



# Does Cai Shen (财神) watch over Chinese firms?

*A comparison of takeover premia paid by Chinese and non-Chinese firms*

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Cai Shen (财神) is the Chinese god of prosperity, worshipped in Chinese indigenous religion and Taoism. Especially during the Spring Festival period, incense is burned in Cai Shen's temple, and friends will joyously exchange the traditional greeting "Gong Xi Fa Cai" (Chinese:恭喜发财; English: May you become rich). Many Chinese firms also put Cai Shen's statue at the entrance and worship him every day to bring good fortune.

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## Abstract

With China's ever-increasing economic growth and engagement in the world economy, its M&A activity has been increasing dramatically and drawing attention. This thesis analyzes Chinese M&A bid premia through an in-depth comparison with non-Chinese M&A transactions. Descriptive statistics show that most Chinese M&A transactions are domestic and occur after 2002; acquirers are mostly from the investment commodity industry, and targets are widely dispersed across industries. I also discuss the different classes of shares listed on Chinese mainland stock exchanges and their implications for bid premia analysis. Parametric and non-parametric comparisons indicate that, on average, Chinese acquirers pay a lower premium, especially for targets from the Chinese mainland and/or listed in US stock markets. Premium comparisons over time and across industries reveal that Chinese acquisition bid premia are lower in most times and industries, and the concentration of Chinese acquisitions in low-than-average premia contexts is also responsible for the lower average overall premia. General-to-specific regression analysis shows that target country, stock exchange, time and acquirer/target industry-specific factors explain the majority of the bid premium differentials. A further break down reveals that target region factors and deal characteristics play the most important roles, while time and stock exchange-specific factors also increase bid premia differentials.

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## 1 Introduction

With the spectacular economic growth and the “Go Global” government policy, Chinese capital markets are becoming more and more active. Especially in the M&A arena, the transaction volume has increased dramatically. According to research conducted by Baker & McKenzie and Rhodium Group, merely in Europe the deals have increased nine times within 4 years (from \$2 billion in 2010 to \$18 billion in 2014). Moreover, single deals initiated by Chinese acquirers are often big enough to reshape the industry. Prominent Chinese deals such as the alliance between TCL and Thomson SA of France in 2003, or Geely’s acquisition of Swedish Volvo Cars in 2010, have demonstrated Chinese firms’ engagement in global M&A activities.

Alongside the ever-increasing growth of Chinese acquisitions, the media are focusing attention on this topic. Every year *The Economist* publishes a series of special reports for Chinese acquisition analysis, such as “*China buys up the world*” or “*Being eaten by the dragon --What it feels like to be bought by a Chinese firm*”, prepared with special insights from both acquirer and target perspectives. Some other media, such as Forbes, also provide many specialized case or trend analyses for Chinese acquisitions.

However, most academic and non-academic reports do limit their M&A analyses to either a global view (i.e. treating China as one of many nations ), or merely American market transactions, and Chinese acquisition analyses are always bound to general descriptions of motives, or cultural intergration in post-acquisition period. Few researches have touched upon Chinese acquisition time trend, industry, target country and/or stock exchanges clusterings, and the potential differences from other countries. The very limited preior research on this area by Asplund & Kjellesvik (2012) suggests that the average Chinese takeover premia is not different from non-Chinese ones, but this runs contrary to the popular press, which seems to believe that wealthy Chinese firms are paying huge premia to buy up many western firms. Therefore, it is hard to tell whether Chinese acquirers pay different bid premia. So this thesis is developed to

fill the gap, and reveal the existence of difference in premia paid and the underlying rationales.

The thesis is set out as follows. First, a comprehensive literature review on general M&A introduction, driver motives, existing bid premia analysis frameworks, and Chinese acquisition specificities is presented, and general hypothesis on Chinese bid premia difference is proposed. Then I will introduce the selected dataset and methodology utilized in this study. The third part is the general description of Chinese M&A activities with regard to the time, industry, country and stock exchange characteristics. Afterwards, simple parametric and non-parametric comparisons are conducted for Chinese and non-Chinese acquisitions from these four aspects. In the regression analysis part, dependent and independent variables are introduced and two general-to-specific regression models are computed using different variable sets. The following session reveals the regression results and further discussion issues (such as the break down of bid premia differentials). In the last two chapters, general conclusions are derived from the analysis, and limitations and further research areas are proposed.

## **2 Literature review**

There is an extensive literature in M&A analysis. This section will start with a general introduction and history of M&As. Thereafter, economic motives of M&A transactions, which constitute the primary foundation for bid premia determination, are introduced. Then I will introduce the existing literature on acquisition premia with regards to different value drivers. Finally, specificities of Chinese M&A are discussed and the main hypotheses on Chinese bid premia difference are proposed.

### **2.1 M&A in general**

M&A is a corporate strategy involving purchase and sales of firms, partially or completely, and M&A transactions may differ in various dimensions (Pettersson et al, 2013). For example, from the perspective of acquisition attitude, the transaction can be either hostile or friendly (Morck et al, 1988); Depending on the business relations between the acquirers and targets a transaction can be a horizontal merger (one competitor buys another) to obtain economies of scale or eliminate competition, or a vertical merger (a customer buys a supplier or vice versa) to reduce transaction costs between the corporate value chains, or a diversified conglomerate merger (the buyer constructs a portfolio of unrelated companies) for diversification or other purpose (Gugler et al, 2003) .

M&A is always of long-standing interest to economists and the financial community (Melicher et al, 1983), and references to merger activity can be dated back to as far as the 17<sup>th</sup> century. Historically, M&A transactions always have the tendency to cluster by time and industry, which ultimately contributes to “merger waves” (Duchin & Schmidt, 2013, Harford, 2005, Martynova & Renneboog, 2008, etc).

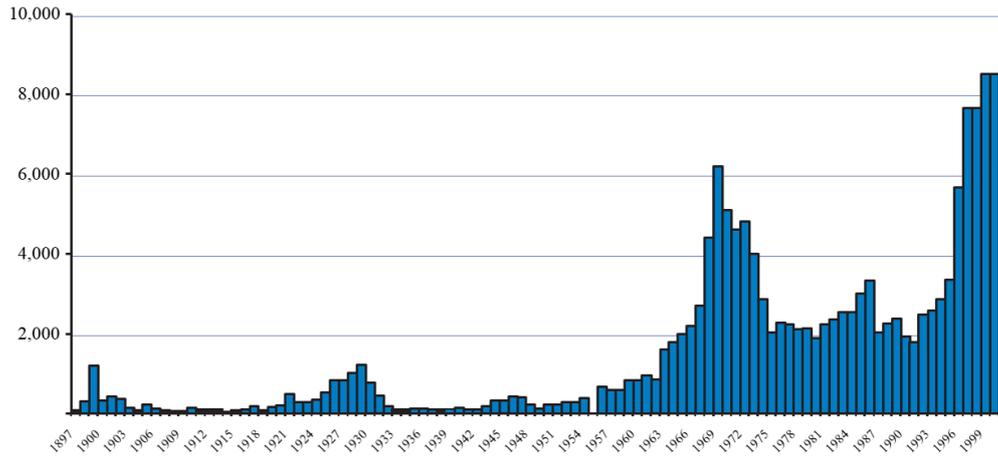


Figure 1: Illustration of merger waves in US (Martynova & Renneboog, 2008)

The earliest peak of M&A activities is generally accepted to have occurred in the 1890s, when technological innovation and favorable stock market conditions triggered horizontal merger clustering. This wave ended in 1904, when the stock market crash ruined the market. Afterwards, due to improvements in stock market and technology, as well as the regulation of horizontal mergers, vertical mergers became popular in the 1910s-1929. Similar improvements applied to the world economy in the 1950s-1973, when the third “wave” of diversified conglomerate mergers took place.

The fourth takeover wave commenced in 1981. In addition to the common causes specified already, this merger wave coincided with the deregulation of the financial services sector, capital market innovation, etc. Thus more LBO and PE transactions occurred. In 1993-2001, continued economic growth and industry-specific shocks (e.g. deregulation, technological innovation) caused M&A transactions in almost all sectors and many mega-mergers also took place during this period. The second most recent merger wave was 2003-2007, when the stock market was reaching a high and many derivatives were introduced into financial markets.

After the 2008 meltdown, the world economy has started recovering and financial markets are becoming more active. It seems a new merger wave is forming. Likewise, I suspect Chinese M&A activity may follow a similar growth pattern in waves, thus a parallel Chinese merger wave introduction is to be present in the next chapter.

## 2.2 M&A motives

Although M&A grew dramatically over the last few decades, controversies remain regarding the underlying motives. For example, according to Trautwein (1990), up to 7 theories may apply to describe the merger decision as a rational choice, a process outcome or a macroeconomic phenomenon. Fortunately, some widely-accepted categorizations of merger motives are shared by empirical studies. The framework I will utilize is based on Narayanan & Berkovitch (1993) and Koppens (2010), which group the motives into three categories: the synergy motive, the agency motive and the hubris motive. In addition, I would like to incorporate one more: the diversification motive, due to its interaction with the other motives and high relevance in the premia analysis.

### 2.2.1 The synergy motive

Defined as increased competitiveness, where the combined future cash flows of two firms are bigger than those which the companies would have realized on their own, so synergy shall be an essential driver and determinant of M&A transactions and their premia. Moreover, the synergies can be achieved from either operating synergies or financial synergies (Damodaran, 2005).

Operating synergies often result from economies of scale and/or economies of scope by cost reduction (e.g. R&D, production), or revenue enhancement (e.g. complimentary sales, monopoly power). Financial synergies can be achieved by matching cash-rich firms with firms with investment opportunities, thereby lowering the cost of capital (e.g. increasing debt capacities).

Synergy motives are well developed and examined by earlier studies. Gerchak & Gupta (2002) propose that the production characteristics of both the bidder and the target matter in the operating synergy, especially the production flexibilities and independent markets existence. Leland (2007) focuses exclusively on activities with nonsynergistic operational cash flows, and highlights that purely financial benefits, such as the leverage effects, may create or destroy acquisition value as well.

Overall, synergies - as the primary economic driver of M&A activities - are always shared by both parties, and usually serve as the general reference for takeover premia determination.

### **2.2.2 The agency motive**

Agency problems arise when the ownership and control of a business are separated. They may appear in different forms, but the main issue is that M&A transactions are likely to take place when the acquirer or target management may pursue their personal benefits from the transaction at the cost of shareholders. For example, under the “free cash flow hypothesis”, managers are reluctant to pay out cash to maintain flexibility and avoid signaling to external stakeholders, so they may take on value-destroying acquisitions when running out of good ones (Jensen, 1986). The empirical evidence also suggests that cash-rich firms are more likely to initiate M&A transactions and encounter a decline in performance afterwards (Harford, 1999). While, under the “increasing reliance hypothesis”, if the acquisition may increase the firm’s dependence on the management, such transactions are more likely to be initiated by the manager (Narayanan & Berkovitch, 1993). In a similar manner, the possibility of retaining the target CEO after acquisition, and high severance pay to target management in the case of acquisition, greatly reduce the bid premia and increase the success likelihood (Qiu, Trapkov, & Yakoub, 2014).

Therefore, agency-based motives may be among the most important triggers of M&A and are likely to happen when divergence between control and ownership of the firm exist, and management’s benefits are affected. However, due to high subjectivity, motives cannot be easily quantified, and are always inferred using proxy variables.

### **2.2.3 The hubris motive**

The hubris hypothesis was proposed by Roll (1986) and outlines a the situation where the bidding firm’s management believe they possess a better estimation of target firm value than the market. So they may pay too high a premium for the target, or even engage in the takeovers without economic gains. The main difference between the

hubris problem and the agency problem is that, with the latter, management actually know that they may overpay for the target, but they would like to proceed with the acquisition for their own sake.

Like the agency motive, hubris is not easily quantifiable. Hayward & Hambrick (1997) propose a list of CEO hubris indicators and reveal a positive relationship with the bid premia. Moreover, if the hubris involvement is taken into account, CEOs may learn from experience and progressively correct their over-optimism (Roll et al, 2005).

#### **2.2.4 The diversification motive**

Diversification indicates the acquirers' entry into a new business sector. On the one hand, the potentially reduced cash flow volatility and cost of capital may create value for the combined companies; on the other hand, it is argued that the investors can diversify their own portfolios in a less costly way and the potential agency costs of a conglomerate may destroy value (Ofek & Berger, 1995).

Empirical studies present different findings regarding diversification effects. Vishny et al (1990) and Comment & Jarrell (1995) suggest that less focused firms exhibit negative returns after acquisitions historically. Others argue that, under certain circumstances, diversification indeed creates value for the firm. Lang & Fan (2000) reveal that, though vertically related firms do poorly, complementary firms show higher values after acquisition. Selcuk & Kiyamaz (2013) also find that if an acquisition is made by an independent firm, diversifying acquisitions generate higher abnormal returns. Due to conflicting findings, scholars such as Limmack (2003) simply claim that no definitive conclusions can be reached from the evidence.

To sum up, the existing literature provides various views on the motives of M&A transactions. However, in reality they are often interacted with each other. For example, Anju, Song, & Pettit (2000) suggest the coexistence of hubris with synergy to explain their positive total gains sample, while the managerialism (agency) motive and synergy motive together explain the negative total gains.

### 2.3 Premia analysis

Once an acquisition decision is made, the next step is the determination of the bid premium. Alongside the world M&A activity involvement, takeover premium analysis frameworks also developed to a large extent.

From the 1980s, scholars started exploring the determinants of takeover premia by regression analysis on potential factors. Walkling & Edmister (1985) set up a regression model based on 108 tender offers in 1976-1977, and found a significant negative relationship between target group bid premia and target financial leverage, valuation ratio (M/B ratio), percentage of shares controlled by bidders before acquisition, and a positive effect from competing bidders. Varaiya (1987) regressed 77 target acquisition premia during 1975-1980 on bidder's acquisition gain estimations and target's bargaining strength indicators, thus revealing a significant positive relationship between takeover premia and bidding competitions, as well as the existence of anti-takeover amendments.

In the 1990s, researches continued complimenting the existing literature and building a more comprehensive analysis framework. Slusky & Caves (1991) analyzed 100 non-financial firm acquisitions in 1986-1988 from the synergy and agency perspectives, and illustrated an increase in potential premia with the difference of debt ratios between target and acquirer<sup>1</sup>, as well as the decrease in management's ownership of acquiring firms. Moreover, the presence of either actual or potential rival bidders was proved to have a powerful effect on all existing explanatory factors and exhibit a significant positive relationship with the premium. Haunschild (1994) further took into consideration the target performance uncertainty (i.e., the ratio of the standard deviation to the mean), transaction-specific factors (e.g. investment bankers' overall performance) and time fixed effects, in addition to synergies and target performance factors. Billett & Ryngaert (1997) brought in new target country-specific

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<sup>1</sup> The higher the difference between debt ratios, the more likely it is that acquirers will level up debt and enjoy the financial leverage.

factors and used weighted nonlinear least squares estimation to improve existing methods. Hambrick & Hayward (1997) complemented the framework by introducing executives' hubris factors into regression analysis, thus revealing a significant positive relationship between takeover premia and target officers' holdings, recent acquirer performance, media praise for the CEO and so on.

Since the 2000s, especially after the five world merger waves identified by Bruner (2004), more and more M&A transaction data become available, enabling researchers to conduct more specialized analysis and push the premium analysis further. Rossi & Volpin (2004) argued that the M&A transactions should be analyzed from a more comprehensive perspective, including the cross-border indicator, shareholder protection, target countries, and so on. While Moeller et al. (2005) merely paid special attention to the large loss-making deals during the preceding merger wave.

In recent studies, scholars focus more on specific effects of certain variables while setting up other target and deal characteristics as control variables. For example, Fichta et al (2013) examine the effect of golden parachutes on premia, in addition to target size, a private acquirer indicator, and so on. In Qiu et al (2014), the relationship between takeover premia and different target CEO characteristics are tested, together with other target and deal characteristics.

To summarize, M&A takeover premium research has made huge progress in recent decades, and comprehensive yet sophisticated analytical frameworks are being developed. In light of some widely-accepted frameworks, I classify the premium determinants discussed in different literatures in the following table.

Study	Acquirer characteristics	Target characteristics	Transaction characteristics	Others
<b>Walkling &amp; Edmister (1985)</b>		Debt/Assets*** (-), M/B ratio*** (-), percentage of shares controlled by investor pre-acquisition* (-), Net working capital/Assets	Acquirer's post-merger ownership over 50%*** (+), Opposing suitor*** (+), Conglomeration, Contested offer	
<b>Varaiya (1987)</b>		Anti-takeover amendment** (+), Target undervaluation* (+)	Acquisition competition*** (+)	
<b>Slusky &amp; Caves (1991)</b>	Management's ownership***(-), Individual shareholders percentage	Financial synergy in debt ratio difference***(+), Individual shareholders percentage***(-) Operating fit indicator, Management's ownership,	Presence of bidding rivals*** (+), Cash payment*** (+)	S&P 500 index value at the end of transaction
<b>Haunschild (1994)</b>	Interlock partner premia*** (+),	Target uncertainty* (-), Size relationship, Adjusted target ROE	Competing bid* (+), Own Investment Banker premia** (+), Other IBanker premia, Business synergy, Size synergy	Year of transaction
<b>Hambrick &amp; Hayward (1997)</b>	Recent acquirer performance*** (+), Media praise for CEO***(+), CEO relative pay**(+), Acquirer liquidity	Target officer holding** (+), Target's relative profitability, Target financial synergies, Target poison pill, Relative size of target, Combined CEO/chair	Competing bidders* (+), Payment method	Year of transaction
<b>Billett &amp; Ryngaert (1997)</b>	Acquirer's foothold	Target log relative size***(-), Liabilities/equity *** (+), Financial assets/equity*** (-), Insider	Multiple bidders*** (+), Percentage of shares sought, Poison pill	

		holdings*** (-), Institutional holdings,		
<b>Rossi &amp; Volpin (2004)</b>	Bidder M/B	Shareholder protection ***(+), Target size*** (-)	Cross border transaction* (+), Tender offer*** (+), contested bid** (+), Mandatory bid rule* (-), Hostile bid	Target country
<b>Sudarsanam et al. (2010)</b>			Length of acquisition*** (+), Bid Hostility*** (+), Competing bidders*** (+)	
<b>Fich et al. (2013)</b>	Private acquirer***(-)	Golden parachute measures**(-), Size** (-), Liquidity**(+) , Prior year excess return***(+), CEO near retirement*(-), Overconfident CEO, CEO-chairman, CEO-founder, CEO's equity ownership, CEO employment, Board ownership, Independent directors, M/B ratio, Leverage, Free cash flow	Cash payment**(+) , Tender offer*** (+), Rumor**(+) , Prior bidding**(+) , Target termination fee**(+) , Target initiated deal***(-), Hostile bid, Same industry, Litigation, Toehold, Time to completion, One year change in IP index	
<b>Qiu et al. (2014)</b>	Acquirer size*** (+), Acquirer Tobin's Q*** (+), Acquirer ROA, Acquirer debt ratio	Target size*** (-), Target stock retention**(-), CEO age, CEO Gender, CEO stock, CEO options, Target Tobin's q, Target ROA, Target debt ratio, Industry	CEO retention** (-), Tender offer* (+), Friendly attitude* (-) ,Cash deal, Same industry	Year of transaction

Notes: All takeover premia determinants mentioned in the literature review are shown above. The sign in parentheses indicates the direction of the factor's influence, while the asterisk indicates the average (in case of several panels) significance level (\* = Statistical significance at the 10% level, \*\* = Statistical significance at the 5% level, \*\*\* = Statistical significance at the 1% level).

**Table 2-1: Summary of bid premia analysis frameworks**

## 2.4 Chinese acquisition characteristics

Most M&A analyses are conducted based on world or American market data. Due to the ever-increasing role of Chinese acquirers in world M&A market, especially after China's superior performance in the world economic recession following 2008, more and more scholars have started to research on Chinese acquisition characteristics and discuss how they may converge, to or diverge from mainstream frameworks in terms of motive, context and performance.

However, due to the difficulty in quantifying factors, most of Chinese acquisition analyses are based on qualitative description and case study methods, instead of empirical analysis on Chinese acquisition drivers. One of the most popular frameworks applied is the resource-based theory, according to which a firm's strategic assets determine its competitive advantage and performance (Barney, 1991). Through multiple case studies, Deng (2007 & 2009), and Rui & Yip (2008) argue that foreign acquisition is one of the best means for Chinese firms to acquire strategic assets or leverage their competitive advantages under China's unique institutional environment, where the Chinese Government has the political control to reward and discipline firms for their adherence to its directives. Moreover, under the economic reforms, the Chinese Government has now enforced a series of policies, or even subsidies, to encourage Chinese firms to invest abroad and develop international competitive advantage.<sup>2</sup> Therefore, both home country institutional constraints and foreign investment possibilities motivate Chinese firms to do international M&A transactions.

Further, He & Lyles (2008) remind that China is still a developing economy, which started transitioning from a long-time centrally-planning model to a market-based model only around 20 years ago. Though Chinese firms have strong incentives to initiate international M&A, their lack of experience may disadvantage their international expansion to a large degree. In this paper, they also point out the cultural differences that may make Chinese acquisitions different. For example, the role of

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<sup>2</sup> More detailed policies can be found in the public Chinese state council website: <http://www.gov.cn/>

Government agency partnerships in the market economy remains confusing<sup>3</sup>; Guanxi (relationship) makes transactions more than a simple business deal; Confucianism leads to conservativeness in decision making; and the potential for corruption makes the deal even more complicated.

In terms of acquisition performance, Wu & Xie (2007) find that Chinese acquirers mostly conform to mainstream observations in the way that pre-acquisition performance and organizational age are positively related with performance, and pre-acquisition free cash flow is negatively related; but the special portion of state-owned shares in Chinese firms may significantly decrease acquisition performance.

All in all, the existing literature on Chinese acquisitions suggests that Chinese M&A activities are mostly in line with mainstream analysis in motives, premia determinants, and post-acquisition performance. But Chinese acquirers do have unique intrinsic and extrinsic stimuli to make acquisitions, special context of Government involvement, reliance in Guanxi (relationship) and conservativeness in country culture, as well as lack of experience, which complicate the takeover decision and bid premia determination. Therefore, I propose the main hypothesis in the thesis:

*Chinese acquirers tend to pay a systematically different premium for their targets.*

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3 That is why in Globerman & Shapiro (2009), the authors argue that goals unrelated to wealth maximization may dominate in some Chinese MNCs, which enjoy the leeway to make financially unprofitable foreign acquisitions and to operate acquired foreign companies inefficiently

## 3 Data and methodology

### 3.1 Empirical data

#### 3.1.1 Data sources

The analysis in this thesis is mainly based on information from three sources: Thomson Router SDC Platinum™, Bloomberg Terminal, and individual transaction reports. Since the paper aims to analyze Chinese M&A premia based on worldwide comparisons, a trustworthy collection of global M&A transaction data is needed. On the one hand, SDC plantium, as one of the most comprehensive M&A databases, has been widely used in previous premium analyses. On the other hand, Bloomberg, by providing comprehensive and reliable real-time and historical information on individual firms and market, perfectly compliments the SDC database. However, for more detailed information on specific transactions, other individual transaction reports or filings are needed.

#### 3.1.2 Sample data

The choice of sample data has to conform to the objective of the analysis. To perform better comparisons between takeover premia paid by Chinese acquirers and others, the data selection starts with transactions with Chinese acquirers and then extends to comparable global acquisitions.

##### 3.1.2.1 *The Chinese M&A transaction dataset*

In the general description of Chinese M&A<sup>4</sup> activities, the preliminary dataset is based on all M&A transaction data with Chinese acquirers from SDC Platinum since December 18, 1978, when the “Chinese economic reform” was officially introduced in the 3rd Plenary Session of the 11th Central Committee of the Communist Party of China.<sup>5</sup> Capital markets and international businesses were then open for the first

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<sup>4</sup> For consistency purpose, in the following context terms of “Chinese acquisition”, “Chinese M&A”, etc. all refer to transactions with Chinese acquirers. The definition of “nation of target / acquirer” in this thesis: “*the nation in which the acquiror's primary business is located at the announcement date of the transaction.*”

<sup>5</sup> Before this meeting, especially in the year 1966-1976, Chinese economy was greatly affected by the “Cultural

time to the public. The data end on December 31, 2014. There are altogether 33117 transactions during this time period.<sup>6</sup>

### 3.1.2.2 *The worldwide M&A transaction dataset*

Worldwide M&A transaction data mainly serves for comparison purposes with Chinese acquisitions. To be more comparable with the Chinese M&A dataset and reduce unnecessary noise, I need to set up the worldwide M&A transaction dataset following the pattern of Chinese acquisitions. Therefore, the thesis only use:

- 1) Transactions announced between January 1<sup>st</sup>, 2002 and Decemeber 31<sup>st</sup>, 2014.
- 2) Completed or unconditional transactions.<sup>7</sup>
- 3) Transactions with premia data.<sup>8</sup>
- 4) Transactions with adjusted premia lower than 200%.<sup>9</sup>

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Revolution”, which resisted any form of democracy, including the market-based economy. So it shall be reasonable to set this time as the starting point of the analysis.

<sup>6</sup> In the case of more specialized analysis, the Chinese and worldwide M&A transaction datasets specified in this session are subject to more adjustments in the following chapters. For example, since the trend analysis reveals virtually no Chinese takeovers before 2002, I modify the starting point to the beginning of 2002, which will be revealed in the next chapter.

<sup>7</sup> The other types of deal, e.g. intended or withdrawn ones, are by definition not successful, and thus not useful in revealing the correct comparison between premia paid.

<sup>8</sup> Unless specified separately, the premium mentioned in this thesis is the “Premium 1 Day Prior to Announcement Date”, defined as “*Premium of offer price to target closing stock price 1 day prior to the original announcement date, expressed as a percentage:*

*[ Share Price paid by Acquirer for Target Shares (Host Currency) – Target Share Price 1 day (Host Currency) prior to announcement ] / Target Share Price 1 day (Host Currency)”*

<sup>9</sup> Regarding the range of premia, many papers suggest the necessity of adjustments. For example, Moeller et al. (2005) and Officer (2003) both eliminate the negative premium observations, or make adjustments to make the premia within the range 0-200%. In my sample, we also set the upper bound to be 200% because, in the Chinese dataset, most transactions with premia over 200% are not correct or have improper treatments, thus needing

- 5) The targets shall not be primarily listed in Chinese mainland stock exchanges (i.e. China New OTC Bulletin Board, Shanghai Stock Exchange, Shenzhen Stock Exchange, Shenzhen -SME Board, Shenzhen - ChiNext Market)
- 6) Target primary stock exchanges shall be one of the following markets: Hong Kong stock exchange, Nasdaq stock exchange, Australian Securities Exchange, New York stock exchange, Singapore stock exchange, HK-Stock Exchange Growth Enterprise Market, TSX Venture Exchange, Toronto Stock Exchange, London Stock Exchange-Alternative Investment Market<sup>10</sup>.

In this manner, I gradually limit the worldwide M&A dataset to 9396 observations that fit these requirements.

Restrains	Worldwide transactions	Chinese aquisitions
1)	557218	31667
1) & 2)	410565	14162
1), 2) & 3)	26061	1010
1), 2), 3) & 4)	25755	1003
1), 2), 3), 4) & 5)	25015	304
1), 2), 3), 4), 5) & 6)	9396	250

Data source: SDC Platinum

**Table 3-1: M&A transaction dataset information**

correction (more details can be found in Appendix 2: Correction for Chinese acquisition dataset). Similar problems are found with worldwide transaction observations. Moreover, the outlier transactions occupy only 1.17% of overall transactions. Therefore, we deem the exclusion appropriate. On the other hand, we do not set the lower bound because we deem those transactions useful in providing some other information. Most importantly, the negative premia data are always seem to be correct in the database.

<sup>10</sup> The list is generated based on the discussion in the target primary stock exchange session in Chapter 4, and is based on the number of transactions. Also considering the fact that Chinese acquisitions happening outside this range occupy less than 10% of overall transactions, and they are widely dispersed with less than 10 transactions on each exchange, we deem the limitation on stock exchange most useful to reduce the noise of “outlier” transactions.

## **3.2 Methodology**

For premium analysis, various techniques are suggested by scholars, such as weighted nonlinear least squares estimation (Billett & Ryngaert, 1997), and option pricing theory (Sudarsanam & Sorwar, 2010). However, the mainstream methodology applied is the linear regression estimation technique, as in Fich et al. (2013), and Qiu et al. (2014), coupled with parametric and non-parametric tests in Moeller et al. (2005), Sudarsanam et al. (2010), etc. The thesis will begin with simple parametric and non-parametric comparisons of sample means and distributions (the Kolmogorov–Smirnov test and student’s t-test); afterwards the general-to-specific regression model will follow to control for more potential premia determinants simultaneously.

### **3.2.1 Non-parametric distribution comparison**

The Kolmogorov–Smirnov test (K-S test) was originally designed as one-sample test to check the maximum difference between an empirical and a hypothetical cumulative distribution (Massey & Jr., 1951). Thereafter, the two-sample test was developed to compare the empirical distribution functions of two samples. The biggest advantage of K-S test is that the statistics do not assume sample distributions, and it has become one of the most useful and general non-parametric methods for comparing one sample to a probability distribution or comparing two samples.

Therefore, I utilize the two-sample K-S test to check whether the distribution of premia paid by Chinese and non-Chinese acquirers significantly differ from one another.

### **3.2.2 Parametric mean value comparison**

The non-parametric K-S test examines the general difference between Chinese and non-Chinese acquisition premia distributions. In the general comparison of premia values, the assumption of a probability distribution is often needed; thus parametric tests, such as t-test or Chi-test, are widely used in the literature.

Looking at the historical premia probability distributions (Figure 5-2), and considering the huge sample size, the premia measure approximate the normal

distribution, so the t-test might then be useful in the comparison of mean values of the two samples. Moreover, the differences in kurtosis of the historical distributions seem to reveal differences in variances, so I will utilize students' two-sample t-test with unequal variances to examine whether the average bid premia paid by Chinese and non-Chinese acquirers are significantly different.

### 3.2.3 General-to-specific regression model

Both the t-test and the K-S test merely test the equality of overall bid premia without controlling for other effects. The situation is much more complicated in reality. For example, it might be the case that premia are higher in some specific areas, from which Chinese observations are disproportionately drawn. Thus I use regression modeling to allow for the influence of multiple explanatory variables, while quantifying the relationship between bid premia and acquirer nationalities. More specifically, the modified general-to-specific regression technique (Efroymson, 1960, Wilkinson, 1979) is applied.

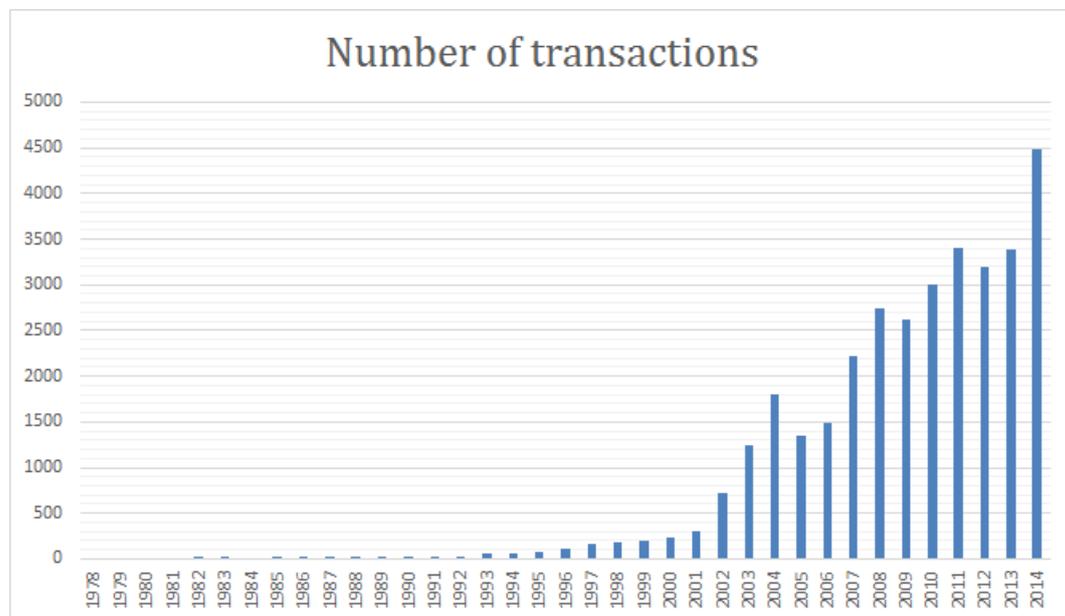
1. The model starts with all candidate variables, including stock exchange, target country, time, acquirer/target industry factors and control variables for other acquirer, target and deal characteristics;
2. Before reducing variables, the severity of multicollinearity is quantified via the Variance Inflation Factor (VIF);
3. At each step, in balancing the multicollinearity problem and significance level of each coefficient, less useful explanatory variables are removed from the model.
4. The process continues until only statistically significant variables remain and no further improvements can be made.

Throughout the process, potential premia determinants are all considered and the most powerful explanations are identified.

## 4 General description of Chinese M&A activities

### 4.1 The time trend of Chinese M&A transactions

As noted in the literature review, worldwide M&A transactions follow growth waves. A similar pattern can be observed in Chinese acquisition activity as well. Based on the dataset specified in Session 3.1.2.1, I plot the time trend to describe Chinese M&A development and identify four main increases in Chinese M&A transactions over 37 years.



Data source: SDC Platinum

Figure 4-1: Chinese M&A transactions over time

Chinese acquisition activity literally initiated in the 1980s, coinciding with the Chinese Government's termination of the internal conflict with Lin Biao<sup>11</sup>, the proposed "*Five Principles*" for international cooperation, and the "*One country, two systems*" plan<sup>12</sup>

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<sup>11</sup> Biao Lin was among Mr. Mao's best partners in fighting against enemies in his early life, but due to the conflict with Mr. Mao after the independence of People's Republic of China, he was condemned as a traitor by the Communist Party of China and was labeled as the "counter-revolutionary forces" of the Cultural Revolution.

<sup>12</sup> "*One country, two systems*" was originally proposed by Deng Xiaoping. It insisted on the principal that there would be only one China, but allowed distinct Chinese regions such as Hong Kong and Macau to retain their own capitalist economic and political systems, while the rest of China continued with the socialist system.

for Hong Kong, Macau and Taiwan economies. Therefore, the Chinese government allowed more international transactions and capital market mobility, and companies could have more opportunities to take control of other firms.

Growth increased by the 1990s, perhaps it was connected with the change in world politics. The dissolution of the Soviet Union in 1992 signified the termination of the global bipolar structure. In only one year, China established diplomatic relations with 13 more countries and moved much closer to the world economy. Therefore, Chinese M&A activity was enhanced.

The next growth period began in the 2000s. This trend may have something to do with China's official join to the World Trade Organization (WTO) on December 11<sup>th</sup> 2001. Thereafter, the international trade relations with other members became more frequent, as did M&A transactions.

After a temporary peak in 2004, from 2005 onwards Chinese M&A transactions became even more active. This may be explained by the technological innovation and Chinese economy boost. Moreover, on July 21<sup>st</sup>, 2004 China terminated the pegged exchange rate currency against the US dollars, and the increasing purchasing power of the Chinese yuan might explain the increasing trend as well. More interestingly, in contrast with the global recession, Chinese acquisition volume reached one peak around 2008. This may be due to the imperfect capital market mobility and the Economic Stimulus Program<sup>13</sup> initiated on November 9<sup>th</sup>, 2008.

All in all, Chinese M&A activity exhibits similar time trends as global merger waves. However, since only 4.39% of transactions occurred before 2002, it is reasonable to focus on Chinese M&A transactions since 2002 to reduce noise in the comparisons.

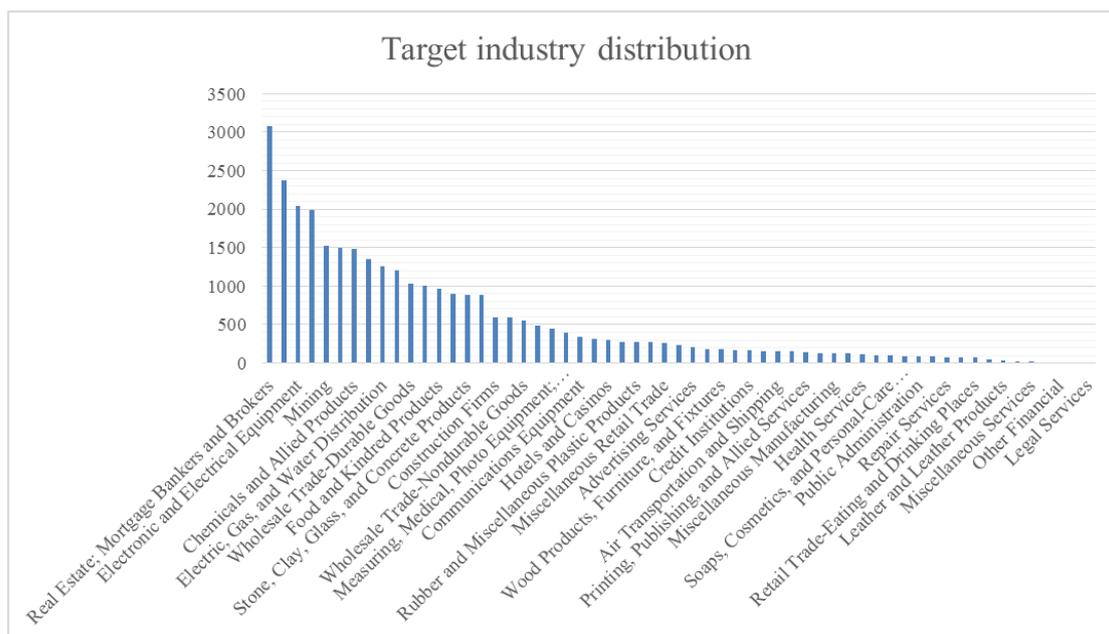
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<sup>13</sup> The Chinese economic stimulus plan contained a RMB¥ 4 trillion (US\$ 586 billion) stimulus package in an attempt to minimize the impact of the global financial crisis on the Chinese economy and to stabilize the world economy. As a result, the World Bank raised its growth forecast in China for 2009 from 6.5% to 7.2%.

## 4.2 The target/acquirer industry

As stated in Harford (2005), industry shocks are among the primary reasons for merger waves. Therefore, I would like to further consider the concentrations in target/acquirer industries. By limiting the acquisition year, I cut the observation size to 31664 transactions, and sketch the following discription.

### 4.2.1 Target industry



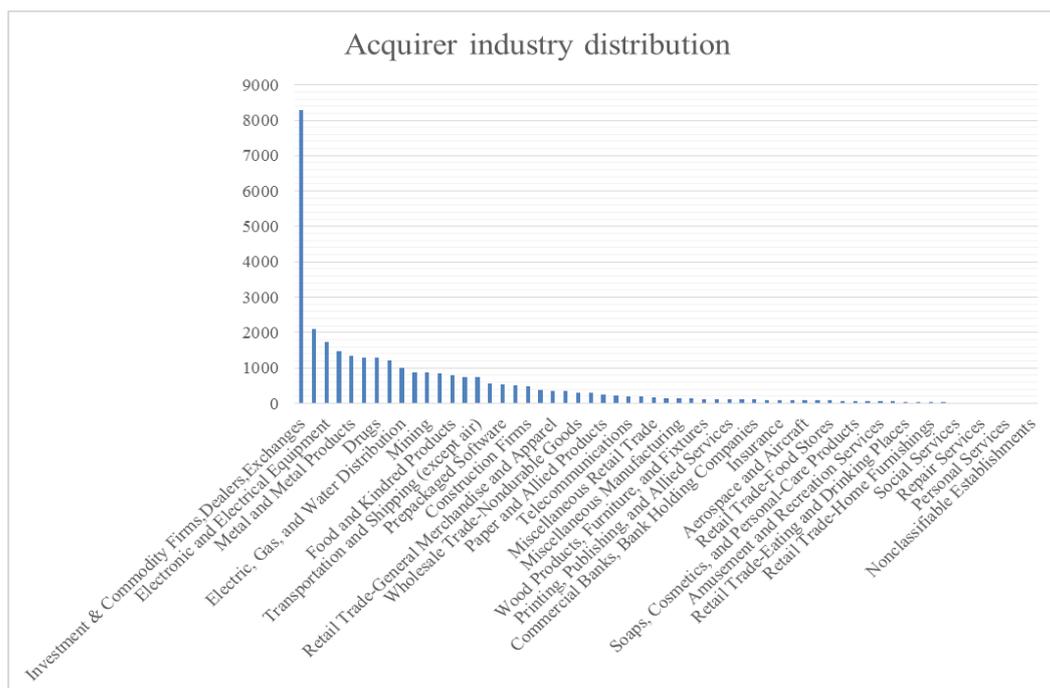
Data source: SDC Platinum

Figure 4-2: Chinese M&A transactions across target industry

As illustrated in this figure, Chinese acquirers take over targets in all the 61 industries defined in the SDC database, and the preference declines gradually from Real Estate; Mortgage Bankers and Brokers (3076 transactions) to Legal Service (5 observations).

To generalize, Chinese firms are more likely to acquire firms in intermediate service industries, such as brokers and dealers, as well as heavy industry, such as Equipment and Mining. This phenomenon coincides with the Chinese Government's policy to "persist in taking economic development as the central task", as these industries are exactly the ones that bring in money most quickly. Moreover, the Chinese Government's intent to build international reputation by investing heavily in developing countries in recent years may also play a role in defining the distribution.

#### 4.2.2 Acquirer industry



Data source: SDC Platinum

**Figure 4-3: Chinese M&A transactions across acquirer industry**

In contrast with the target industry distribution, the pattern of acquirer industry is quite different. A large portion of the deals (over 26%) were actually completed by investment firms<sup>14</sup>. This phenomenon may be explained by the fact that, compared to other Chinese firms, these financial intermediaries are more familiar with takeover operations, and they are more likely to have business connections with potential targets. Moreover, it might be the case that the ultimate acquirers merely conducted the acquisition in the name of these financial intermediaries.

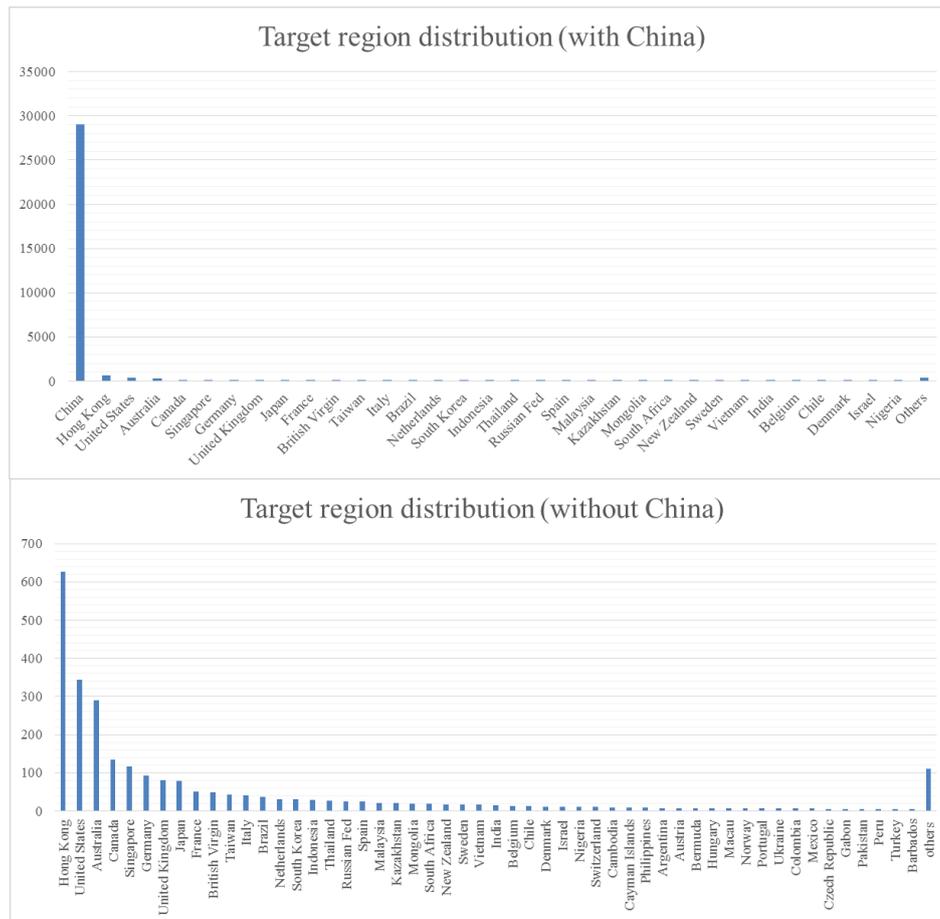
In light of the industry distributions of acquirers and targets, I infer that Chinese acquirers prefer the service industries and the heavy industries, while intermediaries such as investment firms, take the leading role in conducting these acquisitions.

<sup>14</sup> The definition of “Investment & Commodity Firms, Dealers, Exchanges” provided by the SDC Platinum:

*“This major group includes establishments engaged in the underwriting, purchase, sale, or brokerage of securities and other financial contracts on their own account or for the account of others; and exchanges, exchange clearinghouses, and other services allied with the exchange of securities and commodities.”*

### 4.3 The target country/region<sup>15</sup>

In the field of M&A, many papers have considered target country-specific effects by both quantitative analysis of cross-country transaction determinants (Rossi & Volpin, 2004), and qualitative description of strategic and cultural integration (Rui & Yip, 2008). However, these papers commonly take a North American perspective, so I would like to throw light on the target regions of Chinese acquisitions.



Data source: SDC Platinum

Figure 4-4: Chinese M&A transactions across target country/region

As this figure indicates, the most popular targets of Chinese acquirers are primarily operated in China, with a massively dominant share of overall transactions. The next most popular target regions are Hong Kong, the United States, Australia, Canada,

<sup>15</sup> Since Hong Kong, Macau and Taiwan follow a different social system from the Chinese mainland, and the capital market requirements are quite different, I talk the transactions between firms from the Chinese mainland and Hong Kong as cross-border transactions.

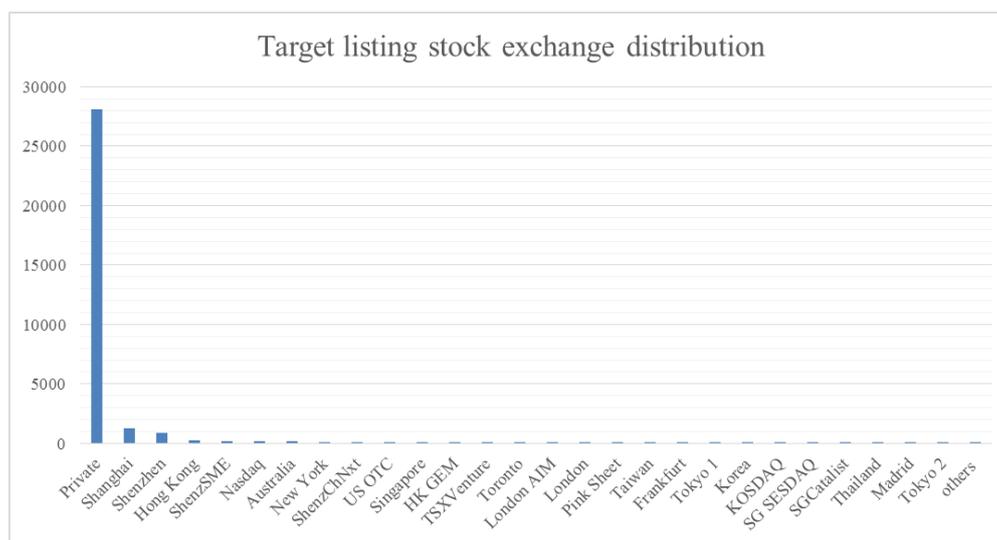
Singapore, and so on.

This pattern may be connected to Chinese culture, especially in concepts of “Guanxi” and Confucianism, which ultimately makes Chinese firms more likely to acquire the related targets, and those with the same or similar cultural backgrounds. Therefore, domestic companies, or firms in nearby regions affected by these Chinese cultures, become popular targets. Moreover, the world’s big economies, such as the US and Canada, also have close business connections with Chinese firms and comprise a relatively big component as target countries.

On the other hand, the relatively low popularity of Japan, the world’s third largest economy located next to China, may be explained by the historically tense relationship with China. However, as put into the pillar of “*others*”, target countries after Nigeria only have less than 10 M&A transactions, summing to less than 0.8% of overall transaction volume.

#### 4.4 The target primary stock exchange

The target country distribution presents a preliminary picture of where the targets are located. However, for a better view of where targets are traded and how they are affected by specific market changes or regulations, I will further the discussion to target primary stock exchange.



Data source: SDC Platinum

Figure 4-5: Chinese M&A transactions across target primary stock exchange

As this figure indicates, the majority of transactions are actually acquiring private firms, and public targets are mostly traded in the Chinese mainland or Hong Kong stock exchanges, followed by stock exchanges in the US, Australia, Singapore and Canada. In further research on these specific stock exchanges, I note out the following details that may potentially complicate the analysis.

##### 4.4.1 Private targets

As the figure shows, the majority of targets are private. This makes sense because big corporations are limited in organic growth, whilst SMEs (the most representative type of private firm) are born quickly due to technological innovation and greatly need capital to grow. Therefore, the combination of MNCs and SMEs becomes beneficial for both sides. However, those private targets are not required to submit financial statements or annual reports, so it is impossible to get the information needed for premia analysis.

#### 4.4.2 Chinese mainland stock exchanges

Most targets of Chinese M&A are listed on stock exchanges in the Chinese mainland. However, Chinese capital is not perfectly mobile. Therefore, one of the biggest challenges for bid premia analysis for targets listed in the Chinese mainland is the fact that Chinese listed companies usually have two classes of share: Class A, traded on the exchange; and Class B, representing big blocks of shares, which are not allowed to be traded by individuals.

Class A shares are traded only in segmented mainland stock exchanges, which do not have foreign investors. At the same time, domestic investors cannot invest directly in foreign stock markets. The special arrangement actually makes the observed (Class A) stock price extremely high, given the huge population and limited investment possibilities.

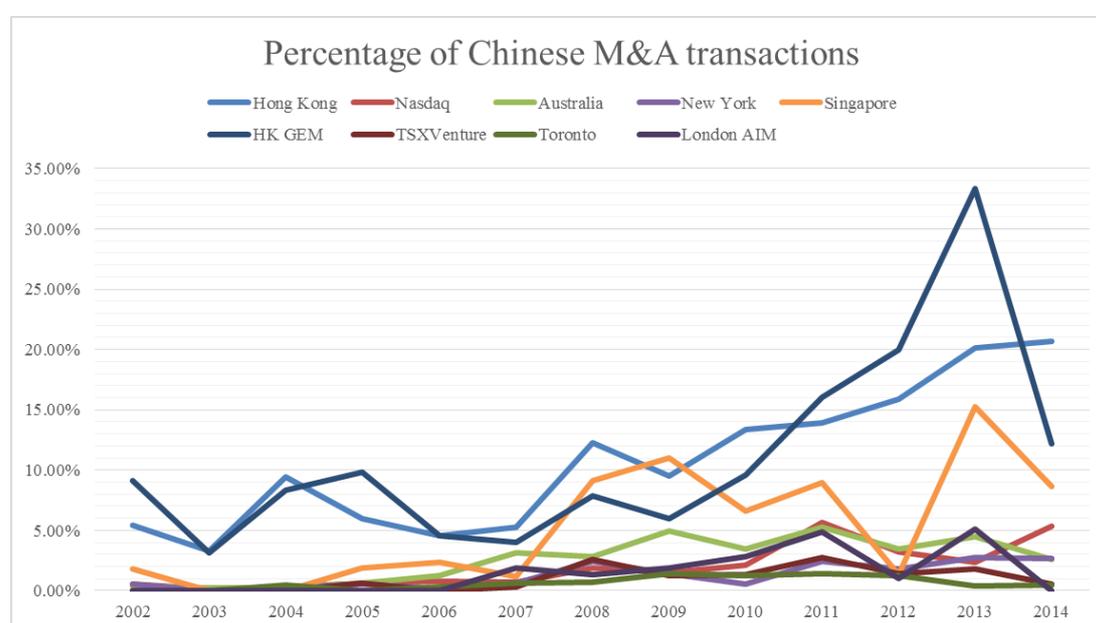
However, in M&A transactions, acquirers also have to bid for the Class B shares, for which they have to get permission to bid and which will be based on the “true” underlying value, which is much lower than the price of the Class A shares trading in the market.

Therefore, the bid premia for targets listed in the Chinese mainland stock exchanges may appear artificially and extremely low. For example, when Dongguan Yingfeng Oil Cake Ind acquired Chengdu Book Digital Co Ltd, it paid a premium of -96.72%. The bid price is based on the audited net assets value per share, which represents the true value of Class B and is much lower than the stock price observed for Class A shares in the stock exchange.

Hence I exclude Chinese M&A transactions with target companies listed in all Chinese mainland stock exchanges: China New OTC Bulletin Board, Shanghai Stock Exchange, Shenzhen Stock Exchange, Shenzhen Stock Exchange ChiNext Board, and Shenzhen Stock Exchange SME Board.

### 4.4.3 Other stock exchanges

Outside the Chinese mainland, there are 69 stock exchanges where the targets are primarily listed. They are dispersed all over the world, including Europe, America, Asia and Africa. However, transactions concentrate in only a few stock exchanges. If I set the cut line to be 24 transactions over the analysis period<sup>1617</sup>, and compare the number of transactions with overall transactions in each stock market, I construct the Chinese acquisition target listing exchange information table, which is given in Appendix 1. Moreover, I draw the following figure to illustrate the relative number of Chinese acquisitions that happened in each major stock exchange in each year.



Data source: SDC Platinum

Figure 4-6: Percentage of Chinese M&A transactions in each stock exchange

<sup>16</sup> There are two reasons to choose 24. First, there is a gap from 24 down to 16 in the sample. Second, since there are 13 years in the period, we believe at least 24 transactions are needed to make sense of comparisons with other transactions in the exchanges.

<sup>17</sup> According to the dataset, there were also 65 transactions in the OTC market, which is defined as the aggregated OTC markets not specified in SDC database. Though the transaction volume is over 24, individual markets are unknown and not observable, so we have to exclude them.

As revealed in the data, targets are mostly traded in the mainstream stock exchanges, especially in Hong Kong, the US and Australia, and Chinese acquirers have become more and more active in each stock exchange in both absolute and relative terms. Before the 2008 financial crisis, Chinese M&A occupied less than 10% of overall transactions in the 9 stock exchanges (detailed percentages can be found in Appendix 1). This is partly because 2008 financial crisis signified the termination of the sixth global merger wave. At the same time, the imperfect capital mobility in Chinese financial markets and the Economic Stimulus Program, protected Chinese firms from the global financial crisis. So they were then ready to take over companies hammered by the crisis.

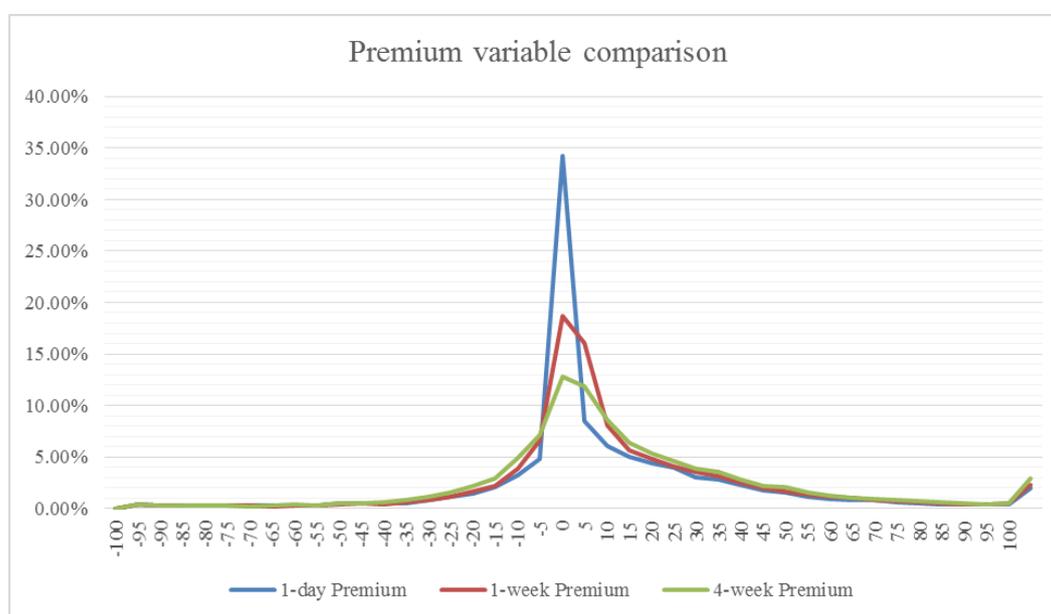
## 5 Comparison of Chinese and non-Chinese bid premia

### 5.1 Choice of premia proxy and target dataset

By definition, bid premium refers to the above-market-price component which bidders offer to target firm shareholders. Before the actual comparison between premia paid by Chinese and non-Chinese acquirers, some considerations still need to be made, such as the choice of premia proxy and target dataset.

#### 5.1.1 Choice of premia data

The SDC database provides three potential takeover premia proxies: "*Offer Price to Target Stock Price Premium 1 Day Prior to Announcement*", "*Offer Price to Target Stock Price Premium 1 Week Prior to Announcement*", and "*Offer Price to Target Stock Price Premium 4 Weeks Prior to Announcement*". Each premium variable has its own properties, so the choice of premia data is of great concern. Based on the tailored worldwide dataset specified in 3.1.3.2, I first compare how the three premia proxies differ in historical distribution.



Data source: SDC platinum

Figure 5-1: Premium proxy comparison

As this figure shows, the premium data based on target share price 1 day, 1 week and 4 weeks before announcement exhibit quite different distributions. Especially in the

aspect of kurtosis, the premium distribution is more flat as the time length increases. This property has its economic implication in the choice of premium variable since the actual premium differences are likely to stand out if a shorter time length is applied. Otherwise the time-smoothing effects may partially wipe out the difference<sup>18</sup>. Moreover, comparing the means these three premia proxies, the value based on longer time gap is significantly larger than that of the shorter time length. This phenomenon may be caused by the market return during the premia calculation gap. The longer the gap, the higher the market return is embedded in the premia proxy value.

Therefore, to get rid of the time-smoothing effects on premium data and reduce the “noise” of market return in premia value, I will only use the 1 day based premium data for the further analysis.

### **5.1.2 Choice of target set**

After the choice of premium data to use, another important issue is the choice of the target set, especially in terms of whether to include the premia paid to domestic targets in the Chinese acquisition dataset.

Historically, papers relating to Chinese M&A mostly concern cross-border transactions, such as Deng (2009) and Wu & Xie (2007). I also find extraordinary treatment of the targets listed on Chinese mainland stock exchanges. However, in further consideration of potential consequence by omitting domestic transactions, I believe M&A transactions with Chinese targets need to be included in the comparison, but need proper adjustments.

First of all, in the global M&A dataset, domestic acquisitions in non-Chinese markets are considered and represent an essential component. Moreover, researchers such as Rossi & Volpin (2004), already show significant premia effects of acquisitions being

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<sup>18</sup> Probably this is also one of the reasons why Asplund & Kjellesvik (2012) find no significant difference in Chinese and non-Chinese bid premia.

cross-border<sup>19</sup>. Therefore, if domestic transactions are excluded merely from the Chinese acquisition set, the the comparison is biased.

However, necessary adjustments still need to be done eo ensure a reliable comparison. To get rid of the extraordinary treatments of Chinese stock markets, I exclude observations (either domestic or cross-border) with targets listed on Chinese stock exchanges. While I deem Chinese companies listed in non-Chinese mainland stock exchanges subject to similar regulation to other targets and thus comparable to the global M&A set.

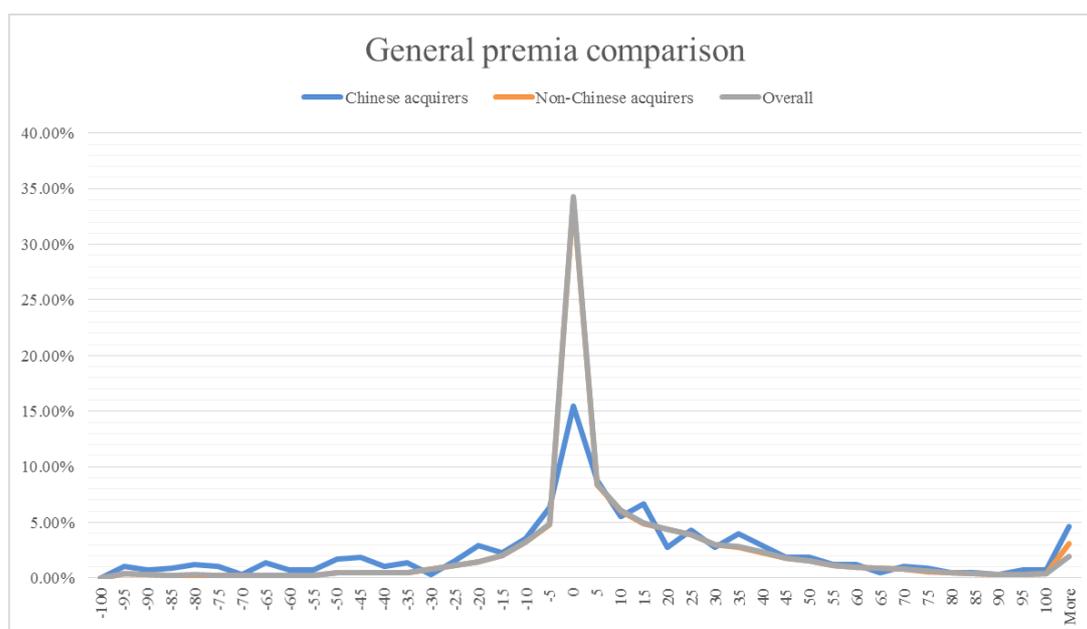
Therefore, I will use both domestic and outbound M&A data of Chinese acquisitions while exluding targets listed on the Chinese mainland exchanges for the general comparison and regression analysis.

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<sup>19</sup> Actually, similar effect of cross-border transactions in takeover premium is found in this thesis as well, see the Session 7.1 for more details.

## 5.2 General comparison

Based on the chosen premia proxy and target dataset, I firstly compare the bid premia paid by Chinese and non-Chinese acquirers to test the main hypothesis whether “Chinese acquirers do pay a systematically different premium for their target” from a general sense, before going on further explanations.



Data source: SDC platinum

Figure 5-2: General acquisition premia comparison

As the figure shows, premia paid by Chinese acquirers are typically in the range -20% to +50%, with a concentration between -5% and +15%. The historical premia distribution also displays positive skewness, indicating that Chinese acquirers are more likely to pay small but positive premia for targets. Compared to Chinese acquirers, the historical bid premia distribution of non-Chinese acquirers also has its mean value around zero but the dispersion much lower. Moreover, it is clear that Chinese acquisitions only represent a small portion of global M&A transactions, thus the premia distribution of overall transactions and non-Chinese one almost overlap with each other.

The virtual observation only gives certain indication on the premia differential. To be more precise in comparison, I then apply both the two-sample Kolmogorov-Smirnov

equality-of-distributions test (non-parametric) and the two-sample t-test with unpaired variances (parametric) to reveal the premia distribution and the mean value differences. In line with the main hypothesis, both tests prove highly significant differences ( $p < 1\%$ ) between Chinese acquirer and non-Chinese acquirer premia data, and on average, Chinese acquirers pay 15% less than other acquirers.

However, in further research on the underlying reasons, I suspect that the comparison may be subject to dataset selection problems. That is, Chinese acquirers may pay higher premia for targets operating in certain markets or industries, while in other markets or industries, premia paid by Chinese acquirers are disproportionately lower. To control for these potential selection problems, five sub-hypotheses are proposed.

- 1) *Target primary listing stock exchange-specific factors explain the Chinese takeover premia difference;*
- 2) *Target primary business location region-specific factors explain the Chinese takeover premia difference;*
- 3) *Time-specific factors explain the Chinese takeover premia difference;*
- 4) *Target industry-specific factors explain the Chinese takeover premia difference;*
- 5) *Acquirer industry-specific factors explain the Chinese takeover premia difference.*

Following these five sub-hypotheses, I then compare premia paid in the similar fashion from each of the sub-aspects, thus complimenting the main hypothesis.

### 5.3 Stock exchange-specific effects

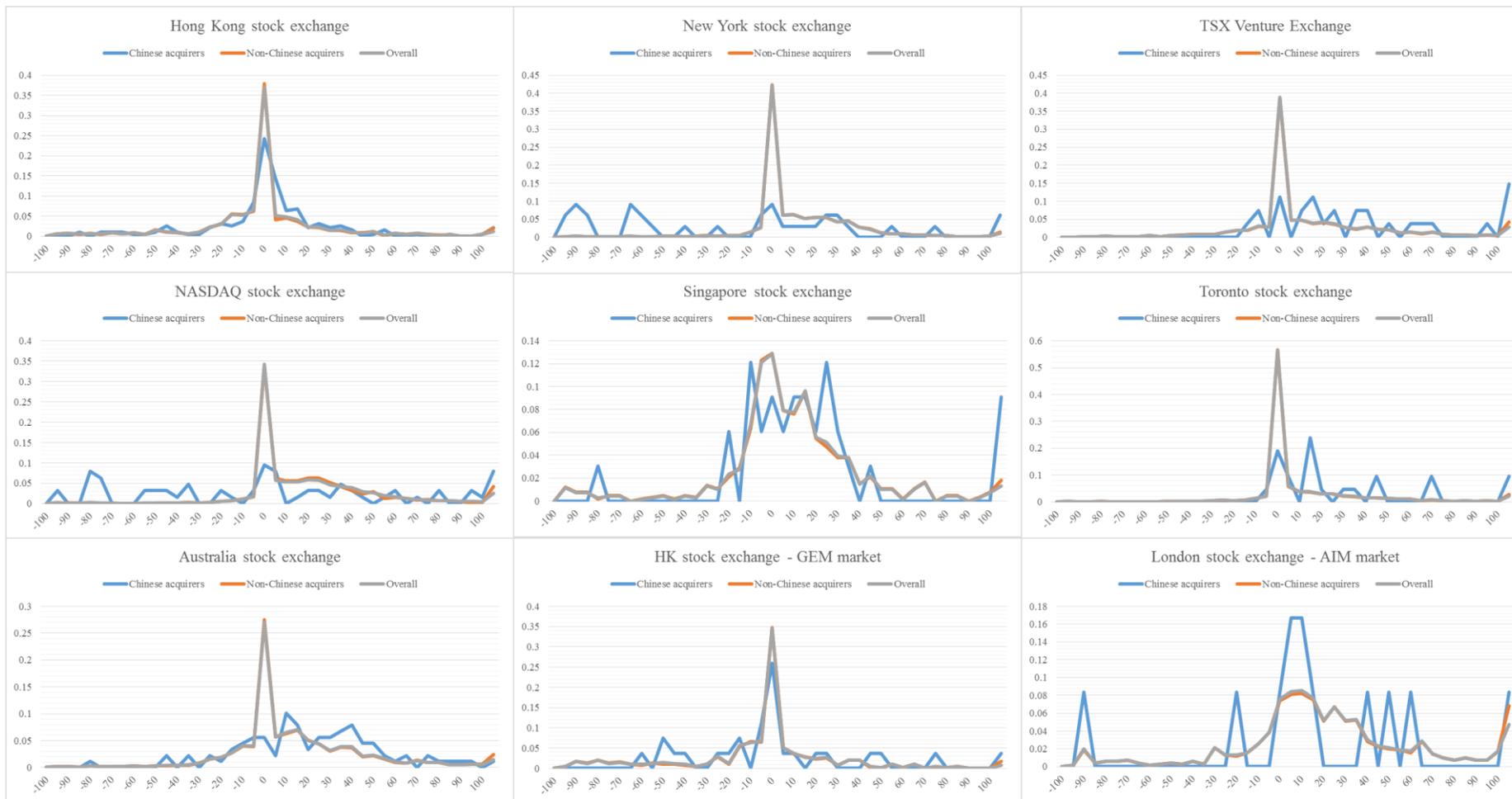
Companies listed in different stock exchanges are subject to different regulations and market environments. Therefore, target listing stock exchange-specific factors may cause variations in both the ease and premia of M&A transactions. Considering the high concentration of Chinese M&A in several particular exchanges, I will first compare Chinese and non-Chinese acquisitions across the nine major stock exchanges specified in Chapter 4 (see Figure 5-3 on next page).

The comparisons show trends similar to the global comparison, while exhibiting a couple of different characteristics. All acquirers tend to pay premia within a small range around zero; Chinese M&A activities only represent a small portion of overall transactions in all the stock exchanges listed in the figure; and Chinese historical premia are more dispersed than others. At the meantime, different stock exchanges do exhibit differences in distribution patterns. For example, stock markets in Hong Kong have more M&A transactions with a negative premium; and takeover premia in Singapore and the London- AIM market tend to be more widely distributed, instead of concentrating on certain stock exchanges. These differences may potentially be explained by the segmented stock market shocks or specific stock exchange regulations<sup>20</sup>.

Moreover, based on the unequalled premia distributions of Chinese and non-Chinese acquirers' premia in the figure, Chinese acquirers seem more likely to pay more for targets listed on the Hong Kong stock exchange, Singapore stock exchange, TSX Venture exchange and Toronto stock exchange, while paying less on the New York stock exchange and the NASDAQ exchange. By applying both the Kolmogorov-Smirnov test and t-test to compare transactions in these stock exchanges, the results are generated in the Table 5-1.

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20 For example, within Canada the TSX Venture exchange is designated for emerging companies, while the Toronto Stock Exchange is the senior equity market, the different treatments to companies of different seniorities may cause differences in the M&A premia.



Data source: SDC Platinum

Figure 5-3: Premia comparison across stock markets

Stock exchange	Two-sample K-S test	Two-sample t-test
Hong Kong	0.1004 (0.400)	-2.9640 (-0.6669)
NASDAQ	0.4098 (0.000)***	-37.2161 (-2.7652)***
Australia	0.1946 (0.031)**	4.0048 (0.8581)
New York	0.4986 (0.000)***	-48.4702 (-4.1530)***
Singapore	0.1262 (0.910)	-4.6177 (-0.6457)
HK GEM	0.2182 (0.708)	-10.0148 (-0.7468)
TSX Venture	0.4156 (0.006)***	40.5942 (3.7505)***
Toronto	0.2085 (0.473)	0.5140 (0.0513)
London- AIM	0.3961 (0.274)	-32.5752 (-1.6377)

Notes: The table lists the two equality tests results. Under the K-S test column The numbers refer to the difference in distribution parameters defined in STATA, while the numbers in parentheses refer to the p-values under K-S test. Under t-test column, the number is the excess of Chinese acquisition premia over non-Chinese, while the numbers in parentheses are the t-values. Significance level: \* p<0.10; \*\* p<0.05; \*\*\* p<0.01

**Table 5-1: Premia comparison across stock markets**

The table shows clearly stock exchange-specific influences. Chinese acquirers pay more than non-Chinese for targets on the TSX Venture, while paying less for targets on the New York and NASDAQ markets. In other stock markets, the dataset fails to provide a conclusive result. Especially in Australia Stock Exchange, even though the dataset suggest highly significant different distributions for Chinese and non-Chinese acquirer premia, the difference between mean values is not significant.

Moreover, combining the results with the target listing stock exchange information in Appendix 1, it is easy to notice that Chinese takeovers occur disproportionately in Hong Kong and Australia, where Chinese acquirers pay marginally less than non-Chinese firms (though not significantly so). Therefore, I suspect that the targets' concentration in lower premia stock exchanges is the primary reason for the average premia difference, so I calculate both Chinese and global average bid premia in each

stock exchange and make the following table.

Variable	Percentage of overall acquisitions	Percentage of Chinese acquisitions	Chinese M&A premia (1)	Overall M&A premia (2)	Difference (1)-(2)
Premium	100%	100.00%	1.8547	16.8545	-14.9998
Stock exchange concentration					
HK GEM	1.87%	3.60%	-16.5067	-6.8567	-9.6500
Hong Kong	9.36%	32.00%	-5.5286	-2.8216	-2.7070
Singapore	4.96%	7.20%	6.5878	11.0534	-4.4656
Australia	17.18%	20.80%	16.5021	12.6420	3.8601
New York	13.50%	8.80%	-30.7973	16.8339	-47.6312
London AIM	5.53%	2.00%	-13.2740	19.0852	-32.3592
Toronto	10.23%	5.60%	21.1443	20.6350	0.5093
Nasdaq	27.04%	14.00%	-9.6483	26.8821	-36.5304
TSX Venture	10.33%	6.00%	57.5607	17.5935	39.9671

Note: The table summarizes Chinese M&A concentration in target stock exchanges and the bid premia comparison with the average level in each stock exchange. The order is sorted by the overall premia paid (from smallest to largest). The red colorred cells refer to the scenarios where the average premia are lower than the general average.

**Table 5-2: Chinese M&A concentration in stock exchanges**

The table reveals clearly both Chinese M&A concentration in low premia contexts and the tendency to pay lower premia in most stock exchanges. Both effects contribute to the lower average premia paid by Chinese acquirers.

The findings have their own rationales. In general, Asian mind-set is more conservative compared to western cultures. The relative importance of relationship in Asian culture also bring down the premia to pay. On contrary, US or Canada markets are more profit/economic based, thus higher premia are required to win the bid. Therefore, the Chinese takeover premia differ systematically from the non-Chineses, with both concentration in low premia context and tendency to pay lower premia.

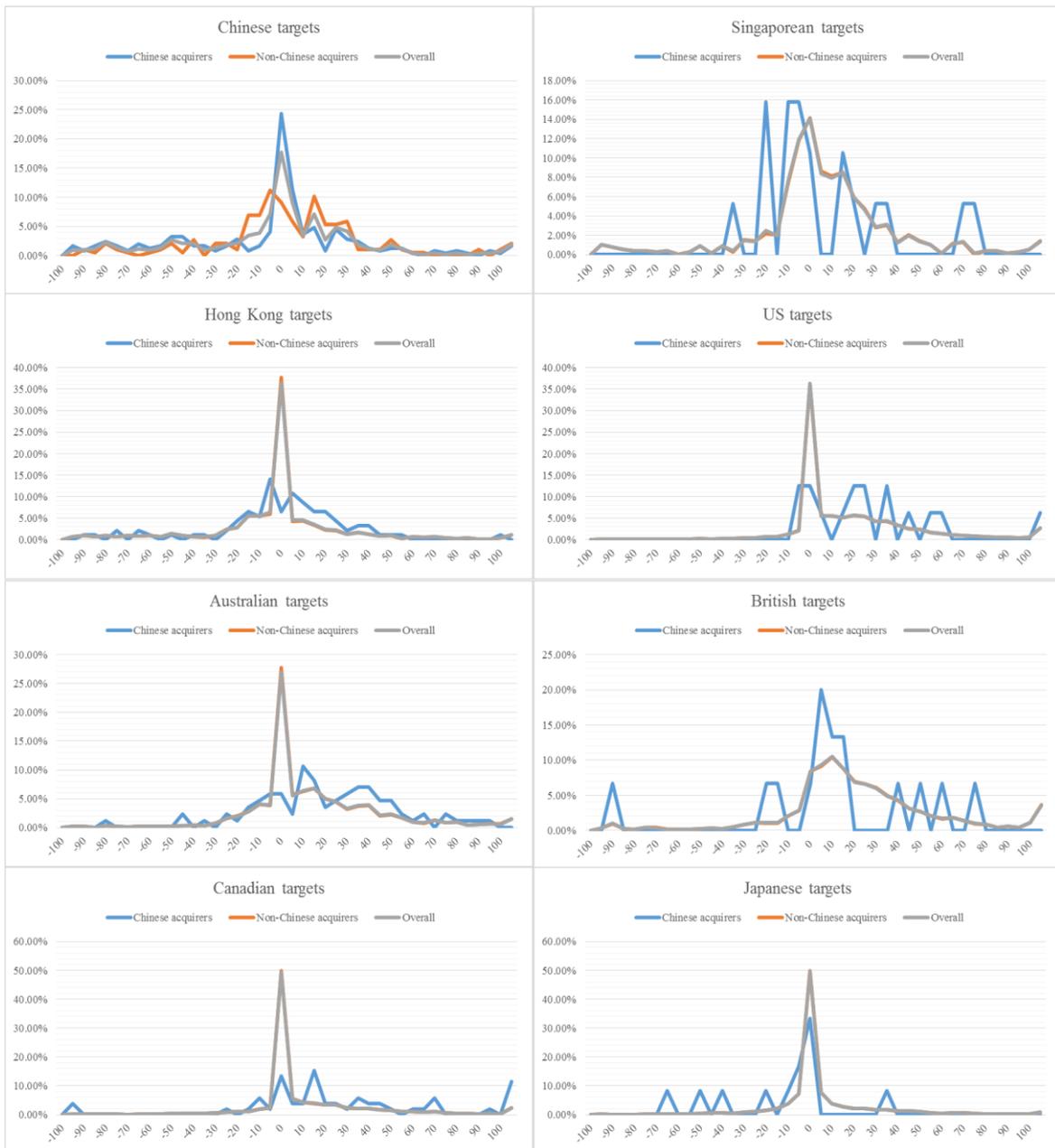
#### 5.4 Target region-specific effects

The target listing exchanges convey stock market-specific information, such as stock market shocks or exchange specific regulations. But a target's primary business location is not necessarily in the same country as its stock listing, so the country of business may also play a role in the acquisition premium as well. This is in line with much previous research on the geographic effects on bid premia (Rossi & Volpin, 2004). Also, considering the fact that most Chinese acquisition targets are focused on a limited set of countries, the comparison need consider country-specific effects as well.

For a descriptive purpose, I select the eight main target countries, based on transaction volume<sup>21</sup> (China, Hong Kong, Australia, Canada, Singapore, United States, United Kingdom and Japan), and compare the premia paid for targets from each country.

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<sup>21</sup> The eight most popular target countries are selected based on the number of transactions, due to the huge gap between the number of transactions in the eighth favorite country and the ninth. Moreover, we deem fewer than 10 available Chinese M&A transaction premia per country insufficient to make a meaningful comparison.



Data source: SDC Platinum

**Figure 5-4: Premia comparison across target regions**

From the figure, similar results to the comparison across stock exchanges can be observed. In most target countries, M&A transactions with Chinese acquirers are only a small portion of overall transactions; most target country premia are positively skewed; and Chinese acquirers' premia are historically more widely distributed than the rest. Moreover, Chinese acquirers may pay higher premia for targets from Hong Kong, Australia, Canada, the UK and the US, but lower premia in China, Singapore and Japan.

More interestingly, China as a target country stands out in the comparison. Except for targets from China, Chinese acquirers tend to pay more dispersed premia than non-Chinese acquirers in all the other seven countries. This may be potentially explained by the superiority of domestic M&A concerning the ease of operation, information accessibility, cultural similarity, etc, which makes Chinese targets more likely to be acquired by Chinese acquirers, causing the premia distribution to be more tightly clustered. Meanwhile, the limited information on Chinese firm operations, special circumstance of each acquirer country, and relatively low transaction volume cause the high dispersion in premia paid by non-Chinese acquirers (even though the targets are traded in stock exchanges outside the Chinese mainland).

As with the stock exchange-based comparison, I also apply both equality tests for premia comparison and extract the information of Chinese acquisition concentration in target countries. The results are shown below.

Target country	Two-sample K-S test	Two-sample t-test
China	0.2959 (0.000)**	-19.2945 (-3.3724)***
Hong Kong	0.1226 (0.363)	1.1334 (0.2084)
Australia	0.1855 (0.054)*	4.4146 (0.9118)
Canada	0.2424 (0.045)**	21.4853 (2.9559)**
Singapore	0.3590 (0.392)	-8.1060 (-0.6069)
United States	0.2850 (0.122)	-1.4464 (1.0932)
United Kingdom	0.2796 (0.718)	-18.2439 (-0.9235)
Japan	0.5767 (0.000)***	-19.5855 (-2.5666)**

Notes: The table lists the two equality tests results. Under K-S test column The numbers refer to the difference in distribution parameters defined in STATA, while the numbers in parentheses refer to the p-values under K-S test. Under t-test column, the number is the excess of Chinese acquisition premia over non-Chinese, while the numbers in parentheses are the t-values. Significance level: \* p<0.10; \*\* p<0.05; \*\*\* p<0.01

**Table 5-3: Premia comparison across target regions**

Variable	Percentage of overall acquisitions	Percentage of Chinese acquisitions	Chinese M&A premia (1)	Overall M&A premia (2)	Difference (1)-(2)
Premium	100%	100.00%	1.8547	16.8545	-14.9998
Target country concentration					
China	2.22%	38.40%	-17.5004	-7.0239	-10.4765
Hong Kong	10.53%	21.60%	-1.7828	-2.8438	1.0610
Singapore	4.47%	2.00%	3.8640	11.8788	-8.0148
Australia	17.03%	19.60%	17.1486	12.8882	4.2604
Canada	19.92%	11.60%	39.9803	18.8444	21.1359
United Kingdom	5.00%	2.00%	0.9840	19.1814	-18.1974
United States	37.74%	4.00%	23.4530	24.9146	-1.4616

Note: The table summarizes Chinese M&A concentration in target regions and the bid premia comparison with the average level in each target country. The order is sorted by the overall premia paid (from smallest to largest). The red colored cells refer to the scenarios where the average premia are lower than the general average.

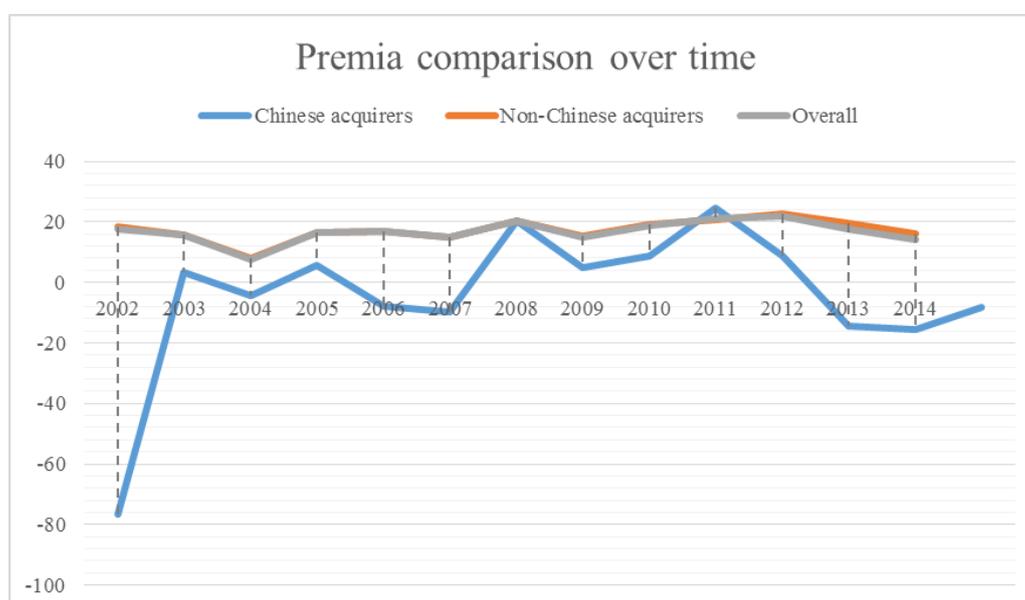
**Table 5-4: Chinese M&A concentration in target regions**

The tests and the comparison show similar results to those in the previous session. Especially for targets from Australia and Singapore, the results are almost the same. This can be explained by the fact that the majority of firms with primary business within these countries are also primarily listed in these domestic stock exchanges. On contrary, the results of the US-located targets and the US-traded targets reveal huge divergences. One explanation may be that, due to high liquidity and regulatory advantages, US stock markets are also the primarily listing markets of many international companies. For example, excluding those listed on Chinese mainland stock exchanges, over 28% of Chinese targets are listed primarily on the US stock markets. The divergence of the geographical and stock exchange-based country then causes the difference.

Similar concentration in target countries applies to that in stock exchanges as well. The Chinese acquisitions are disproportionately focused in China and Hong Kong, where Chinese targets typically earn a low premium, and Chinese acquirers also tend to pay lower premia in most target countries.

## 5.5 Time-specific effects

As the time trend analysis in the general description suggests, the number of acquisitions initiated by Chinese acquirers fluctuates a lot following Government policies or external environmental changes. Especially in the recent M&A waves, in the 2010s, the M&A transaction volume each year has been increasing dramatically. Therefore, time fixed effects capturing Government policies and business cycle differences, may help explain whether Chinese acquirers actually pay lower premia. The following graphs reveal the development of the relationship between the average premium paid by Chinese acquirers, non-Chinese acquirers and overall transactions.



Data source: SDC Platinum

Figure 5-5: Premia comparison over time

It is clear that historically Chinese acquirers paid lower average premia than non-Chinese in most years; and the premia fluctuations exhibit perfect fit with the timing of “waves” in Figure 4-1. Especially in 2004, 2008 and 2011, Chinese M&A activity reached its peaks in the sub-waves, and the average premia increased up to or above the world average. Nevertheless, if the transaction concentration over time is given, there appear variations from the results of stock exchange and target country-based comparison.

Variable	Percentage of overall acquisitions	Percentage of Chinese acquisitions	Chinese M&A premia (1)	Overall M&A premia (2)	Difference (1)-(2)
Premium	100%	100.00%	1.8547	16.8545	-14.9998
Time concentration					
2003	10.27%	1.20%	3.1733	15.5489	-12.3756
2004	6.62%	4.80%	-4.1933	7.7152	-11.9085
2005	9.64%	2.40%	5.7533	16.3632	-10.6099
2006	9.73%	1.20%	-7.7133	16.94	-24.6533
2007	7.31%	3.20%	-9.67	14.7806	-24.4506
2008	7.27%	9.60%	20.1613	20.2436	-0.0824
2009	8.57%	12.40%	4.8265	15.1862	-10.3598
2010	7.64%	11.20%	8.7632	19.0621	-10.2988
2011	5.66%	12.00%	24.653	20.9767	3.6763
2012	5.68%	14.00%	8.8966	21.9601	-13.0635
2013	8.67%	12.00%	-14.39	17.7436	-32.1336
2014	7.08%	14.00%	-15.5526	13.9888	-29.5413

Note: The table summarizes Chinese M&A concentration over time and the bid premia comparison with the average level in each transaction year. The red colored cells refer to the scenarios where the average premia are lower than the general average.

**Table 5-5: Chinese M&A concentration over time**

Quite different from stock exchange/ country-based comparison, most Chinese acquisitions occurred after 2008, when mostly higher-than-average are paid. This is in line with the Chinese “merger wave” discussion in Chapter 4 in the way that the world economy is hammered by the financial crisis and firms are often undervalued, thus the premia are higher than usual. More interestingly, Chinese acquirers still managed to pay a lower than average premia in most years. Especially in the last 3 years, around 40% of all Chinese acquisitions occurred with significant lower-than-average premia paid.

To summarize, with the mismatch between growth patterns of average premia paid by Chinese and non-Chinese acquirers, time-specific effects may play a role in constructing the premia differential.

## 5.6 Acquirer/Target industry-specific effects

As revealed in the general description, Chinese acquirers crowd into a limited number of industries, while their targets are widely distributed across different industries. Since different industries have their own operations, investments and regulations, I suspect that industry particularities may help explain the premia differential. Many empirical analyses yield similar effects as well, such as those arising from the industry shocks (Harford, 2005). So I select the 26 most popular target industries and 20 most popular acquirer industries for further comparison<sup>22</sup>, and draw the following comparison (order of industries in the figure is based on the popularity of Chinese acquirers).

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<sup>22</sup> Here the selection is based on the availability of useful data and we set the cutline to be at least five available transaction premia for each industry. The cutline is set to capture the most possible industry specific factors and ensure the comparison is reliable. Moreover, the unselected industries represent less than 10% of overall transactions, so we deem the cutline reasonable and useful.



Data source: SDC Platinum

**Figure 5-6: Premia comparison across industry**

From this figure, industry-specific factors affecting both Chinese and non-Chinese acquirers' premia can be identified. On the one hand, Chinese acquirers from certain industries, such as investment holding firms and business service, are paying lower premia than non-Chinese acquirers. On the other hand, higher bid premia are often paid to by Chinese acquirers from oil and gas, and holding companies (except banks). Similar industry specificities in premia paid apply to targets of certain industries as well.

More interestingly, the extreme overlap between the non-Chinese line and the overall line indicates the extremely limited proportion of transactions with Chinese acquirers globally. Even so, for targets in some specific industries, such as advertising services, premia paid by Chinese acquirers are so different that the overall transaction premia are heavily affected.

Apart from the bid premia comparison within each industry, the Chinese acquisition concentrations in acquirer/target industries, are summarized in the following table.

Variable	Percentage of overall acquisitions	Percentage of Chinese acquisitions	Chinese M&A premia (1)	Overall M&A premia (2)	Difference (1)-(2)
Premium	100%	100.00%	1.8547	16.8545	-14.9998
Acquirer industry concentration					
Air transportation and shipping	0.22%	0.40%	6.6700	8.1414	-1.4714
Investment & commodity firms, dealers, exchanges	36.80%	48.80%	-8.0740	8.2458	-16.3198
Holding companies, except banks	1.06%	2.40%	56.8817	9.6098	47.2719
Real estate; mortgage bankers and brokers	1.39%	2.00%	6.7460	13.1209	-6.3749
Electric, gas, and water distribution)	1.45%	2.00%	-9.7180	14.3769	-24.0949
Transportation equipment	0.53%	1.60%	-4.7225	18.3558	-23.0783
Textile and apparel products	0.32%	1.20%	8.0600	18.9347	-10.8747
Metal and metal products	1.69%	5.20%	13.1169	19.0470	-5.9301
Oil and gas; petroleum refining	5.17%	4.00%	25.3350	19.8951	5.4399
Stone, clay, glass, and concrete products	0.30%	0.80%	-27.0200	19.9736	-46.9936
Commercial banks, bank holding companies	4.70%	1.60%	11.2950	20.3953	-9.1003
Business services	4.73%	6.00%	-5.1280	20.3969	-25.5249
Mining	9.67%	8.40%	25.2490	21.5947	3.6544
Construction firms	0.61%	0.40%	0.0100	22.4681	-22.4581
Food and kindred products	1.22%	2.00%	11.9700	22.6975	-10.7275
Machinery	0.99%	1.60%	-10.9675	24.4219	-35.3894
Wholesale trade-durable goods	1.10%	0.80%	16.7550	24.9664	-8.2114
Electronic and electrical equipment	2.29%	3.60%	-8.4767	27.2168	-35.6935
Prepackaged software	2.75%	1.20%	11.1333	33.4804	-22.3471
Drugs	2.96%	0.80%	1.4950	37.3743	-35.8793
Target industry concentration					
Textile and apparel products	0.79%	2.00%	-7.3000	4.9558	-12.2558
Wholesale trade-nondurable goods	0.79%	1.20%	5.4867	5.5081	-0.0214

Transportation equipment	0.66%	2.00%	-31.5240	7.3235	-38.8475
Electric, gas, and water distribution	1.82%	4.00%	-7.4300	7.8583	-15.2883
Transportation and shipping (except air)	1.88%	0.80%	-24.1450	8.6046	-32.7496
Wholesale trade-durable goods	1.56%	1.20%	-8.8900	9.7673	-18.6573
Investment & commodity firms, dealers, exchanges	8.98%	3.60%	0.4833	9.9298	-9.4464
Real estate; mortgage bankers and brokers	2.47%	4.80%	4.2075	11.0438	-6.8363
Air transportation and shipping	0.36%	0.80%	0.7800	14.4935	-13.7135
Mining	15.84%	26.00%	20.5757	15.6190	4.9567
Food and kindred products	1.93%	4.80%	6.5642	16.1842	-9.6200
Communications equipment	1.16%	2.00%	-12.8200	16.4405	-29.2605
Metal and metal products	1.38%	1.20%	13.4300	17.4816	-4.0516
Chemicals and allied products	1.29%	3.20%	-12.2963	17.9191	-30.2153
Business services	8.43%	7.20%	-10.6122	18.5011	-29.1133
Oil and gas; petroleum refining	6.69%	5.20%	40.0708	18.7137	21.3571
Stone, clay, glass, and concrete products	0.51%	0.80%	5.1650	18.9944	-13.8294
Machinery	1.61%	3.20%	-29.1863	19.3099	-48.4961
Commercial banks, bank holding companies	5.10%	2.00%	13.3860	19.8476	-6.4616
Electronic and electrical equipment	3.32%	8.80%	-6.5500	20.6813	-27.2313
Hotels and casinos	0.95%	1.20%	-38.9100	24.9491	-63.8591
Prepackaged software	4.94%	1.60%	13.7175	26.8208	-13.1033
Measuring, medical, photo equipment; clocks	2.78%	0.40%	-11.2000	27.7605	-38.9605
Drugs	3.95%	3.20%	-12.9275	28.1437	-41.0712

Note: The table summarizes Chinese M&A concentrations in acquirer/target industries and the bid premia comparison with the average level in each stock exchange. The order is sorted by the overall premia paid (from smallest to largest). The red colored cells refer to the scenarios where the average premia are lower than the general average.

**Table 5-6: Chinese M&A concentration in acquirer/target industries**

The M&A concentrations in acquirer and target industries exhibit quite different results. Chinese acquirers are mostly (48.80%) investment and commodity firms, which is typically a low premia industry with less than half the average bid premia paid globally, and they also paid significant lower premia than the industry average level. On contrary, the target industries are quite dispersed and affect the premia differential in different directions. For example, 26% of Chinese acquisitions involve targets from mining industry, which entitles around average level of premia to pay, but the Chinese acquirers are paying 5% higher the premia. In contrast, 8.8% of Chinese

acquisitions take electronic and electrical equipment firms as targets, which is a high premia context, but Chinese are paying averagely 27% less premia! However, Chinese acquirers do pay lower premia in most industries.

All in all, from the industry-specific perspective, Chinese acquirers are mostly from the lower-than-average premia contexts and they pay lower premia in most acquirer industry categories as well. On contrary, target industries are widely dispersed in different premia contexts and Chinese acquirers do pay lower premia for targets from most industries. .

## **6 Regression analysis**

Regression analysis differs from general comparison in the way that it can take many explanatory variables into consideration at once, thus revealing the explanations for the observed takeover premia differential. Therefore, the individual effect of time, target country & listing stock exchange, acquirer/target industry, and the joint influence together with other control variables can be identified within the same framework. In further consideration of the bid premia comparison in the last chapter and premia determinants suggested in previous research (see Table 6-1), I adjust the worldwide M&A dataset in 3.1.3.2, and introduce a comprehensive set of dependent and independent variables for the regression analysis.

### **6.1 Dependent variable**

As discussed in the choice of premium session in Chapter 5, the regression analysis will continue using the one-day takeover premium as dependent variable, which is defined as *"offer price to target stock price premium 1 day prior to announcement"*.

## 6.2 Independent variables

In the previous chapter, Chinese and non-Chinese acquirer premia are compared with regards to different specific effect, i.e. time specific, industry specific, etc. In the regression model, they may also serve as the explanatory variables to explain the variation in premia. Moreover, additional control variables concerning acquirer, target and transaction-specific factors need to be considered.

### 6.2.1 Chinese acquirer indicator

In the comparison of takeover premia paid by Chinese and non-Chinese acquirers, I set up the dummy for the acquirer being a Chinese firm; its coefficient will reveal the average differential in the premia paid due to the bidder being Chinese.

### 6.2.2 Stock exchange-specific factors

As discussed in Chapter 5, the stock exchange-specific effects may exist in Chinese acquisition premium determination. Therefore, fixed stock exchange dummies and dynamic stock market shocks are introduced to the regression model to reflect stock exchange-specific factors.

#### 6.2.2.1 Stock exchange fixed factors

The fixed factors refer to the exchange regulations or norms that may constraint the transactions and influence the premia paid. Stock exchange fixed factors can then easily be modelled using exchange dummies.

#### 6.2.2.2 Stock exchange shock

The stock exchange shock, similar to “*industry shock*”, refers to the stock market shifts over the pre-acquisition period. This factor is important in the acquisition decision in that the overall market change may greatly influence acquirers’ judgement on the targets’ prospects and growth potential. For example, the new policy in certain stock market may immediately influence the acquisition decision for targets in this market.

The main difference from the static stock exchange dummy is the change over time, and the stock market index return in the 3 months before acquisition announcement is

used as a proxy for the stock market shocks<sup>23</sup>.

Panel A: Target stock exchange-specific factor description								
	Global observations	Chinese observations	Chinese M&A (1)	Non-Chinese M&A (2)	Global M&A (3)	Difference		
						(1)-(2)	(2)-(3)	(1)-(3)
Market index								
return	9394	250	0.0224	0.0139	0.0141	0.0085	-0.0002	0.0083
Hong Kong	9396	250	0.3200	0.0873	0.0934	0.2327**	-0.0062	0.2266**
Nasdaq	9396	250	0.1400	0.2740	0.2704	-0.134**	0.0036	-0.1304**
Australia	9396	250	0.2080	0.1708	0.1718	0.0372	-0.001	0.0362
New York	9396	250	0.0880	0.1362	0.1350	-0.0482**	0.0013	-0.047**
Singapore	9396	250	0.0720	0.0490	0.0496	0.023	-0.0006	0.0224
London AIM	9396	250	0.0200	0.0563	0.0553	-0.0363**	0.001	-0.0353**
HK GEM	9396	250	0.0360	0.0184	0.0188	0.0176	-0.0005	0.0172
Toronto	9396	250	0.0560	0.1035	0.1023	-0.0475**	0.0013	-0.0463**

Note: The table summarizes all independent variable values under target stock exchange-specific factor set. The data in cells are the average value of each variable in each dataset (value for a dummy means the average percentage of transactions), the difference is based on a t-test (\* p<0.05; \*\* p<0.01).

**Table 6-1: Data description of target stock exchange-specific factors**

### 6.2.3 Target country-specific factors

The target country-specific factors distinguish premia paid for targets from certain countries. They reflect the country-wide regulations or environments that may influence the takeover premia determination and can be easily approximated by the target country dummies.<sup>24</sup>

<sup>23</sup> The 3-month interval is determined because we deem such a time length necessary to prepare for the acquisition, especially for big multinationals where the interval between announcement and settlement may take a long time. Moreover, many other empirical papers take 3 months as the longest interval to complete the abnormal return calculation.

<sup>24</sup> Due to the dispersed distribution of target countries, we set country dummies only for the target countries specified in the comparison in last chapter.

Panel B: Target country-specific factor description								
	Global observations	Chinese observations	Chinese M&A (1)	Non-Chinese M&A (2)	Global M&A (3)	Difference		
						(1)-(2)	(2)-(3)	(1)-(3)
China	9396	250	0.3840	0.0122	0.0221	0.3718**	-0.0099**	0.3619**
Hong Kong	9396	250	0.2160	0.1022	0.1053	0.1138**	-0.003	0.1107**
Australia	9396	250	0.1960	0.1697	0.1704	0.0263	-0.0007	0.0256
Canada	9396	250	0.1160	0.2014	0.1991	-0.0854**	0.0023	-0.0831**
Singapore	9396	250	0.0200	0.0454	0.0447	-0.0254**	0.0007	-0.0247**
US	9396	250	0.0400	0.3866	0.3774	-0.3466**	0.0092	-0.3374**
UK	9396	250	0.0200	0.0508	0.0500	-0.0308**	0.0008	-0.03**

Note: The table summarizes all independent variables under target country-specific factors. The data in cells are the average value of each variable in each dataset (value for a dummy means the average percentage of transactions), the difference is based on a t-test (\* p<0.05; \*\* p<0.01).

**Table 6-2: Data description of target country-specific factors**

#### 6.2.4 Time-specific factors

The different business cycles or the introductions of new policies may cause differentials in premia from Chinese and non-Chinese acquirers. So the time effects also need to be incorporated in the model and can be approximated by year dummies.

Panel C: Year-specific factor description								
	Global observations	Chinese observations	Chinese M&A (1)	Non-Chinese M&A (2)	Global M&A (3)	Difference		
						(1)-(2)	(2)-(3)	(1)-(3)
2003	9396	250	0.0120	0.0677	0.0662	-0.0557**	0.0015	-0.0542**
2004	9396	250	0.0480	0.0714	0.0708	-0.0234	0.0006	-0.0228
2005	9396	250	0.0240	0.0745	0.0731	-0.0505**	0.0013	-0.0491**
2006	9396	250	0.0120	0.0877	0.0857	-0.0757**	0.002	-0.0737**
2007	9396	250	0.0320	0.1046	0.1027	-0.0726**	0.0019	-0.0707**
2008	9396	250	0.0960	0.0964	0.0964	-0.0004	0.0000	-0.0004
2009	9396	250	0.1240	0.0965	0.0973	0.0275	-0.0007	0.0267
2010	9396	250	0.1120	0.0860	0.0867	0.026	-0.0007	0.0253
2011	9396	250	0.1200	0.0752	0.0764	0.0448*	-0.0012	0.0436*
2012	9396	250	0.1400	0.0709	0.0727	0.0691**	-0.0018	0.0673**
2013	9396	250	0.1200	0.0549	0.0566	0.0651**	-0.0017	0.0634**
2014	9396	250	0.1400	0.0546	0.0568	0.0854**	-0.0023	0.0832**

Note: The table summarizes all independent variables under time-specific factors. The data in cells are the average value of each variable in each dataset (value for a dummy means the average percentage of transactions), the difference is based on a t-test (\* p<0.05; \*\* p<0.01).

**Table 6-3: Data description of time-specific factors**

### 6.2.5 Acquirer industry-specific factors

Acquirer industry-specific innovations (e.g. industry shocks) or norms may cause differences in acquisition and its premium decisions. Therefore, I approximate these effects by industry dummies.

Panel D: Acquirer industry-specific factor description								
	Global observations	Chinese observations	Chinese M&A (1)	Non-Chinese M&A (2)	Global M&A (3)	Difference		
						(1)-(2)	(2)-(3)	(1)-(3)
Investment & commodity firms,dealers,exchanges	9396	250	0.4880	0.3647	0.3680	0.1233**	-0.0033	0.12**
Mining	9396	250	0.0840	0.0970	0.0966	-0.013	0.0003	-0.0126
Business services	9396	250	0.0600	0.0469	0.0473	0.0131	-0.0003	0.0127
Metal and metal products	9396	250	0.0520	0.0160	0.0169	0.036*	-0.001	0.0351*
Oil and gas; petroleum refining	9396	250	0.0400	0.0520	0.0517	-0.012	0.0003	-0.0117
Electronic and electrical equipment	9396	250	0.0360	0.0225	0.0229	0.0135	-0.0004	0.0131
Real estate; mortgage bankers and brokers	9396	250	0.0200	0.0138	0.0139	0.0062	-0.0002	0.0061
Prepackaged software	9396	250	0.0120	0.0279	0.0275	-0.0159*	0.0004	-0.0155*
Electric, gas, and water distribution	9396	250	0.0200	0.0143	0.0145	0.0057	-0.0002	0.0055
Food and kindred products	9396	250	0.0200	0.0120	0.0122	0.008	-0.0002	0.0078
Commercial banks, bank holding companies	9396	250	0.0160	0.0480	0.0471	-0.032**	0.0009	-0.0311**
Holding companies, except banks	9396	250	0.0240	0.0103	0.0106	0.0137	-0.0004	0.0134
Drugs	9396	250	0.0080	0.0302	0.0296	-0.022**	0.0006	-0.0216**
Air transportation and shipping	9396	250	0.0040	0.0022	0.0022	0.0018	0	0.0018
Transportation equipment	9396	250	0.0160	0.0050	0.0053	0.011	-0.0003	0.0107
Textile and apparel products	9396	250	0.0120	0.0030	0.0032	0.009	-0.0002	0.0088
Machinery	9396	250	0.0160	0.0097	0.0099	0.0063	-0.0002	0.0061
Wholesale trade-durable goods	9396	250	0.0080	0.0109	0.0109	-0.0029	0.0001	-0.0029
Stone, clay, glass, and concrete products	9396	250	0.0080	0.0028	0.0030	0.0052	-0.0001	0.005
Construction firms	9396	250	0.0040	0.0062	0.0062	-0.0022	0.0001	-0.0022

Note: The table summarizes all independent variables under acquirer industry-specific factors. The data in cells are the average value of each variable in each dataset (value for a dummy means the average percentage of

transactions), the difference is based on a t-test (\* p<0.05; \*\* p<0.01).

**Table 6-4: Data description of acquirer industry-specific factors**

### 6.2.6 Target industry-specific factors

Target industry-specific innovations or regulations may cause the differences in acquisition premia as well. Therefore, these effects are approximated by industry dummies.

Panel E: Target industry-specific factor description								
	Global observations	Chinese observations	Chinese M&A (1)	Non-Chinese M&A (2)	Global M&A (3)	Difference		
						(1)-(2)	(2)-(3)	(1)-(3)
Mining	9396	250	0.2600	0.1555	0.1583	0.1045**	-0.0028	0.1017**
Electronic and Electrical Equipment	9396	250	0.0880	0.0317	0.0332	0.0563**	-0.0015	0.0548**
Business Services	9396	250	0.0720	0.0846	0.0843	-0.0126	0.0003	-0.0123
Real Estate; Mortgage Bankers and Brokers	9396	250	0.0480	0.0241	0.0247	0.0239	-0.0006	0.0233
Food and Kindred Products	9396	250	0.0480	0.0185	0.0193	0.0295*	-0.0008	0.0287*
Oil and Gas; Petroleum Refining	9396	250	0.0520	0.0674	0.0669	-0.0154	0.0004	-0.0149
Electric, Gas, and Water Distribution	9396	250	0.0400	0.0176	0.0182	0.0224	-0.0006	0.0218
Investment & Commodity Firms,Dealers,Exchanges	9396	250	0.0360	0.0913	0.0898	-0.055**	0.0015	-0.0538**
Metal and Metal Products	9396	250	0.0120	0.0139	0.0138	-0.0019	0.0001	-0.0018
Machinery	9396	250	0.0320	0.0156	0.0161	0.0164	-0.0004	0.0159
Prepackaged Software	9396	250	0.0160	0.0503	0.0494	-0.034**	0.0009	-0.0334**
Drugs	9396	250	0.0320	0.0397	0.0395	-0.0077	0.0002	-0.0075
Chemicals and Allied Products	9396	250	0.0320	0.0124	0.0129	0.0196	-0.0005	0.0191
Textile and Apparel Products	9396	250	0.0200	0.0075	0.0079	0.0125	-0.0003	0.0121
Commercial Banks, Bank Holding Companies	9396	250	0.0200	0.0518	0.0510	-0.032**	0.0008	-0.031**
Transportation Equipment	9396	250	0.0200	0.0062	0.0066	0.0138	-0.0004	0.0134
Communications Equipment	9396	250	0.0200	0.0114	0.0116	0.0086	-0.0002	0.0084
Air Transportation and Shipping	9396	250	0.0080	0.0035	0.0036	0.0045	-0.0001	0.0044
Stone, Clay, Glass, and Concrete Products	9396	250	0.0080	0.0050	0.0051	0.003	-0.0001	0.0029
Transportation and Shipping	9396	250	0.0080	0.0191	0.0188	-0.0111	0.0003	-0.0108

(except air)									
Wholesale Trade-Durable Goods	9396	250	0.0120	0.0157	0.0156	-0.0037	0.0001	-0.0036	
Wholesale Trade-Nondurable Goods	9396	250	0.0120	0.0078	0.0079	0.0042	-0.0001	0.0041	
Hotels and Casinos	9396	250	0.0120	0.0094	0.0095	0.0026	-0.0001	0.0025	
Measuring, Medical, Photo Equipment; Clocks	9396	250	0.0040	0.0284	0.0278	-0.024**	0.0006	-0.0238**	
Motion Picture Production and Distribution	9396	250	0.0000	0.0066	0.0064	-0.006**	0.0002	-0.0064**	
Advertising Services	9396	250	0.0160	0.0032	0.0035	0.0128	-0.0003	0.0125	

Note: The table summarizes all independent variables under target industry-specific factors. The data in cells are the average value of each variable in each dataset (value for a dummy means the average percentage of transactions), the difference is based on a t-test (\* p<0.05; \*\* p<0.01).

**Table 6-5: Data description of target industry-specific factors**

### 6.2.7 Other control variables

The country, stock exchange, time and industry-specific variables may specify the premia differential with regards to these factors. However, the reality may be much more complicated in the way that other considerations are incorporated into the bid premia. To fully understand the premia paid and compare Chinese and non-Chinese differentials, I introduce the additional control variables into the regression model in the following categories according to the previous research analysis frameworks (Table 6-7).

#### 6.2.7.1 Acquirer regions

Similar to the difference between Chinese and non-Chinese acquisition premia, acquirers from other countries may also tend to pay higher or lower premia than the rest. To control for these potential tendencies, I introduce dummies for the seven other most popular acquirers regions presenting in the dataset<sup>25</sup>: United States, Canada, Hong Kong, Australia, United Kingdom, Singapore and Japan.

#### 6.2.7.2 Other acquirer-specific characteristics

The acquirer-specific characteristics (e.g. publicity, management involvement)

<sup>25</sup> The countries are selected based on the number of available transactions, and there is a huge gap after Chinese firms being acquirers.

reflect the more of the acquirers' ability and willingness to pay takeover premia. Thus they might play an important role in premia determination .

#### 6.2.7.2.1 Management as acquirer

As indicated in Qiu et al (2014), management have the tendency to pursue personal benefit from the transactions. Therefore, whether the management is part of the acquirer has economic implications for bid premium determination.

#### 6.2.7.2.2 Acquirer cash holding

According to the free cash flow hypothesis and Fich et al. (2013), cash-rich firms tend to do acquisitions, even the bad ones when they have much free cash on hand.

#### 6.2.7.2.3 Buyside government involvement

This characteristic is especially important for many Chinese acquisitions, since the Government always has stake in big Chinese MNCs, especially in the equipment, oil and gas industries.

#### 6.2.7.2.4 Financial firm acquirer

Financial firms differ from ordinary ones in their capital structure and business goals. In general, financial firms have higher leverage and focus more on restructuring the firm for resale in the future, so they may be more reluctant to pay high premia. That is also why many scholars analyze exclusively financial firms, such as the banking industry.

#### 6.2.7.2.5 Others

Some other acquirer characteristics may also have an influence on the bid premium. Such as acquirer performance (ROE), publicity, long-term debt to equity ratio, acquiror's termination fee as percentage of transaction value, etc. In theory, most possible acquirer-specific factors shall be added to approximate the real decision. However, in reality the problem with adding extra variables is that most of the data are missing, as seen in the Table 6-6.

Panel F: Other acquirer-specific factor description								
	Global observations	Chinese observations	Chinese M&A (1)	Non-Chinese M&A (2)	Global M&A (3)	Difference		
						(1)-(2)	(2)-(3)	(1)-(3)
Acquirors with management	9396	250	0.0960	0.0138	0.0160	0.0822**	-0.0022	0.08**
Acquirer as financial firm	9396	250	0.0040	0.0402	0.0393	-0.036**	0.001	-0.035**
Buyside government involvement	9396	250	0.3480	0.0420	0.0501	0.306**	-0.008**	0.2979**
Acquirer cash holding	3453	40	1355.9340	1511.5200	1509.7180	-155.586	1.8023	-153.784
Public acquirer	9394	250	0.2120	0.5302	0.5217	-0.318**	0.0085	-0.309**
Acquirer ROE	3882	44	0.1227	0.0419	0.0429	0.081**	-0.0009	0.0798**
Acquiror LT debt/equity	3142	36	0.5434	1.0404	1.0347	-0.497**	0.0057	-0.491**
Acquiror's termination fee/transaction value	923	11	10.7805	17.8536	17.7693	-7.073**	0.0843	-6.988**

Note: The table summarizes all independent variables under other acquirer-specific factors. The data in cells are the average value of each variable in each dataset (value for a dummy means the average percentage of transactions), the difference is based on a t-test (\* p<0.05; \*\* p<0.01).

**Table 6-6: Data description of other acquirer-specific factors**

### 6.2.7.3 Other target-specific characteristics

Target-specific characteristics lay the basis for takeover bid, so it is of great importance to determine the appropriate premia.

#### 6.2.7.3.1 Target M/B ratio

Market to book value is often of great concern in M&A decisions. Intuitively, if the market value of target assets are significantly lower than its book value, then it is possible that the firm is in distress; but there is also chance that the firm is undervalued. However, under both scenarios the purchase can be a good bargain, and the acquirers may be willing to pay a higher premium.

#### 6.2.7.3.2 Target long-term debt / equity ratio

High long-term debt of a target may bring potential financial synergies to the acquirer (Leland, 2007), but also comes with higher risk. Therefore it may affect bid premia in either direction.

#### 6.2.7.3.3 Percent of shares held at announcement

As Shleifer & Vishny (1986) indicate, the bid premia would decrease with the original percentage of shares held at announcement.

#### 6.2.7.3.4 Relative size with acquirers

Slusky & Caves (1991) implies the relative size between acquirer and target may affect the premia. The relative size is defined as the acquirer's net sales divided by the target's<sup>26</sup>.

#### 6.2.7.3.5 Others

Some other factors representing target characteristics could also be considered, such as the target ROE (performance), sellside government ownership, target's termination fee as percentage of transaction value, etc. Similar to the situation with acquirer characteristics, many observations are missing for the introduced explanatory variables.

Panel G: Other target-specific factor description								
	Global observations	Chinese observations	Chinese M&A (1)	Non-Chinese M&A (2)	Global M&A (3)	Difference		
						(1)-(2)	(2)-(3)	(1)-(3)
M/B ratio	4548	32	4.9212	5.3177	5.3149	-0.3965	0.0028	-0.3937
Target LT debt/equity	5388	136	0.4193	2.4947	2.4423	-2.0753**	0.0524	-2.0229**
% of shares held at announcement	2015	83	42.2217	34.2154	34.5452	8.0063**	-0.329	7.6765**
Relative size	3345	39	1721.0119	1549.7507	1551.7475	171.2611	-1.997	169.2643
Target ROE	4984	133	13.3131	23.4468	23.1764	-10.134**	0.2704	-9.8633**
Target's termination fee/transaction value	2814	21	6.4269	9.6098	9.5861	-3.183**	0.0238	-3.1592**
Sellside government involvement	9396	250	0.0720	0.0114	0.0130	0.0606**	-0.002	0.059**

Note: The table summarizes all independent variables under other target-specific factors. The data in cells are the average value of each variable in each dataset (value for a dummy means the average percentage of transactions), the difference is based on a t-test (\* p<0.05; \*\* p<0.01).

**Table 6-7: Data description of other target-specific factors**

#### 6.2.7.4 Other transaction specific characteristics

Transaction-specific characteristics describe how the acquisitions are initiated, undertaken and finalized, and they are important since different forms, attitudes and processes of the transaction directly influence how the premia are determined.

<sup>26</sup> Since this item uses the net sales after the deduction of returns, allowances for damaged or missing goods and any discounts allowed, the ratio can be negative. For consideration purposes, I remove the negative values.

#### 6.2.7.4.1 Cross-border transaction indicator

Suggested by Rossi & Volpin (2004), whether the M&A is cross-border is of great importance. Moreover, the existence of firms listed primarily in foreign stock markets also complicates the definition of cross-border transactions. Therefore, from a more comprehensive point of view, I define the cross-border transactions in the following two layers.

**Geographic cross-border transactions:** M&A transactions between buyers and sellers with primary businesses in different countries.

**Exchange-based cross-border transactions:** M&A transactions between buyers and sellers with primary listing exchanges in different countries<sup>27</sup>.

#### 6.2.7.4.2 Transaction attitude

The attitude of M&A transactions may influence the bid premium directly. Especially in hostile acquisitions, acquirers may encounter various defensive strategies, which may greatly increase the cost. Many papers, such as Rossi & Volpin (2004), Sudarsanam et al. (2010), and Fich et al. (2013), find similar relationships. Therefore, I introduce the hostile bid indicator to control for this effect.

#### 6.2.7.4.3 Competing bid indicator

Similar to the transaction attitude, the existence of a competing bid might increase the difficulty in winning the bid, and thus increase the bid premium (Varaiya, 1987, Haunschild, 1994, Hambrick & Hayward, 1997, etc.).

#### 6.2.7.4.4 Percentage of shares acquired

Shleifer & Vishny (1986) mention the percentage of shares to be acquired as an important determinant of bid premia. In general, the higher percentage of shares to be acquired, the higher premia needed to complete the transaction.

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<sup>27</sup> Many acquirers are private, thus not listing on a stock exchange. For consistency, I classify these observations into exchange-based cross-border transactions because the buyers and sellers are not sharing the same regulatory framework in a similar manner.

#### 6.2.7.4.5 Post-acquisition ownership over 50%

As indicated in Walkling & Edmister (1985), whether the acquirers need to obtain over 50% of target ownership to finish the acquisition directly influences the shares to be acquired in transaction, and the strategies to be adopted, thus the acquisition.

#### 6.2.7.4.6 Others

Apart from the characteristics of the deal listed above, many other specificities of the acquisition also affect the premia to pay and are backed by relevant literatures, such as the tender offer indicator, going private label, percentage of cash involved, existence of poison pills, cross industry indicator, etc. They all need to be considered in conducting the comparison using OLS techniques.

Panel H: Other deal-specific factor description								
	Global observations	Chinese observations	Chinese M&A (1)	Non-Chinese M&A (2)	Global M&A (3)	Difference		
						(1)-(2)	(2)-(3)	(1)-(3)
Geographic cross border	9396	250	0.6160	0.2393	0.2494	0.3767**	-0.01	0.3666**
Exchange-based cross border	9396	250	0.9400	0.8024	0.8061	0.1376**	-0.004	0.1339**
Hostile	9396	250	0.0080	0.0046	0.0047	0.0034	-0.000	0.0033
Competing bidder	9396	250	0.0240	0.0268	0.0267	-0.0028	0.0001	-0.0027
Percentage of shares acquired	9208	245	36.9754	56.8689	56.3396	-19.893**	0.5293	-19.3642**
Post acquisition ownership over 50%	9244	246	0.4634	0.6078	0.6040	-0.1444**	0.0038	-0.1405**
Tender offer	9396	250	0.1960	0.2468	0.2454	-0.0508*	0.0014	-0.0494
Going private	9396	250	0.2160	0.1445	0.1464	0.0715**	-0.002	0.0696**
Cross industry	9396	250	0.6720	0.4973	0.5019	0.1747**	-0.005	0.1701**
Percentage of cash	6241	172	99.1422	92.5002	92.6833	6.642**	-0.183	6.4589**
Poison pill	9396	250	0.0000	0.0042	0.0040	-0.0042**	0.0001	-0.004**

Note: The table summarizes all independent variables under other deal-specific factors. The data in cells are the average value of each variable in each dataset (value for a dummy means the average percentage of transactions), the difference is based on a t-test (\* p<0.05; \*\* p<0.01).

**Table 6-8: Data description of other deal-specific factors**

### 6.3 Data summary

As reflected in the Chinese and non-Chinese acquisition comparison - in terms of target listing extock exchange, country, time of transaction, acquirer/target industry as well as other acquirer/target/deal specific factors - Chinese deals are significantly different from the rest in most categories, notably in the aspects of Chinese target dummy and buyside government involvement dummy, the difference between Chinese and non-Chinese acquisitions is so great that the worldwide average levels are significantly changed by Chinese activities. This situation may make sense because Chinese firms are more familiar with Chinese firms, so the premia paid may be lower; at the same time, many Chinese big MNCs are at least owned partially by the Government, so the buyside government involvement is high among Chinese acquisitions.

Based on the observation data in the table above, the distribution of missing values in the data set, which greatly constrains the analysis, is given in the Table 6-9.

Available observations	Independent variables
0-1000	1
1000-3000	2
3000-4500	4
4500-9000	4
9000-9396	98
Sum	109

Table 6-9: Data availability description

## 6.4 General-to-specific regression

The data description presents a preliminary impression how Chinese and non-Chinese M&A differ in various aspects, as well as the observations available for each variable. In balancing the data availability problem against having a comprehensive set of explanatory variables, I set up two generalized regression models (Model I & II) based on the variables with 9000+ observations and 4500+ observations respectively<sup>28</sup>. I follow the general-to-specific regression procedure to yield specific models.<sup>29</sup>

	Model I (5%)	Model II (5%)
Chinese acquirer indicator	-5.152 (2.15)*	
Market index return	-29.029 (8.33)**	-37.513 (5.93)**
Nasdaq Stock Exchange	-4.031 (2.20)*	4.032 (3.02)**
New York Stock Exchange	-8.969 (4.82)**	
London AIM Market	-4.853 (2.98)**	
China as target country	-17.916 (6.73)**	
Hong Kong as target region	-8.716 (6.84)**	-16.497 (4.11)**
United States as target country	6.387 (3.38)**	
Year 2003		5.328 (2.70)**
Year 2004	-4.382 (3.14)**	
Year 2008	3.059	

<sup>28</sup> The cutline of 9000 is set to make full use of the maximum sample size (9396), while 4500 is only around half of available observations. The difference between the two independent variable sets includes target M/B ratio, long-term debt to equity ratio, target ROE and percentage of cash in the transaction, which frequently appear in the premium analysis literatures. To be robust, I set up the two models for comparison.

<sup>29</sup> The results of general models, specific models (10% significance level) and specific models (5% significance level) can be found in Appendix 3: General-to-specific regression modeling results.

	(2.23)*	
Year 2009	7.140	17.264
	(5.63)**	(5.87)**
Year 2010	6.070	11.680
	(4.69)**	(4.59)**
Year 2011	6.395	6.922
	(4.67)**	(2.61)**
Year 2012	7.929	8.777
	(5.70)**	(3.41)**
Year 2013	3.649	
	(2.34)*	
Acquirer from food and kindred products industry		11.523
		(2.92)**
Acquirer from investment commodity industry	-7.134	-4.407
	(8.56)**	(3.07)**
Acquirer from oil and gas petroleum industry	-3.469	
	(2.13)*	
Acquirer from prepackaged software industry	6.546	7.789
	(3.02)**	(2.32)*
Acquirer from drugs industry	9.931	
	(4.78)**	
Target from electric, gas, and water distribution industry	-6.686	
	(2.56)*	
Target from wholesale trade-nondurable goods industry	-7.628	
	(1.97)*	
Target from hotels and casinos industry	11.035	13.361
	(3.10)**	(2.81)**
Target from electronic and electrical equipment industry		8.935
		(2.60)**
Target from drugs industry		14.724
		(5.21)**
Target from stone, clay, glass, and concrete products industry		13.598
		(1.97)*
Acquirers with management	11.324	15.728
	(3.91)**	(4.07)**
Acquirer from United States	2.900	6.611
	(2.41)*	(3.48)**
Acquirer from Hong Kong		12.658
		(2.91)**
Geographic cross-border	6.118	8.788
	(7.27)**	(4.28)**
Hostile	12.484	
	(2.40)*	
Competing bidder	11.929	

	(5.49)**	
Percentage of shares acquired	0.172	0.121
	(10.06)**	(3.77)**
Post-acquisition ownership over 50%	6.590	14.742
	(4.60)**	(5.29)**
Tender offer	6.944	2.782
	(7.89)**	(1.98)*
Going private	4.738	
	(4.17)**	
Poison pill	14.889	21.934
	(2.70)**	(2.97)**
Percentage of cash		0.086
		(3.26)**
M/B ratio		-0.038
		(2.19)*
Target LT debt/equity ratio		0.050
		(2.22)*
_Cons	-0.351	-16.381
	(0.35)	(5.16)**
$R^2$	0.19	0.25
$N$	9,206	2,257
<i>Chinese observations used in the regression</i>	250	32

Note: The table summarizes the specific models (5% significance level) for Model I & II. The order of independent variables follows target stock exchange, target operating country, year of transaction, acquirer industry, target industry, other acquirer, deal and target-specific factors. The numbers in cells are coefficients and the numbers in parentheses are t-values (\*  $p < 0.05$ ; \*\*  $p < 0.01$ ).

**Table 6-10: Summary of specific regression results**

The two models yield different regression results and end up with quite different sets of independent variables. Though Model II has a marginally better explanatory power ( $R^2$ ), the number of available observations is less than 25% of Model I, and the Chinese observations available drop dramatically from 250 to 32, so it is reasonable to suspect that the Model II may suffer severe sample selection bias. To be conservative, I will use only the Model I for further discussion in the next chapter.

## **7 Regression results and further discussion**

### **7.1 General-to-specific regression results**

#### **7.1.1 Chinese acquirer-specific effects**

In view of the main hypothesis of the thesis, the Chinese acquirer indicator is of great concern in the regression model. According to Model I, the coefficient of the Chinese acquirer indicator is still significantly different from zero. Controlling for other explanatory factors, Chinese acquirers pay 5.15% lower the premia compared to non-Chinese acquirers, *ceteris paribus*. Moreover, Chinese acquisition premia are on average 15.4% lower than non-Chinese acquisitions (Session 5.2). So the 10.25% difference is then explained by the other explanatory variables in the Model I (detailed analysis on how much each variable explains the difference is to be presented in the next session 7.2).

#### **7.1.2 Stock exchange-specific effects**

Out of the stock exchange shock and nine stock exchange dummies, only the market index return, and NASDAQ, New York and London-AIM stock market dummies are significant. The negative effect of the market index return coincides with the M&A motive to acquire undervalued firms. The fact that these three stock markets as target listing stock exchange stand out means that there may be some other premia determinants exclusive to these markets, which are not included in the variable set here, such as the unique takeover regulations.

#### **7.1.3 Target region-specific effects**

Similar results apply to target region-specific effects. Of the eight major target regions, Chinese and Hong Kong targets show significantly lower premia, while US targets require significantly higher premia. The finding may be explained by cultural issues. As introduced in the Chinese acquisition specificities, Guanxi (relationship) plays a vital role in the Asian business context, especially in China and nearby regions, such as Hong Kong, and the merger deals often occur between business connections. Therefore, the economic premia paid may be systematically lower. By contrast, the

US-based business is more economic/profit - oriented, so acquirers may have to increase the bid to get a takeover through.

#### **7.1.4 Time-specific effects**

Coinciding with the timing of the last two global merger waves, worldwide M&A incurred lower premia in the year 2004, and higher premia in 2008-2013. Part of the reason for the difference in sign and time length is that the 2008 financial crisis hit the economy worldwide, thus the firm values were much lower; while the wave in 2003 was pumped by the introduction of financial derivatives and the stock market was growing dramatically by then.

As time passing by, the world economy recovered from the crisis and the markets were going back to normal situation. Therefore, the market-specific effects would reduce to insignificance level gradually.

#### **7.1.5 Acquirer/Target industry-specific effects**

Acquirer and target-specific factors matter in the premia decision. For example, transactions with acquirers from prepackaged software or drugs industry, and/or targets from hotels and casinos industry incurred higher premia, while transactions with acquirers from investment commodity, or oil and gas petroleum industry, and/or targets from electric, gas, and water distribution or wholesale trade-nondurable goods industry had lower takeover premia.

#### **7.1.6 Other control variable effects**

Many control variables turn out to be significantly different from zero in the specific model, indicating that additional consideration regarding acquirer, deal and target characteristics impact takeover premia. In accordance with the analysis in the introduction, the management's involvement in acquisition, US acquirers, cross-border deals, hostile transactions, existence of competing bidders, percentage of shares acquired, over 50% post-acquisition ownership, tender offer, going private deals, and poison pills all raise the premia in the transactions.

Combining the general comparisons between Chinese and non-Chinese acquisition premia and the general-to-specific regression results, preliminary conclusion can be drawn that the stock exchange, target region, time, industry-specific factors and other introduced control variables do play a role in explaining the difference in premia paid by Chinese and non-Chinese acquirers. However, in terms of the explanatory power of each variable set, I will further the discussion in the next session.

## 7.2 Break down of bid premia difference explained

Based on Model I, I extract the coefficients of each explanatory variable and the average difference between Chinese and non-Chinese acquisition datasets, and break down the difference between premia paid by Chinese and non-Chinese acquirers into different aspects.

Premium determinants	Coefficient	Difference between Chinese and non-Chinese acquisitions	Difference explained
<b>Chinese acquirer indicator</b>	-5.1518	1	<b>-5.1518 (31.80%)</b>
Selected target stock exchange-specific factors			
Market index return	-29.0286	0.0085	-0.2479
Nasdaq Stock Exchange	-4.0305	-0.1339	0.5400
New York Stock Exchange	-8.9692	-0.0482	0.4326
London-AIM Market	-4.8533	-0.0363	0.1762
<b>Sub-total</b>			<b>0.9009 (-5.56%)</b>
Selected target region-specific factors			
China as target country	-17.9156	0.3717	-6.6602
Hong Kong as target region	-8.7163	0.1137	-0.9916
United States as target country	6.3873	-0.3466	-2.213
<b>Sub-total</b>			<b>-9.8658 (60.90%)</b>
Selected time-specific factors			
Year 2004	-4.3815	-0.0233	0.1025
Year 2008	3.0593	-0.0004	-0.0013
Year 2009	7.1401	0.0274	0.1960
Year 2010	6.0697	0.0259	0.1575
Year 2011	6.3949	0.0447	0.2863
Year 2012	7.9288	0.0691	0.5482
Year 2013	3.6485	0.0651	0.2375
<b>Sub-total</b>			<b>1.5269 (-9.42%)</b>
Selected acquirer industry-specific factors			
Acquirer from investment commodity industry	-7.1340	0.12325	-0.8792
Acquirer from oil and gas petroleum industry	-3.4694	-0.0120	0.0417
Acquirer from prepackaged software industry	6.5456	-0.0158	-0.1039
Acquirer from drugs industry	9.9314	-0.022	-0.2202
<b>Sub-total</b>			<b>-1.1616 (7.17%)</b>
Selected target industry-specific factors			
Target from electric, gas, and water distribution industry	-6.6863	0.0223	-0.1497
Target from wholesale	-7.6278	0.0042	-0.0323

trade-nondurable goods industry			
Target from hotels and casinos industry	11.0350	0.0026	0.0286
<b>Sub-total</b>			<b>-0.1534 (0.95%)</b>
Selected other acquirer-specific factors			
Acquirers with management	11.3243	0.0822	0.9311
Acquirer from United States	2.9000	-0.3770	-1.0935
<b>Sub-total</b>			<b>-0.1624 (1.00%)</b>
Selected other deal-specific factors			
Geographic cross-border	6.1180	0.3766	2.3044
Hostile	12.4841	0.0034	0.0425
Competing bidder	11.9291	-0.0027	-0.0332
Percentage of shares acquired	0.1719	-19.8935	-3.4203
Post-merger ownership over 50%	6.5895	-0.1443	-0.9514
Tender offer	6.9438	-0.0507	-0.3525
Going private	4.7384	0.0714	0.3385
Poison pill	14.8894	-0.0041	-0.0618
<b>Sub-total</b>			<b>-2.1339 (13.17%)</b>
<b>SUM</b>			<b>-16.2012</b>

Note: The table summarizes the breaking-down of the average difference between Chinese and non-Chinese acquisition premia. The coefficients and average differences between datasets of each individual explanatory variable are listed, and the explained premia difference are summed up in each panel, the percentage numbers in parentheses reflect the average percentage of total difference explained. The deviation of total effects from average premia difference from average value is due to rounding errors.

**Table 7-1: Break down of average premia difference explained**

From the table, it is clear that over 60% of the average premia difference is explained by the target country-specific effects: Chinese firms mostly buy Chinese or Hong Kong targets, which typically involve less-than-average premia to pay. Another 14% of the difference is explained by the control variables. The acquirer/target industry-specific effects capture less than 8% of the difference. Interestingly, the cumulative target stock exchange and time-specific effects even indicate Chinese acquirers paid more from these two aspects. Even so, around 31% of the premia difference is still not explained by these introduced explanatory factors, and is left over to Chinese acquire indicators.

### 7.3 Unique findings

Following the literature review, this thesis is based on the most comprehensive set of bid premia characteristics that the data allow, so the analysis and the results tie into the literature as closely as possible. Target country, time and industry-specific factors, and the additional control variables from the premia analysis frameworks, play significant roles in explaining the bid premia differential between Chinese and non-Chinese acquirers. Yet divergences and unique findings also exist, especially in the direction of premia differentials.

It is commonly assumed by academic papers and non-academic publications that the unique Chinese culture, Government policies and institutional incentives lead Chinese acquirers to overpay for their targets, especially in cross-border transactions. On contrary, the comparisons in this thesis reveal the opposite. In most acquisitions (domestic or international), Chinese acquirers pay lower premia compared to the rest of the world. In general, two reasons may explain the divergence. On the one hand, the conservativeness in Chinese culture and “Guanxi”-based business interactions may significantly lower the bid premia paid in the transactions. On the other hand, the technical adjustments of premia data may cause the difference as well. For example, to keep the most data possible, I retain the negative premia and set a high upper limit on the positive premia, whereas many papers - such as Asplund & Kjellesvik (2012), Moeller et al (2005) – exclude negative premia and limit the positive. Looking back to the comparison in the Figure 5-2, we can also see that the Chinese acquisition set has relatively more negative premia observations (45.6% compared to 31.3%), therefore the Chinese takeover premia are systematically lower.

All in all, both convergence and divergence with previous research exists in my findings, and I suggest that unique cultural and institutional factors are responsible for the divergent findings.

## 8 Conclusion

An extensive literature suggests that Chinese acquirers may pay different premia for their targets under the influence of the political control (where the Government is a major stakeholder), and/or the unique aspects of Chinese culture (such as the Confucianism and the “Guanxi”), which makes Chinese acquirers conservative in target selection and pricing. Therefore, the thesis is developed to compare the M&A bid premia paid by Chinese and non-Chinese acquirers.

In the Chinese M&A activity description, I chart the 4 “merger waves” alongside Chinese M&A history, as well as the clustering in target country, stock exchange and target/acquirer industry. Moreover, the special treatments of shares listed on Chinese mainland stock exchanges are highlighted, and thus the need to exclude them.

The general comparison suggests that Chinese firms pay on average, 15% lower premia than non-Chinese; specialized comparisons over time and across countries, stock markets and industries also reveal lower premia in most scenarios. Moreover, the concentrations of Chinese M&A activities in lower-than-average premia target countries, stock exchanges, acquirer industries are identified as further explanation for the low average bid premium.

Using a global M&A database and fitting a general-to-specific regression, I find that target country, stock exchange, time and acquirer/target industry-specific factors explain over 68% of the difference in premia paid by Chinese and non-Chinese acquirers. In breaking down the premia differentials, I show that target country-specific and other deal-specific factors explain the most of the premia difference (at 60% and 13% respectively); while the stock exchange-specific and time-specific factors widen the difference by 5.56% and 9.42%.

In contrast the commonly assumed stereotype of Chinese acquirers overpaying for targets, Chinese firms actually pay on average 5% lower premia than non-Chinese firms, controlling for all other premia determinants. Raw data adjustments may

explain why the negative Chinese bid premia are found and I suggest cultural differences as potential explanations for the differentials..

Of course, the analyses and results in the thesis are not perfect. They may be subject to difficulties of data availability, mis-specification and some other problems, which I will introduce in the end of this thesis.

## 9 Limitations and further research areas

### 9.1 Pre-announcement information leak

In this thesis, I only use the premia data based on target stock price one day before announcement. This is due to the time-smoothing effect and market return “noise”<sup>30</sup>.

However, in the imperfect markets, such as China, the pre-acquisition information release may exist and influence directly the premia calculated. Since now concrete economic reasoning is identified in the thesis context, I stick to the most representative premia proxy. If further research on the information release can be done and the effects taken into premia analysis, the results can be more convincing and useful.

### 9.2 Targets listed on the Chinese mainland stock exchanges

Due to the special treatment of stocks traded on Chinese mainland stock exchanges, I excluded those observations from the analysis. This decision is for consistency purpose and to reduce unnecessary “noise” in the global bid premia dataset<sup>31</sup>.

However, since the majority of Chinese acquisitions involve targets listed in these “doubtful” stock exchanges, the simple exclusion may cause sample selection bias in the analysis. Therefore, further research on this excluded dataset may be an interesting topic. For example, one can further the discussion towards how to derive the “correct” market price of targets under such unusual treatments and how to incorporate the updated premia data into a analytical framework. In this way, most Chinese acquisitions data could be taken into consideration and the results made more convincing. At the same time, practical guidelines for firms interested in Chinese targets may be developed as well.

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<sup>30</sup> More detailed reasoning can be found in Session 5.1.1: Choice of premia data

<sup>31</sup> More detailed reasoning can be found in Session 4.4.2: Chinese mainland stock exchanges.

### 9.3 Global bid premia outliers

In the thesis, to get rid of the “outliers” and make the global M&A dataset comparable with the Chinese, I simply excluded the outliers with premia larger than 200%. This is due to the decreased accuracy of transaction data with over 200% premia and the large volume of global M&A transactions, which makes it almost impossible to track each outlier.<sup>32</sup> Moreover, I did not set a lower bound for the premia, because the data always appear correct even when the premia are negative, and there is no concrete reason to exclude them.<sup>33</sup> So the simple exclusion may cause sample selection bias.

However, if more research can be done into those outlier observations, special acquisition arrangements can be figured out, and better cutlines or adjustments to the data can be made to be make the premia more “reasonable”, and a more comprehensive premia analysis framework can be presented.

### 9.4 Limit on target stock markets in the regression analysis

In the regression analysis, I use only the acquisition data with targets listed on the nine most popular stock exchanges. This is due to the fact that the worldwide transaction data are “noisy” and subject to different effects<sup>34</sup>. By limiting the regression dataset to transactions on certain stock exchanges, much stock market influence not relevant to Chinese M&A activities can be removed.

However, the treatment only adjusts the “noisy” global dataset from stock exchange perspective, while leaving out other effects. If further adjustments can be made and the comparison is based on more comparable datasets, the results may have more economic implications and be more convincing.

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<sup>32</sup> More details can be found in the footnote 9 page 15.

<sup>33</sup> For example, I cannot exclude all negative premia data simply saying that the negative premia may hurt target’s shareholders and they will vote against it (Asplund & Kjellesvik, 2012).

<sup>34</sup> Seen in Session 5.1.2: Choice of target set

## 9.5 Exclusion of Model II results

After the comparison of Model I and Model II in Session 6.5, I ultimately use Model I with fewer target-specific control variables for further discussions. This is due to the data availability problems of the Model II. Since it has less than one quarter of the useful observations in Model I, Model II suffers significant sample selection bias. Thus the results from Model II are not completely reliable.

However, if more information on the omitted four explanatory variables can be found and some other powerful premia determinants identified, the new information could be incorporate into the Model I and may potentially yield a better explanatory model.

## 9.6 Regression model specifications

In the regression analysis, only linear general-to-specific modeling is applied. This is for the simplification purposes. Yet the reality is much more complicated, and previous scholars have suggested various advanced specification approaches, such as the weighted nonlinear least squares estimation (Billett & Ryngaert, 1997), the option pricing theory (Sudarsanam & Sorwar, 2010), and the natural logarithm transform of premium data (Rossi & Volpin, 2004). However, since no concrete economic reason has been identified for which form to use, rashly taking one of them may cause the over-specification problem.

Therefore, if more research to the database is done and more specific relationships between bid premia and the determinants are identified, more sophisticated modeling can be used and the results will be improved dramatically.

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## Appendix

### Appendix 1: Chinese acquisition target listing stock exchange information

The table summarizes Chinese acquisition target listing stock exchange information. The number in each cell is the number of Chinese M&A transactions that happened each year at each stock exchange. The percentage numbers in parenthesis represent the percentages that Chinese M&A transactions occupy among all M&A transactions at that stock exchange.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Subtotal
<b>Hong Kong</b>	12 (5.45%)	8 (3.29%)	23 (9.47%)	11 (5.98%)	8 (4.55%)	13 (5.24%)	27 (12.27%)	63 (9.52%)	20 (13.33%)	20 (13.89%)	21 (15.91%)	29 (20.14%)	41 (20.71%)	296 (9.99%)
<b>Nasdaq</b>	4 (0.58%)	1 (0.15%)	2 (0.34%)	4 (0.62%)	5 (0.78%)	6 (0.69%)	21 (1.90%)	10 (1.46%)	13 (2.08%)	38 (5.64%)	19 (3.23%)	12 (2.36%)	31 (5.31%)	166 (1.87%)
<b>Australia</b>	1 (0.40%)	1 (0.20%)	1 (0.25%)	2 (0.65%)	5 (1.29%)	18 (3.13%)	18 (2.86%)	32 (4.97%)	21 (3.44%)	20 (5.26%)	16 (3.47%)	16 (4.47%)	7 (2.55%)	158 (2.73%)
<b>New York</b>	2 (0.58%)	-	1 (0.23%)	3 (0.55%)	1 (0.17%)	5 (0.63%)	17 (2.41%)	6 (1.43%)	3 (0.58%)	16 (2.43%)	9 (1.79%)	12 (2.78%)	15 (2.67%)	90 (1.31%)
<b>US OTC</b>	-	1 (0.46%)	3 (1.81%)	2 (1.08%)	1 (0.45%)	4 (1.56%)	7 (2.26%)	12 (3.38%)	9 (4.35%)	14 (6.60%)	8 (4.88%)	2 (1.43%)	2 (1.12%)	65 (2.29%)
<b>Singapore</b>	1 (1.79%)	-	-	2 (1.90%)	2 (2.35%)	1 (1.19%)	8 (9.09%)	10 (10.99%)	6 (6.59%)	7 (8.97%)	1 (1.32%)	11 (15.28%)	5 (8.62%)	54 (5.43%)
<b>HK GEM</b>	2 (9.09%)	2 (3.13%)	5 (8.33%)	6 (9.84%)	2 (4.55%)	2 (4.00%)	3 (7.89%)	6 (6.00%)	5 (9.62%)	4 (16.00%)	5 (20.00%)	5 (33.33%)	5 (12.20%)	52 (8.71%)
<b>TSX Venture</b>	-	-	-	1 (0.65%)	-	1 (0.29%)	9 (2.60%)	6 (1.27%)	4 (1.31%)	8 (2.71%)	4 (1.43%)	4 (1.82%)	1 (0.53%)	38 (1.22%)
<b>Toronto</b>	-	-	1	-	1	2	3	6	4	5	4	1	1	28

			(0.49%)		(0.34%)	(0.59%)	(0.73%)	(1.39%)	(1.27%)	(1.42%)	(1.27%)	(0.41%)	(0.47%)	(0.76%)
<b>London AIM</b>	-	-	-	-	-	3 (1.91%)	3 (1.29%)	4 (1.90%)	4 (2.84%)	5 (4.85%)	1 (1.02%)	4 (5.13%)	-	24 (1.63%)
<b>Subtotal</b>	22 (1.00%)	13 (0.54%)	36 (1.55%)	31 (1.27%)	25 (0.89%)	55 (1.48%)	116 (2.84%)	155 (3.81%)	89 (2.95%)	137 (4.69%)	88 (3.33%)	96 (4.34%)	108 (4.57%)	971 (2.61%)

Data source: SDC Platinum Merger & Acquisition database

## Appendix 2: Correction for Chinese acquisition premia dataset

The table lists all possible errors or mistreatments for the Chinese acquisition premia in SDC Platinum M&A database. The corrections are based on public available reports or SEC filings.

Date Announced	Target Name	Acquiror Name	Premium Paid (1 day)	Treatment	Reason
02/26/09	Pacific Ore Ltd	Bayannoer Western Copper	354.55	Exclude observation	The transaction was Western Areas' special arrangement to acquire 100% of the BioHeap leaching technology from Pacific Ore Ltd, not exactly an acquisition.
03/25/11	Funtalk China Holdings Ltd	Fortress Group Ltd	666.63	Change the premium to 17.07	The original premium is wrong, with the offer price at \$7.20, the premium shall be 17.07.
05/06/11	SMIC	Datang Hldg(HK)Invest Co Ltd	618.63	Change the premium to -50	The original premium is wrong, with the offer price at HK\$ 0.36 per share, the premium shall be around -50.
05/08/12	Sino Gas Intl Hldgs Inc	Investor Group	2446.13	Exclude observation	No acquisition proof was found in its annual report 2012.
10/03/12	Feihe International Inc	Infant Formula Merger Sub Hldg	662.33	Change the premium data to 6.47	The original premium is wrong, with the offer price at \$7.40, the premium shall be 21.31.
12/30/12	Media Gruppa "Voyna i Mir"	Dzaya Finance Ltd	1390.07	Exclude observation	No public available information on the transaction, too many missing variables of the company.
07/22/13	Forterra Trust	New Precise Holdings Ltd	785.95	Change the premium to 131.55	The original premium is wrong, with the offer price at \$2.98, the premium shall be 131.55
08/30/13	China Gaoxian Fibre Fabric	Fleur Growth Fund Ltd	428.94	Change the premium to -32.43	The transaction was accomplished by issuing additional shares and warrants to Fleur Growth Fund Limited at an price of S\$0.10 per Share, thus the premium shall be around -32.43
09/06/13	Longlife Group Holdings Ltd	Chongqing Fuan Pharm (Grp) Co	347.57	Exclude observation	The transaction was merely the target tender of new shares to Fuan, not a merger agreement.
10/23/13	BlueStar SecuTech Inc	BlueStar SecuTech Inc	516.62	Change the premium data to -39.47	The original premium is wrong, with the offer price at 2.5 pence and last trading date price at 4.13 pence, the premium shall be -39.47

<b>08/25/14</b>	China Housing & Land Dvlp Inc	China Housing & Land Dvlp Inc	477.19	change to 2.64	This is the Reverse Stock Split, with the offer price at \$7.50, the premium shall be 2.64
<b>09/22/14</b>	Jinpan International Ltd	Investor Group	677.44	Change the premium data to 26.62	The original premium is wrong, with the offer price at \$8.80, the premium shall be 26.62

Data source: SDC Platnium and separate deal reports

### Appendix 3: General-to-specific regression modeling results

The table summarizes the regression results of the two general-to-specific modelings based on independent variables with 9000+ observations and 4500+ observations specified in Chapter 6. The Model I&II (general) are the general models respectively, the model Model I&II (10%) only include variables that are significant under 10% significant level, while the Model I&II (5%) are the final models with all coefficients significant under 5% significant level.

	Model I (general)	Model I (10%)	Model I (5%)	Model II (general)	Model II (10%)	Model II (5%)
Chinese acquirer	-3.713 (1.36)	-4.896 (2.05)*	-5.152 (2.15)*	14.317 (1.60)	14.029 (1.74)	
Market index return	-28.309 (7.80)**	-29.278 (8.39)**	-29.029 (8.33)**	-26.750 (3.51)**	-37.580 (5.95)**	-37.513 (5.93)**
Hong Kong Stock Exchange	4.324 (0.85)			30.919 (1.63)		
Nasdaq Stock Exchange	-4.292 (1.34)	-3.979 (2.17)*	-4.031 (2.20)*	10.579 (0.87)	4.048 (3.04)**	4.032 (3.02)**
Australia Stock Exchange	-6.569 (1.21)			-71.804 (2.90)**		
New York Stock Exchange	-9.614 (2.96)**	-9.088 (4.87)**	-8.969 (4.82)**	8.502 (0.70)		
Singapore Stock Exchange	2.471 (0.46)			-24.681 (1.18)		
London–AIM Market	-5.357 (1.24)	-4.668 (2.86)**	-4.853 (2.98)**	-5.429 (0.40)		
HK GEM Market	0.435 (0.08)			26.595 (1.26)		
Toronto	0.475 (0.31)			-0.567 (0.07)		
China	-23.305 (5.37)**	-17.988 (6.75)**	-17.916 (6.73)**	-41.572 (2.27)*		
Hong Kong	-15.798 (3.33)**	-8.262 (6.38)**	-8.716 (6.84)**	-40.798 (2.62)**	-17.108 (4.17)**	-16.497 (4.11)**
Australia	3.516 (0.67)			76.343 (3.36)**		
Canada	-1.070 (0.31)			16.534 (1.54)		
Singapore	-6.582 (1.28)			27.117 (1.51)		
United States	4.970 (2.04)*	6.268 (3.32)**	6.387 (3.38)**	-0.407 (0.07)		
United Kingdom	-3.560 (0.95)			1.325 (0.14)		

Year 2003	0.216			6.659	5.494	5.328
	(0.11)			(2.34)*	(2.79)**	(2.70)**
Year 2004	-5.451	-4.468	-4.382	1.186		
	(2.78)**	(3.20)**	(3.14)**	(0.45)		
Year 2005	-0.579			3.109		
	(0.30)			(1.18)		
Year 2006	-1.538			3.467		
	(0.81)			(1.24)		
Year 2007	-1.833			6.581		
	(0.99)			(2.34)*		
Year 2008	2.006	3.196	3.059	9.491		
	(1.07)	(2.33)*	(2.23)*	(2.96)**		
Year 2009	6.022	7.329	7.140	21.174	17.211	17.264
	(3.11)**	(5.75)**	(5.63)**	(5.27)**	(5.87)**	(5.87)**
Year 2010	5.263	6.220	6.070	14.398	11.561	11.680
	(2.74)**	(4.80)**	(4.69)**	(4.33)**	(4.54)**	(4.59)**
Year 2011	5.554	6.495	6.395	11.260	6.665	6.922
	(2.87)**	(4.74)**	(4.67)**	(3.39)**	(2.52)*	(2.61)**
Year 2012	6.810	7.960	7.929	14.730	9.059	8.777
	(3.46)**	(5.72)**	(5.70)**	(4.57)**	(3.53)**	(3.41)**
Year 2013	2.618	3.620	3.649	6.361		
	(1.25)	(2.32)*	(2.34)*	(1.91)		
Year 2014	-1.061			7.074		
	(0.51)			(2.05)*		
Acquirer from investment commodity industry	-6.510	-6.028	-7.134	-1.316	-3.717	-4.407
	(4.89)**	(6.48)**	(8.56)**	(0.57)	(2.54)*	(3.07)**
Acquirer from mining industry	-0.044			9.679		
	(0.02)			(1.05)		
Acquirer from business services industry	-2.272			2.549	4.910	
	(1.15)			(0.70)	(1.69)	
Acquirer from metal and metal products industry	-2.204			-0.449		
	(0.71)			(0.09)		
Acquirer from oil and gas, petroleum industry	-4.472	-3.153	-3.469	0.745		
	(1.67)	(1.93)	(2.13)*	(0.14)		
Acquirer from electronic and electrical equipment industry	2.710	4.164		-1.916		
	(0.94)	(1.78)		(0.42)		
Acquirer from real estate, mortgage	-2.191			0.647		
	(0.66)			(0.14)		

banker industry							
Acquirer	from	5.311	6.859	6.546	4.692	8.676	7.789
prepackaged		(2.05)*	(3.16)**	(3.02)**	(1.00)	(2.58)**	(2.32)*
software industry							
Acquirer	from	-2.117			7.118		
electric, gas, and		(0.55)			(1.04)		
water distribution							
industry							
Acquirer	from food	4.352	5.502		17.613	12.494	11.523
and kindred products		(1.06)	(1.74)		(2.85)**	(3.13)**	(2.92)**
industry							
Acquirers	from	-3.327			3.548		
commercial banks		(1.37)			(1.24)		
industry							
Acquirer	from	-3.977			1.535		
holding companies		(1.09)			(0.16)		
(except banks)							
industry							
Acquirer	from drugs	10.353	10.276	9.931	3.850	10.041	
industry		(3.45)**	(4.93)**	(4.78)**	(0.79)	(2.16)*	
Acquirer	from air	-16.295			23.501		
transportation and		(1.94)			(1.19)		
shipping industry							
Acquirer	from	0.432			-1.319		
transportation		(0.08)			(0.16)		
equipment industry							
Acquirer	from textile	4.185			-16.389		
and apparel products		(0.63)			(1.23)		
industry							
Acquirer	from	0.517			-3.064		
machinery industry		(0.13)			(0.62)		
Acquirer	from	7.779	8.217		14.315	9.499	
wholesale		(2.14)*	(2.33)*		(2.53)*	(1.82)	
trade-durable goods							
industry							
Acquirer	from stone,	2.835			-9.302		
clay, glass, and		(0.35)			(0.72)		
concrete products							
industry							
Acquirer	from	6.152			0.419		
construction firms		(1.36)			(0.06)		
industry							
Target	from mining	0.957			-2.589		
industry		(0.53)			(0.27)		

Target from electronic and electrical equipment industry	1.983 (0.82)			5.155 (1.22)	8.825 (2.56)*	8.935 (2.60)**
Target from business services industry	2.033 (1.30)			-1.157 (0.41)		
Target from real estate; mortgage bankers industry	3.877 (1.54)			4.440 (1.03)		
Target from food and kindred products industry	0.944 (0.29)			-2.427 (0.40)		
Target from oil and gas; petroleum refining industry	1.708 (0.72)			2.506 (0.49)		
Target from electric, gas, and water distribution industry	-4.761 (1.40)	-6.456 (2.47)*	-6.686 (2.56)*	-6.490 (1.14)		
Target from investment commodity industry	1.303 (0.81)			-3.777 (1.32)		
Target from metal and metal products industry	0.724 (0.22)			3.453 (0.70)		
Target from machinery industry	3.827 (1.23)			4.587 (0.88)		
Target from prepackaged software industry	1.536 (0.77)			-2.789 (0.72)		
Target from drugs industry	-0.139 (0.05)			7.333 (1.58)	7.960 (1.82)	14.724 (5.21)**
Target from chemicals and allied products industry	1.937 (0.61)			-9.388 (2.28)*		
Target from textile and apparel products industry	-5.270 (1.21)			19.442 (1.66)		
Target from commercial banks industry	1.698 (0.70)			-1.676 (0.57)		
Target from transportation equipment industry	-2.994 (0.62)			4.306 (0.56)		
Target from	-2.360			10.095		

communications	(0.71)			(1.72)			
equipment industry							
Target from air transportation and shipping industry	9.182			2.212	20.518		
	(1.37)			(0.18)	(1.84)		
Target from stone, clay, glass, and concrete products industry	6.317			18.537	14.509	13.598	
	(1.05)			(2.59)**	(2.11)*	(1.97)*	
Target from transportation and shipping industry	-2.638			1.234			
	(1.00)			(0.37)			
Target from wholesale trade-durable goods industry	-4.033	-5.112		-4.717			
	(1.32)	(1.72)		(0.94)			
Target from wholesale trade-nondurable goods industry	-6.480	-7.984	-7.628	9.061			
	(1.64)	(2.06)*	(1.97)*	(1.36)			
Target from hotels and casinos industry	12.098	11.181	11.035	9.669	13.810	13.361	
	(3.32)**	(3.14)**	(3.10)**	(2.12)*	(2.91)**	(2.81)**	
Target from motion picture production industry	6.356			18.637			
	(1.45)			(1.93)			
Target from advertising services industry	-9.182	-10.221		13.966			
	(1.52)	(1.71)		(1.49)			
Acquirers with management	11.310	11.549	11.324	13.379	15.593	15.728	
	(3.82)**	(3.99)**	(3.91)**	(3.59)**	(4.05)**	(4.07)**	
Acquirer as financial firm	-2.056			-3.569			
	(1.04)			(1.21)			
Buyside government-owned involvement	1.270			1.916			
	(0.69)			(0.56)			
Public acquirer	1.317	1.641		-0.572			
	(1.09)	(1.73)		(0.29)			
Sellside government-owned involvement	1.486			-7.447	-10.291		
	(0.46)			(1.23)	(1.81)		
Geographical cross-border	5.996	6.063	6.118	5.390	8.483	8.788	
	(5.13)**	(7.15)**	(7.27)**	(1.83)	(4.12)**	(4.28)**	
Exchange-based cross-border	-0.274			0.610			
	(0.19)			(0.18)			

Hostile	12.296	12.561	12.484	3.791		
	(2.36)*	(2.42)*	(2.40)*	(0.56)		
Competing bidder	11.841	11.863	11.929	1.223	5.731	
	(5.42)**	(5.46)**	(5.49)**	(0.37)	(1.70)	
% of shares acquired	0.170	0.168	0.172	0.113	0.107	0.121
	(9.56)**	(9.81)**	(10.06)**	(3.30)**	(3.32)**	(3.77)**
Post-acquisition ownership over 50%	6.629	6.634	6.590	14.947	15.529	14.742
	(4.50)**	(4.63)**	(4.60)**	(4.99)**	(5.57)**	(5.29)**
Tender offer	6.632	6.844	6.944	2.111	2.391	2.782
	(7.33)**	(7.76)**	(7.89)**	(1.53)	(1.70)	(1.98)*
Going private	5.849	5.600	4.738	-0.100		
	(4.51)**	(4.52)**	(4.17)**	(0.04)		
Cross-industry	-0.395			-0.575		
	(0.41)			(0.39)		
Poison pill	15.718	15.193	14.889	19.562	21.498	21.934
	(2.83)**	(2.76)**	(2.70)**	(2.68)**	(2.92)**	(2.97)**
Acquirer from the US	3.413	2.958	2.900	4.243	6.751	6.611
	(2.08)*	(2.46)*	(2.41)*	(1.15)	(3.55)**	(3.48)**
Acquirer from Canada	-1.145			-4.193		
	(0.56)			(0.96)		
Acquirer from Hong Kong	2.328			24.606	13.585	12.658
	(1.02)			(4.49)**	(3.08)**	(2.91)**
Acquirer from Australia	0.834			1.396		
	(0.36)			(0.26)		
Acquirer from the UK	3.481			5.057		
	(1.57)			(1.16)		
Acquirer from Singapore	2.158			0.759		
	(0.80)			(0.13)		
Acquirer from Japan	5.732			-4.350		
	(1.49)			(0.77)		
M/B				0.047	-0.038	-0.038
				(1.20)	(2.24)*	(2.19)*
Target LT debt/equity				-0.008	0.051	0.050
				(0.32)	(2.27)*	(2.22)*
Target ROE				-0.023		
				(1.33)		
Percentage of cash				0.076	0.078	0.086
				(2.85)**	(2.96)**	(3.26)**
_cons	0.992	-1.787	-0.351	-25.452	-16.135	-16.381
	(0.23)	(1.48)	(0.35)	(1.87)	(5.08)**	(5.16)**
R <sup>2</sup>	0.20	0.19	0.19	0.34	0.25	0.25
N	9,206	9,206	9,206	1,621	2,257	2,257

\*  $p < 0.05$ ; \*\*  $p < 0.01$