinopec Group	0386.HK,600028.SH
2014-03-24	Jiangsu Expressway	0177.HK,600377.SH
2014-07-04	Beijing North Star	0588.HK,601588.SH
2014-08-16	Zoomlion Heavy Industry Science and Technology	1157.HK,000157.SZ
2014-11-22	CITIC Securities	6030.HK,600030.SH
2014-12-04	Haitong Securities	6837.HK,600837.SH
2014-12-31	CRRC Corporation	1766.HK,601766.SH
2015-02-12	China Railway Construction Corporation	1186.HK,601186.SH
2015-03-27	Dongjiang Env	0895.HK,002672.SZ
2015-05-16	Huadian Power International Corporation	1071.HK,600027.SH
2015-05-20	Financial services of Communications	3328.HK,601328.SH
2015-06-03	GF Securities	1776.HK,000776.SZ
2015-08-26	Jiangxi Copper	0358.HK,600362.SH
2015-12-25	PetroChina	0857.HK,601857.SH
2016-03-18	GAC Group	2238.HK,601238.SH
2016-04-12	Huatai Securities	6886.HK,601688.SH
2016-08-31	Sichuan Expressway	0107.HK,601107.SH
2016-12-13	China Life Insurance	2628.HK,601628.SH
2016-12-29	Shandong Chenming Paper Holdings	1812.HK,200488.SZ
2017-02-08	Luoyang Glass	1108.HK,600876.SH
2017-05-26	Shenzhen Expressway	0548.HK,600548.SH
2017-06-07	China Galaxy Securities	6881.HK,601881.SH
2017-06-27	China Southern Airlines	1055.HK,600029.SH
2017-07-06	China International Marine Containers	2039.HK,000039.SZ
2017-09-23	Zhengzhou Coal Mining Machinery Group	0564.HK,601717.SH
2017-09-29	Great Wall Motors	2333.HK,601633.SH
2017-10-21	Shanghai Dazhong Public Utilities	1635.HK,600635.SH
2017-10-27	China Communications Construction	1800.HK,601800.SH
2017-10-28	China Coal Energy	1898.HK,601898.SH
2017-12-09	Tianjin Capital Environmental Protection Group	1065.HK,600874.SH
2017-12-29	BBMG Corporation	2009.HK,601992.SH

Table 21: Hong Kong non-dual-listed acquirers sample pool

First announcement date	Acquirer name	Stock code
2014-08-05	Fosun International	0656.HK
2014-08-06	Beijing West Industries International	2339.HK
2014-02-11	PW Medtech Group	1358.HK
2014-08-21	China Huarong Energy	1101.HK
2014-10-06	China Aluminum Cans Holdings	6898.HK
2014-11-12	Realord Group Holdings	1196.HK
2014-12-02	Healthoo International Technology Holdings	8088.HK
2014-12-17	China First Chemical Holdings	2121.HK
2014-12-17	China Primary Energy Holdings	8117.HK
2015-01-06	Century Sunshine Group Holdings	0509.HK
2015-01-13	Capital Finance Holdings	8239.HK
2015-01-27	China Traditional Chinese Medicine Holdings	0570.HK
2015-01-27	China Tian Lun Gas Holdings	1600.HK
2015-03-17	Merdeka Financial Services Group	8163.HK
2015-03-24	Shanghai Industrial Holdings	0363.HK
2015-03-29	Shengli Oil & Gas Pipe Holdings	1080.HK
2015-03-30	China Huirong Financial Holdings	1290.HK
2015-04-10	Yestar Health Automobilee Holdings	2393.HK
2015-04-12	China Shandong High-Speed Financial Group	0412.HK
2015-04-14	Jiangnan Group	1366.HK
2015-04-16	V.S. International Group	1002.HK
2015-04-23	China Natural Investment	8250.HK
2015-04-27	China Water Affairs Group	0855.HK
2015-05-05	Burwill Holdings	0024.HK
2015-05-05	Sunac China Holdings	1918.HK
2015-05-12	CMBC Capital	1141.HK
2015-05-26	Huajun Holdings	0377.HK
2015-05-27	Canvest Environmental International	1381.HK
2015-05-31	Great World Holdings	8003.HK
2015-06-05	Kong Sun Holdings	0295.HK
2015-06-10	Renhe Commercial Holdings	1387.HK
2015-07-02	Hoifu Energy Group	0007.HK
2015-07-02	Freetech Road Recycling Tech	6888.HK
2017-12-22	Mason Financial Holdings	0273.HK