ON THE JOURNEY OF OVERSEAS LISTING: AN EMPIRICAL ANALYSIS ON CHINESE ENTERPRISES TO LIST ON THE HONG KONG STOCK EXCHANGE

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PhD THESIS

ON THE JOURNEY OF OVERSEAS LISTING: AN EMPIRICAL ANALYSIS ON CHINESE ENTERPRISES TO LIST ON THE HONG KONG STOCK EXCHANGE

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To my parents.

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ABSTRACT

The thesis, empirically investigates issues pertinent to the partial privatization of Chinese initial public offerings at home and abroad, especially on issues relating to Chinese enterprises' seeking overseas listings. Based on the asymmetric information hypotheses on initial public offerings (IPOs) and cross-border flotation literature, the proposed research includes both short-run and long-run methods, and covers the entire offering process of Chinese firms' going public in overseas markets.

The investigation begins with an overview of Hong Kong's and China mainland's financial markets in **Chapter II**. The limitation of development in the domestic capital market, the desire of bringing Chinese SOEs into the international market, and the appropriate conditions in Hong Kong encourage Chinese companies to issue new shares in Hong Kong.

Chapter III provides a comparative analysis on underpricing of Chinese and non-Chinese firms in Hong Kong, in order to discover the influence of asymmetric information on overseas listing and the correspondent offering strategies of Chinese companies and their underwriters. They are normally underwritten by highly reputable bankers, and the overwhelming majority of Chinese firms went public via bookbuilding when the market is on an optimal evaluation base. The average price range seems to be relatively conservative for promoting subscription demands. The potential loss can be partially mitigated by a positive price revision and carefully market timing.

Chapter IV focuses on information disclosure and earnings forecasting accuracy in IPO prospectuses with their subsequent effects on aftermarket performance, since the accuracy of information becomes important in influencing IPOs offerings and after-market performance. The IPO profit forecasts errors represent a pessimistic bias on average, but it can be a crucial information resource for their investment decisions. The magnitude of forecasting errors is higher for China-related companies than local shares, indicating a higher asymmetric information level. The forecasts are not rational in the sense that managers correctly incorporate all available information, especially historical profits, in their forecasting. Also, the magnitude of forecasting errors can systematically affect the one-year trading performance. Due to the initial overvaluation, firms with higher initial returns actually underperform in the long run.

And **Chapter V**, in order to discover the ultimate meanings and motives of such overseas listing, directly questions why and how the Chinese government takes so many many state-owned enterprises (SOEs) public in the international market. It concludes Chinese SOEs' overseas primary listing takes on the formidable tasks of macroeconomic partial privatization, home market protection, and domestic infantile market development. Large and 'healthy' state-owned enterprises (SOEs) within the government's supporting industries are more likely to issue their shares on foreign, open, and well-developed stock exchanges when the target market is in good time of pricing and offering, in order to raise more capital, to operate under international standards, to send a positive signal of Chinese economic reform, and to indirectly protect the development of domestic financial market. Consequently, the partial privatization through an overseas primary listing approach is indeed a feasible way to facilitate domestic financial market growth, particularly for countries with a large economy but lack of a well-developed home capital market and a mature trading platform.

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CHAPTER I
INTRODUCTION

Going public is one of the most significant events for enterprises to re-establish their capital structure, adjust corporate governance, and enhance financial capability. Therefore, various issues around initial public offerings (IPOs) have motivated researchers in accounting, economics, finance, management, as well as in law, in discovering IPOs' short-run underpricing and long-run performance puzzles. In particular, underpricing of IPOs refers to when the offer price is below the first day market price, while the long-run trading performance of IPOs is normally measured in three to five years after initial issuing by comparing the share price movements to various reference portfolios (Ritter, 1991; Loughran and Ritter, 1995).

1.1 Motivations of the Study

1.1.1 Importance of studying Chinese IPOs listed in Hong Kong

It is important to study Chinese IPOs listed in Hong Kong. These overseas listed firms are not only the empirical evidence for initial public offerings, but also a testing base on the topics of cross-border listings, emerging market financial reforms, and international approaches for the national privatization.

To begin with, China's capital flows contribute to the global market. International capital flows flourished since 1990s, which have had an economically large and statistically significant impact on global economy. The world's major exchanges have been fostered to meet the increasing amount of international capital flows and capture the growing demand of equity offerings beyond the border of the home marketplace, especially towards fast-growing

emerging markets. Chinese overseas listed issues provide an aggregate and particular testing base for overseas initial offerings.

In addition, as one of the most fast-growing economic bodies with tremendous economic capacity, China's development is catching more attention from all over the world. China is growing through a period of economic and financial reform, the overseas primary listing has become one of the crucial methods to achieve the target of privatization and to develop domestic capital market. However, from the very beginning of the reform before 1980s, there has been a persistent puzzle of how to order and balance economic transition, privatization, and institutionalization. They probably could not occur at the same time, interact to the same degree, and proceed hand in hand. The Chinese government seems to find a way to accelerate this interactive process. This is by taking state-owned enterprises (SOEs) public on the international marketplace. As the Chinese financial reform is pursued more widely and deeply, further developing the domestic market, the characteristics and performance of overseas-listed Chinese IPOs are more likely to vary over time. All of these are expected to offer a rich testing base to the thesis.

Last but not the least, Hong Kong is naturally selected to examine Chinese overseas IPOs. At the current stage, Hong Kong remains the most optimistic target market for Chinese enterprises to raise capital, even being more attractive than the domestic A-share market for particular type of companies. Hong Kong is one of the special administrative regions of China, which in reality brings certain advantages of being "home market". Between 1993 and 2007, more than 150 Chinese firms have been listed in foreign markets, about 90% of which choose Hong Kong as their primary listing market. The consideration behind effectively motivate the research of this thesis.

1.1.2 Chinese IPOs are different from their Hong Kong Counterparts

Although Hong Kong provides administrative orientations to mainland companies to list on its stock exchange, Chinese IPOs are always distinguished from other Hong Kong counterparts.

Condition on Chinese less developed financial market and the complicated classification system of Chinese stocks, the administrative selecting criteria by supervision departments results in the majority of Hong Kong listed Chinese companies must be tightly linked to the lifeline of national economy. Once to ensure successful offerings is set as priority, the perceived marketing strategies and pricing levels should exhibit being different from other private-owned firms in the market. In addition, due to the existence of higher degree in information asymmetry associated with overseas listings, Hong Kong listed Chinese IPOs are expected to generate more empirical implications. Such expectation partially interests this thesis, which proposes to investigate the systematic characteristics determining short-run underpricing and long-run performance of Chinese overseas listed IPOs.

1.1.3 Chinese Overseas Listing is Significantly Driven by the Regulatory Aspects between Two Markets

Chinese government has not fully dedicated the responsibility of being a market participant and intervenes in specific affairs, rather than being a solely regulator. In this circumstance, Chinese domestic market appears to be intensively policy directed. Meanwhile, facing a number of significant structural challenges, Chinese domestic financial market remain underdeveloped, lack of experienced institutional investors, weaken elements in banking system, and short of a predictable, transparent regulatory structure that fosters financial innovation. Without a meaningful institutional investor base, the market movement highly relies on noise retail investors, which results in a more speculative environment and a more volatile equity trading. More details have been introduced in Chapter II. In one word, Chinese domestic market has not fully prepared to drive national economy to a steady fast growth, to further open to massive foreign liquidity inflows, or to effectively protect investors from unanticipated global-spread economic conjunctures.

Apparently, as one of the world leading capital markets, Hong Kong comprises an integrated network of institutions and markets which provide wide range of financial products and services on an international base. It is categorized as high liquidity and effective operation under transparent regulation. Established upon high economic freedom, Hong Kong provides a mature, regulated, and active marketplace for global institutional investors.

Chinese government regards overseas listing as part of domestic privatization and an important step of economic reforms. They regard primary overseas listings as means of forcing SOEs to conform to "international standards" and establish "modern corporate governance". In this circumstance, large and qualified state-owned companies within the government's supporting industries are more likely to issue their shares on foreign, open, and well-developed stock exchanges when the valuation level is appropriated, in order to obtain more capital-raising, to operate under international standards, to send positive signal of Chinese economy reform, and to indirectly protect the development of domestic financial market.

The thesis, therefore, empirically investigates issues pertinent to the partial privatization of Chinese IPOs at home and abroad. Based on the asymmetric information hypotheses in IPO and cross-border flotation literature, the proposed research includes both short-run and long-run methods, and covers the entire offering process of Chinese firms' going public in overseas markets.

Prior studies, based on the experience of IPOs around the world, offer many wise explanations to the large amount of "money left on the table", including the winners' curse (Rock, 1986; Ritter, 1984), self-interest investment bankers (Baron, 1982; Carter and Manaster, 1990), discriminate allocation (Aggarwal, Nagpurnanand and Manju, 2002), lawsuit avoidance (Tinic, 1988), signalling (Welch, 1989), bookbuilding (Benveniste and Spindt, 1989), as well as information cascade (Welch, 1992). Apart from asymmetric information based models, evidence also suggests that the level of underpricing varies over time (Loughran, and Ritter, 2004) and across countries (Loughran, Ritter, and Rydqvist, 1994). The thesis is built upon prior studies, but steps further by jointly testing and extending existing models. Each empirical chapter has different focuses to demonstrate the activities and motives of issuing firms, underwriters, investors, authorities, and the market as a whole.

1.2 Empirical Issues

1.2.1 Research Outline

Empirical investigation begins with a comparative analysis of underpricing of Chinese and non-Chinese firms in Hong Kong. The phenomenon of Chinese firms having significantly

higher abnormal initial returns provides the evidence that overseas listing is naturally associated with higher information asymmetry. This is the premise of the thesis. Once holding this information barrier, both issuing firms and their underwriters have to act in a certain way to mitigate the possible loss and ensure successful offerings, which is the proposed objective of the first empirical chapter (Chapter III). Besides, the equity offering involves the issuing firm and investors, who are interrelated and interact on each other. Thus the accuracy of information becomes important in influencing IPOs offerings and after-market performance. Therefore, the subsequent empirical works in Chapter IV focus on the IPO earnings forecast and information disclosure mechanism by linking up trading performance with the divergence of opinion hypothesis (Miller, 1977). All of the above has shown overseas primary listing is facing more uncertainty, higher risks, and additional costs. The final empirical chapter (Chapter V) is proposed to establish the ultimate meanings and motives that encourage more and larger Chinese SOEs to raise capital through this approach. As suggested by the empirical results, the Chinese government regards overseas listing as part of the domestic privatization programme and as an important step of the ongoing economic reform. Consequently, rather than protecting the immature domestic security market, the overseas primary listing may bring the state authorities more successful experience to take the reform to the next level. The research questions, findings and implications of each chapter are summarized as follows.

1.2.2 Summary of Chapters

Before embarking on empirical investigations, **Chapter II** provides an overview of Hong Kong's and China mainland's financial markets, which does not only act as a preface of the whole thesis, but also begins the subsequent empirical studies in the following chapters. The limitation of development in the domestic stock exchanges, the desire of bringing Chinese SOEs into the international market, and the appropriate conditions in Hong Kong encourage a certain amount of Chinese companies to issue new shares in Hong Kong. China's domestic stock exchanges (Shanghai and Shenzhen) were launched at the beginning of the 1980s as part of the economic reform. As introduced in Section 1 of this chapter, before the Share Structure Reform in 2005, Chinese enterprises' stocks used to be classified by ownership into eight categories with different trading restrictions. The selection and ownership structure of overseas listed H-share[①] and Red Chip[②] stocks within these eight categories may be regarded

[①] H share refers to the shares of companies incorporated in mainland China that are traded on the Hong Kong Stock Exchange

as the foundation of their corporate characteristics, issuing incentives and after-market trading performance. Section 2 turns to briefly review the abnormal price premium of IPOs in domestic market and summarizes possible explanations for overseas primary listing. Non-market-oriented listing selection procedures and simplified pricing methods result in disconnection between the pre-listing restructure, new share pricing, and after-listing dramatic initial returns in the domestic market. Also, the majority of selected H-share companies must be tightly linked to the national economy. The lottery allocation mechanism and enthusiastic public subscription in domestic equity offerings has been not appropriated to measure the market demand, not to speak of investors' sentiment. Accounting standards and information disclosure practices, as commonly argued aspects in cross-border listing literature, are building more blocks between domestic and foreign stock exchanges, which is most likely to change the picture of financial position and performance for proposed overseas listing companies. Retail-centralized investors' structure and limited investment alternatives further constrain the capability, efficiency and rationality of the home market. Restricted capital flows and newly launched international investment channels are difficult to be introduced and can hardly change the market environment in the short run. Last but not the least, intensified informative acceptance across segmented markets is showing greater closing movement and sentiments than years ago, which benefits both marketplaces in terms of long-run fundamental implications. Furthermore, Section 3 of this chapter introduces the Hong Kong financial market as a mature, steady-growing and appropriate trading platform to provide an optimal choice for Chinese enterprises to seek overseas primary listing.

Chapter III, the first of the three empirical chapters, investigates the different underpricing levels between Chinese and non-Chinese IPOs in Hong Kong, in order to discover the influence of asymmetric information on overseas listing and the correspondent offering strategies of Chinese companies and their underwriters. It jointly tests a number of asymmetric information models, including the winner's curse model (Rock, 1986), the partial adjustment hypothesis (Benvenisite and Spindt, 1989; Hanley, 1993), and principal-agent models, to examine the underpricing of IPOs listed on the Main Board of the Hong Kong Stock Exchange (HKEx), covering the entire offering process, including preliminary pricing, issuing marketing, pre-listing price revising, and public offering. The results and main findings are summarized as follow. (1) Chinese enterprises received a mean initial return of 19% on first trading days, doubling the initial returns of their local counterparts. (2) Cross-sectional results are reliably consistent with the positive relationship between ex ante

[2] Red chips companies that are incorporated and listed in Hong Kong and are controlled (at least 35 percent) by state-owned organizations or by provincial or municipal authorities in mainland China.

uncertainty and IPO initial returns, but the explanatory power of some conventional proxy appears to be minor. (3) Highly reputable bankers are able to enhance investment expectations and further promote the aftermarket trading performance, and investment banking industry in Hong Kong is within the monopolistic competition. (4) Most of IPOs are likely to time their offerings and take advantages of optimistic valuation during the "hot issue market". Recent IPOs' initial trading performance has very significant impacts on follow-up issues thereafter. In Hong Kong, the bookbuilding became conventional in recent years and is preferable by larger deals. To further test the partial adjustment hypothesis and other related theories, this chapter then isolates 180 observations which going public by bookbuilding method. For bookbuilding IPOs, (5) in parallel with drafting listing documents, sponsors normally arrange pre-offering meetings with prospective institutional investors in order to collect indications of interests, therefore the private information from institutional groups has already been incorporated into the announced preliminary price range in IPO prospectuses. (6) The substantial information leakage in Hong Kong market acts to form information cascade (Welch, 1992), lower the costs of valuation, and aggregate the retail sector. Deviating from either lower limit or the midpoint of price range, this average positive revision is more likely driven by retail demand and their confidence on underwriters. (7) Hong Kong always stresses the importance of fair dealing and retail investors are more preferable in non-discretionary IPO allocation; consequently, once holding other things equal, larger price revisions are associated with larger proportion of retail allocations. (8) High public subscription can be transmitted to the aftermarket via a positive price revision, which in turn attracts more investors buying new shares and stimulates further ascent in share price (Ljungqvist and Wilhelm, 2002), carrying the expectation of higher underpricing (Hanley, 1993; Lowry and Schwert, 2000; Loughran and Ritter, 2002). (9) However, the proportion of institutional allocation provides inconclusive evidence to predict initial returns. The firm-specific characteristics cannot consistently and powerfully explain the level of underpricing, providing the additional supports to the changing risk composition hypothesis by Loughran and Ritter (2004). (10) The empirical results confirm the market timing hypothesis in the IPO literature (Loughran and Ritter, 2002; Lowry and Schwert, 2002). (11) Chinese companies are endowed with a specific pricing and marketing strategy to reduce costs from underpricing and simultaneously ensure the success of equity offerings. The issuing size and ownership background make H shares and Red Chips easily become high-profile in the market. They are normally underwritten or jointly underwritten by top investment bankers, and the overwhelming majority of Chinese firms went public via bookbuilding. Referring to their oversubscription in both placing and public tranches, the average price range seems to be relatively conservative.

Chapter IV focuses on information disclosure and earnings forecasting accuracy in IPO prospectuses with their subsequent effects on aftermarket performance. Most investors in the market, especially retail investors, do not have inside information about the issuing firms. In this case, the managers' earnings forecasting in IPO prospectuses can be a crucial information resource for their investment decisions. The accuracy of forecasts is expected to partially affect initial returns as well as trading performance. Empirical works jointly test Welch's (1992) investor sentiment hypothesis, De Bondt and Thaler's (1990) overreaction hypothesis, Miller's (1977) divergence of opinion hypothesis, and Loughran and Ritter's (1995) windows of opportunities hypothesis. The mean of IPO profit forecasts error is about 5.4 percent, such a low average indicates a possible agency problem. Issuing firms, with better knowledge than others, can take opportunity to seek additional benefit when they report the profit forecasting in new share offerings. In further tests for rationality of profit forecast, the managers' forecasting tends to be pessimistic, indicating management may not fully and correctly incorporate all information to the estimation. To link with short-run underpricing, there is no statistically significant difference between pessimistic and optimistic forecasting. However, the evidence also suggests that if the forecast is over-biased, investors have ability to adjust their investment expectation, which can lead to extremely high underpricing. In terms of a long-run investigation, consistent with the divergence of opinion hypothesis, firms with higher initial returns actually underperform in the long-run, which is due to the initial overreaction. The magnitude of forecast errors maintains systematic affect on the trading performance, while variables of divergence of opinion are powerful to partially explain the long-run underperformance puzzle of IPOs. In terms of contributions, the chapter includes new control variables in testing the determination of forecast error magnitude, such as using an insider dummy to control the wealth effect and dilution effect. Also, it combines IPO the forecast and the stock performance in immediate market to explain the long-run underperformance, which is in line with divergence of opinion hypothesis.

The final empirical chapter, **Chapter V**, reviews the journey towards overseas listing of Chinese enterprises, investigates the meaning and political ends for the Chinese government, discovers the prime motives, how to select issuing SOEs, and what the benefits are of doing this. It aims to figure out the reasons behind the upsurge of Chinese companies' cross-border flotation, to find out the goals of the Chinese government to pursue economic and financial reform, and to point out possible suggestions for the development of the home stock market. This chapter jointly tests a number of models, including the market order hypothesis, bonding hypothesis, market timing hypothesis, and other asymmetric information models related to the improvement in corporate governance, investor protection, and IPO long-run performance. The findings can be summarized as follows. Since the Chinese government regards overseas

primary listings as a mean of forcing SOEs to conform to 'international standards' and establish 'modern corporate governance', such activities have been attached with more political considerations. The government has carefully selected "qualified" enterprises and helped with pre-listing restructures to meet the high standards in foreign stock exchanges. Once solely considering issuing firms' incentives, large-scale and "healthy" state-owned enterprises (SOEs) within the government's supporting industries are more likely to issue their shares on foreign, open, and well-developed stock exchanges when the target market is in good time of pricing and offering, in order to raise more capital, to operate under international standards, to send a positive signal of Chinese economic reform, and to indirectly protect the development of domestic financial market. In addition, since foreign listing is driven by the needs of economy reform and SOEs' partial privatization, these listed firms are assigned for the priority of reorganization and exhibit better governance structure after listing, which in turn spreads positive effects onto the domestic financial market. In terms of investor protection, legal origin is an important determinant to accounting practice, corporate governance, disclosure procedures, and public controls, which can crucially affect the development of the capital market as well as market participants' investment expectations and activities. In short, partial privatization through an overseas primary listing approach is indeed a feasible way to facilitate domestic financial market growth, particularly for countries with a large economy but lack of a well-developed home capital market and a mature trading platform. The chapter contributes to existing literature in the following ways. On the one hand, in the tests of making decision to overseas primary listing, it tries to break through the conflicts between theoretical predictions and Chinese government's activities, providing further evidence that the ultimate purpose of overseas IPOs is to pursue the development of the domestic financial market. On the other hand, proxies of investor protection used in the long-run tests are introduced and yield valuable outcomes.

1.3 Implications and Contributions of Main Findings

In terms of implications, Chapter II has tried to provide updated information about Chinese financial reform, China's domestic market development, and the listing environment in Hong Kong. State authorities and market regulators are expected to find the gap between the home market and the world's leading stock trading platforms. Also, with easing of the capital flow constraints and the variation of investment channels, domestic investors may receive a general view and principal knowledge on the issue of overseas primary listing.

The findings in this chapter are expected to provide references in both academic literature and market practice. (1) This chapter examines the role of various determinants of IPO underpricing simultaneously and accounts for the market features in Hong Kong. However, the existing theories do not provide enough evidence to validate the influence of pre-offering rewards paid by underwriters to their regular clients, so that the non-discretionary allocation is terminated. (2) For prospective Chinese IPOs, it is essential to understand the underlying meaning behind the pricing strategy. Hong Kong market is entitled as the preferred platform to accommodate large Chinese IPOs. The strengths come from the restricted systematic monitoring (the non-discretionary share allocation), smooth information interchange (the information cascade), high-class underwriting services, matured institutional base, and affirmative investors recognition (the public demand). (3) This study is likely to help investors, especially retail investors in Hong Kong, to figure out the significant determinants during the offering and possibly estimate the likelihood in pricing and share allocating. However, the study has some limitations. The empirical results are possibly driven by the regulatory concern and irreplaceable market features. Meanwhile, the testing framework implies the possibility that empirical findings may be sensitive to the selection of samples and measurement of variables.

Chapter IV highlights the managers' earning forecasts in IPOs. It is expected to benefit investors, especially retail investors, to the extent of understanding management teams' incentives and behaviour in information disclosure. Also, for issuing firms and their managers, the accuracy of information disclosure during the IPO period is not the only strategy to promote public subscription, which is also tightly linked to the market performance in a certain period after going public.

Finally, Chapter V explains the motive and decision-making of foreign capital floatation from the government's perspective. Issuing IPOs in Hong Kong is a feasible approach to re-structure Chinese SOEs and to push current financial reform deeper. Meanwhile, for investors and academic researchers, especially for those without a Chinese background, this chapter may provide many hints to aid the understanding of the listing activities of Chinese SOEs in the international stock exchanges.

1.4 The Plan of Study

The rest of the thesis is organized as follows: Through reviewing the development of China's domestic financial market and its tight economic link to Hong Kong, Chapter II mainly summarizes the reasons and motives of overseas primary listing. Chapter III begins with tests of asymmetric information models, investigating the IPO underpricing puzzle, underwriters' incentives, and China-related enterprises' offering strategies. Following that, Chapter IV turns to focus on the earnings forecasting accuracy and information disclosure practice. It also discovers the relationship between this accuracy and IPO aftermarket trading performance, by emphasizing the significance of divergence of opinion. In terms of the motivation of China's partial privatization and increasing tendency for SOEs to seek overseas listing, Chapter V empirically examines the political and economic incentives of the Chinese government to continuously carry through this approach. In the end, Chapter VI offers a final conclusion and a proposal for future investigation. Each chapter includes a literature review, and tables and figures are reported at the end of each.

CHAPTER II

CHINA ENTERPRISES LISTED IN HONG KONG – AN OVERVIEW OF HONG KONG AND CHINA DOMESTIC FINANCIAL MARKETS

2.1 Introduction

China's stock market was launched at the beginning of the 1980s and is part of the economic reform. It operates two stock exchanges, both of Shanghai Stock Exchange (SHEx) and Shenzhen Stock Exchange (SZEx) were founded in 1990, and are governed by the China Securities Regulatory Commission (CSRC). After nearly thirty-year development and several times of fundamental reforms, Chinese domestic stock markets have achieved great improvements, in terms of market capability, liquidity, as well as regulation and standardization.

When the first Chinese enterprise issued IPO on the Main Board of Hong Kong Stock Exchange (HKEx) in 1993, the journey towards overseas listing started. By the end of 2007, there have been a total of 1530 domestic listed companies and 154 foreign listed firms, including Hong Kong, Singapore, the U.K., the U.S., and so on. It is noted that, Hong Kong has been the best option of overseas listing all along, and this chapter will break the seal and conduct proposed research questions in the thesis.

As a background introduction of the whole thesis, this chapter first illustrates the stock classification and market development, since the unique classification system of stocks hinges the going public process for Chinese enterprises. In addition, there must be some reasons behind the repetitious upsurges of overseas listing in past fifteen years, thus this chapter also aims to discover the endogenous problems of China domestic financial market and try to summarize number of explanation on why Hong Kong is an optimal choice to purse this overseas primary listing channel.

2.2 China Domestic Stock Markets and Classification of China-backed Stocks

2.2.1 A Fast Growing Domestic Market – Importance and Challenges

The history of Chinese stock offering can be traced back to 18th November 1984 when Shanghai Feilo Acoustics Co. Ltd. initially issued common stock to the public and started dealing on 26th September 1986. After then, domestic stock exchanges, including SHEx and SZEx, were launched on 26th November 1990 and 1st December 1990 respectively.

It is generally believed that there are four important stages during the twenty-year course of development, i.e. the locally experimental stage (May 1987 – March 1992), nationally primary stage (April 1992 – June 2001), reform-driven recession stage (June 2001 – December 2005), and expanding growth stage (from 2006). In particular, during the third stage of reform driven recession, the government introduced funds into the market with a series of supporting policies, which had a pernicious influence upon stock trading, to the extent of declining capital-raising and optimum distribution of resources. This reform-driven recession potentially increased motives of overseas listing for large-scale state-owned enterprises (SOEs). Although such foreign listing was caused by various reasons, which will be discussed in this chapter carefully, the journey towards overseas primary listing has begun from this stage. Summary of China domestic security markets is reported in Table 2.1 and Figure 2.1.

Figure 2.2 provides a more straightforward picture to discover the rapid growth of China domestic securities market. Since early 1990s, it has been through climbing tendency, especially after each time of financial reforms, in 2000 and 2005 respectively. Moreover, in 2007, two years from the most recent Share Structure Reform, it was the first time of total market capitalization of A-share markets exceeding national economic aggregate, approximately 1.33 times as large as annual GDP.

The building blocks for strong capital markets buttress the broader development of a prosperous economy. Efficient and competitive financial sectors help allocate scarce resources to their most productive uses and generate significant multiplier effects for economic growth. Well-developed financial market are a necessary precondition for China's development as well, to move the country towards its goals of more balanced, harmonious, innovation-based, and environmentally sustainable growth. It can offer a diverse array of financing channels, providing for more innovation and a lower cost of finance. Deep and

healthily liquid capital market is more likely to increase national-wide stability and reduce volatility.

However, Chinese domestic financial markets are still facing number of significant structural challenges, i.e. remaining underdeveloped, lack of institutional investors, weaken element in banking system, and short of a predictable, transparent regulatory structure that fosters financial innovation. In particular, access to market is limited, restricting potential buyers, while bid-off spreads are wide, indicating a lack of competition and accordant liquidity. Because of a finite list of investment alternatives, the market is pending for diversity. Also, the quality of market participants varies widely. Without a meaningful institutional investor base, the market movement highly relies on noise retail investors, which results in a more speculative environment and a more volatile equity trading. In addition, China's commercial banking system is still transitioning to a modern, efficient, market-driven system with proper risk control. There are some risk-averse credits officers may still believe it is safer to lend to state-owned companies since the implicit government guarantees, rather than to dynamic small and medium-sized private businesses. And the consolidated disclosure of accounting and financial position has not been fully realized. Moreover, China is facing a regulatory regime that may be inhibiting innovation and development of a modern financial market. As China transitions from a centrally administered economy to a market-based economy, markets would better channel capital to the most dynamic sectors and businesses in the economy. The appropriate role of governments is to set the rules for the market as a whole and enforce them, rather than to make individual investment decisions. However, these rules are remained unclear enough and adherence to them is weak. Lastly, the all-around openness of China financial market is still placed on the agenda. Facing the weak external economic environment and the pressure of headline CPI inflation at a record high in the beginning of 2008, Chinese government is in duty to shift into more tightening administrative policies. Either interest rate hikes or one-off exchange rate revaluation will directly beat domestic market and hurt investment expectations. Therefore, except for the enormous capitalization, the less-developed domestic market remains incomparable to world's leading capital markets. Chinese domestic market has not fully prepared to drive national economy to a steady fast growth, to further open to massive foreign liquidity inflows, or to effectively protect investors from unanticipated global-spread economic conjunctures.

2.2.2 Classification of Stocks by the Ownership

As Mei, Xiong, and Scheinkman (2005)[③] and many other papers have discussed, one of the characteristics for Chinese stock market is being highly government-controlled and the market is at most a partially privatized one. Chinese stocks were categorised by various ownerships before 2005. This classification system not only assigns the stocks with tradable or non-tradable (or called non-negotiable) characteristics, but also differentiates investors being domestic or international, in order to defines a demarcation line for the local financial market.

In particular, domestic legal entities are allowed to hold non-tradable state-owned stocks, local founder stocks, employee stocks, and other legal-entity stocks; while foreign founder stocks are hold by international legal entities with various restrictions on proportions. All of these are attached restrictions to be freely traded in the stock market; while public-hold tradable shares are further separated as A-share, B-shares, and H-shares. Although every class of shares have the same voting rights, they cannot be freely converted. Besides, Red Chip stocks in Hong Kong are also regarded as Chinese stocks, even their registrations are out of China mainland. After 2005, Chinese enterprises do not issue non-tradable shares when going public, but the authority-related stocks still have several years lock-up restriction. The following is going to further introduce a series of tradable stocks.

2.2.2.1 A-Share Stocks

A-shares are listed on the Shanghai or Shenzhen Stock Exchange in Mainland China, denominated in Chinese Yuan (CNY). Since it was established in 1990, the A-share market has made great development. By the end of 2008, there have been more than 1530 listed A-share companies, representing a total market capitalization of RMB20,758 billion (approximately US$2,965 billion).

In 2005, the CSRC announced a pilot program to transform non-tradable stocks into tradable stocks with additional compensation (cash, rights, or warrants, etc.) to tradable-share holders. In order to stabilize the market, this transformation did not immediately change the float due to various lockup periods. This reform had deep and significant affects on the

[③] Mei J. P., Xiong W., and Scheinkman J.A., (2005), "Speculative Trading and Stock Prices: Evidence from Chinese A-B Share Premia", AFA Philadelphia Meetings.

domestic market both during and after the reform period. The temporary suspension of new and subsequent equity offerings created a number of problems, such as low turnover and illiquidity. After the lock period, the transformed shares also crated downward pressure to the market. These problems were exacerbated due to an immature investor base and a lack of derivative trading platforms.

In addition, Chinese government has not fully dedicated the responsibility of being a market participant. According to the "Administrative Measures on IPO issuing" (2006), once prospective issuing firm submits the application to CSRC through their sponsors, during the first trial, the CSRC has to take counsel to local governments which the company is registered with, and to receive approvals from the National Development and Reform Commission. Seasoned equity offerings (SEOs) also need permission from CSRC.

The sponsor system puts into full practice in domestic securities market in February 2004. The market participation of international investment bankers is also under a rigorous supervision by state authorities. This situation results in less experience, ungraded independence, subordinate regulation, and limited services level for domestic investment bankers, which, on a whole, is not maturely geared to international practices.

2.2.2.2 B-Share Stocks

The B-share stocks, being traded in US dollars on the Shanghai Stock Exchange and in Hong Kong dollars on the Shenzhen Stock Exchanges, are exclusively for foreign investors and allocated primarily by private placement until February 2001, when the CSRC allowed domestic individual investors to open B-share accounts and trade B shares in foreign currencies. By the February of 2008, there are 86 companies issuing both A- and B-shares and 23 companies solely issuing B-shares.

One company can issue both A- and B-shares. A- and B-shares have equal voting power and dividend rights, although the price of A-share is usually much higher than that of B-shares. As Chen et al. (1999) report, overseas investors face language barriers, must cope with different accounting standards, and find it hard to get reliable information about the local economy and companies, the B-share markets are very small and illiquid in comparison with the A-share markets.

As shown in Panel A of Table 2.1, there is no new B-share stock newly issued from 2002, and during the bear market from 2001 to 2005, the market capitalization dramatically dropped more than 45% from the peak in 2001. And even after the hot year of 2007, B-share markets appeared to shrink more rapidly than A-share markets, indicating investors' inferior expectations. It has been impossible for declining B-share markets to satisfy the desire of China SOEs raising capital, consequently China government sights overseas markets to list on.

2.2.2.3 H-share Stocks

By definition, H shares are the shares of companies incorporated in mainland China that are traded on the Hong Kong Stock Exchange. Many companies float their shares simultaneously on the Hong Kong market and one of the two mainland Chinese stock exchanges (being A shares in home market). Existing China's law imposes various restrictions affecting the use of foreign exchange in the China and its remittance out of the China. Under current law, only foreign investors and investors from the regions of Hong Kong, Macau and Taiwan are permitted to own the overseas listed foreign shares of a Chinese issuer. As a result, the two kinds of share in effect operate in separate markets subject to different investor demands.

H-share companies also have state-owned shares and legal-person shares. Where legal-person shares are shares owned by domestic institutions, most of which are themselves partially owned by the central or provincial government. Legal persons are typically business agencies or local-government enterprises that have helped to start up the public companies. Both state shares and legal-person shares are substantively non-tradable (at least within a few years after public offering). Therefore, some economists argue that legal persons are similar to state shareholders.

The CSRC is responsible for selecting the SOEs and approving their applications for an overseas listing. The CSRC requires every listing go to through a "pre-selection" process. Although the selection criteria were not exactly clear and were changing, there are only several general principles. For instance, firms have to be a certain size and had to show good performance with high growth potential. Firms also had to demonstrate a genuine need for capital: the net assets of a listed company had to be higher than RMB400 million, the pre-listing ROE above 10%, and the proceeds of the offering above US$50 million[④]. The Chinese government had to have a controlling stake in these companies and retained absolute control

[④] See the requirements on CSRC official website.

in critical industries or enterprises. In this circumstance, such selection was often based on non-economic factors such as political connections, geographical quotas, "protected" industry status, etc.

2.2.2.4 Red-chip Companies

In contrast with A-, B-, or H-shares, whose companies are incorporate in Mainland China, Red chips companies, by definition, are incorporated and listed in Hong Kong and are controlled (at least 35 per cent) by state-owned organizations or by provincial or municipal authorities in Mainland China. When these mainland firms look for expansion and overseas capital, they typically find ways to gain listing in Hong Kong, either through direct IPO or through backdoor listing.

Red chip companies are essentially Chinese conglomerates that operate in China, although some also have businesses in Hong Kong. Unlike H-share companies, which tend to specialize in a singly activity, business in red-chip companies are more diversified.

Substantially both Red chips and H shares are China-backed companies. By this definition, both Red chips and H-share companies will be investigated in the thesis. They are expected to represent similar market demand elasticity, pricing method, initial returns, as well as after-market trading performance.

In sum, the complicated classification system of Chinese stocks can be one of crucial limits to circumscribe certain sorts of companies to go public on either domestic or foreign market. Also, the ownership structure actually marks the importance of various firms to the national economy. In this case, SOEs, who form the lifeline of nation's economy, are naturally rated to have priority to choose a target issuing market when they seek to raise capital. However, the following section will figure out the factual reasons behind SOE's overseas primary listing in China, which is much more than raising fund merely.

2.3 Price Premium in Domestic Market, Possible Reasons and Motivations for Overseas Listing

The thesis causally selects Hong Kong as a target market for empirical works, to investigate the China-backed enterprises seeking overseas listings. Hong Kong market cannot be isolated from the mainland economic body, and Chinese companies' financing activities always reflect the economic fundamental. Therefore, the rest of chapter will pay close attention to the development of Chinese domestic securities market, investigate the differences between two markets, and discover the possible reasons behind overseas listings, which can motivate empirical works in the rest of thesis.

The large underpricing magnitude in Chinese domestic IPO market has attracted much attention in both academia and real business. According to existing literature, Su and Fleisher (1999) find an underpricing level to be as high as 948.6% for A-share IPOs before 1996; Tian (2003) observes an average initial return of 267% during the period of 1991-2000, while Chen, Firth, and Kim (2004) find first day closing prices of China A-share IPOs were about 145% higher than the offering prices from 1992 to 1997. In any case, the reported levels of underpricing in China A-share market are much higher than the mean of 60% in other emerging markets (Jenkinson and Ljungqvist, 2001), and also in excess of 16% in Hong Kong between 1996 and 2000 reported in Chapter 3. Instead of maximizing offering proceeds and saving listing costs, domestic prodigious underpricing implies an imperfect and less-efficient marketplace. Therefore, even overseas listing is necessarily associated with high-cost information asymmetry and hard-awarded public approbate, Chinese SOEs crowded round to access a well-developed international market.

In Hong Kong, the pricing of IPOs is based on the company's size, financial position and performance, productive profitability, earnings and dividends, growth potentials, industry average pricing level, and market movement, etc. The initial returns, therefore, are also systematically related to these characteristics. However, most offering prices of A-share stocks more reflect government's subjective estimation than company's specific situation or information on public demand gathered during the pre-filing period. Thus, all A-share stocks' initial returns were dramatically high whatever is the bull or bear market. It is exhibited that A-shares' underpricing is almost irrelevant to widely-applied valuation characteristics and methods, and first-day price jump becomes a certain result of the primary equity offerings.

Chang, Chen, Chi and Yong (2008) summarize four specific features of Chinese stock market, i.e. segmented ownership, separated A- and B-share markets, long time interval

between issuing and listing, and aggressively concentrated state ownership after listing. In addition, exploring through the IPO issuing procedures and after-market performance, number of characteristics cannot be ignored, such as the imposed pricing methods, lottery allocation mechanism, noisy retail investors, restricted capital and liquidity flows, as well as limited investment channels.

2.3.1 Non-market-oriented Listing Selection Procedures and Simplified Pricing Methods

The CSRC determines an annual quota for new shares to be issued each year. As argued in prior studies, for instance Yau and Steele (2000), on the basis of political considerations, the quota is allocated and balanced among the provinces and state-industrial commissions according to criteria which help to achieve regional or industrial development goals, in consideration of the balance among provinces and industries. In theory, business strengthen is the criterion for enterprises to be chosen.

Pricing via book-building by consulting institutional investors was adopted in A-share markets from January 2005. Before 2005, a method of online fixed-price offering is commonly used from 1995. Most offering prices are calculated according to a formula set by the CSRC. The formula is made up of prospective company's after-tax earnings per share (EPS) and an imposed price-to-earnings ratio (P/E ratio). In which, EPS is reported by the company itself, while the offering P/E ratio is assigned by CSRC based on the most recent average locality and industry trading P/E ratio in the A-share market (Yu and Tse, 2006). In addition, the offering price is chosen by the CSRC several days, sometimes months, before market trading starts, and in most cases there is little feedback about public demand to allow adjustment in the offering price. The CSRC also takes chances of timing IPOs to the market situation and capacity, as well as to the needs of financial market reform.

According to such prejudiced criteria, majority of selected H-share companies must be tightly linked to the lifeline of national economy. Consequently H-share firms' going public have been attached more political considerations and heralding missions in a combination of both privatization and cross-border listing. Once to ensure successful offerings is set as priority, the perceived marketing strategies and pricing levels should exhibit being different from other private-owned firms in the market. Meanwhile, due to the existence of higher degree in information asymmetry associated with overseas listings, H-share IPOs, since being idiosyncratic, are expected to generate more empirical implications. Such expectation

partially interests Chapter 3, which proposes to investigate the systematic characteristics determining underpricing on the Main Board of HKEx, by highlighting China-backed issuing firms.

2.3.2 Lottery Allocation Mechanism and Enthusiastic Public Subscription

As a result of the serious imbalance in supply and demand, the A-shares are allocated through a lottery system, in which there is a fixed price offer with investors bidding or quantities. The odds of winning the lottery depend on how much money joins the lottery. Winners are selected via a random number generating scheme and are entitled to purchase one thousand shares at the issue price by winning one number. As the demand for the new shares usually far exceeds the supply, only a small percentage of the subscriptions win the lottery. The quota system for new issues can be the main reasons for underpricing (Chi and Padgett, 2005).

In this case, permanent thousands of times in domestic public subscription has been not appropriated to measure the market demand, not to speak of investors' sentiment. Only placing China-related firms into fledged trading environment, such as HKEx, the well-educated investors can estimate seemly value and reveal their interests in a rational manner. Therefore, during both pricing and immediate trading, the Chapter 3 will also adopt public subscription level as one of the systematic factors to proxy investors' interests, preferences, and sentiments.

2.3.3 Accounting Standards and Information Disclosure Practices

China adopts domestic Standards and Accounting Systems of Business Enterprises (ASBE) (before 2006), Chinese Accounting Standards (CAS) (after 2006), and International Accounting Standards (IAS), while the latter two were recently introduced. Although based on IAS, ASBE is questioned to the extent of timely incorporating economic losses. In particular, ASBE is challenged to be in short of important asymmetric rules, such as lower-of-cost-or-market, and impairment of long-term assets. Furthermore, ASBE is also lack of timely loss incorporation in financial statements certified by international auditors as IAS-compliant. However, simply relying on government's endogenous efforts to improve financial reporting is far from enough. Current Chinese accounting reform lies in simply imitating international

standards, which substantially needs to be complemented by number of areas, including legal system, corporate governance, as well as auditor training and independence (Ball, Robin, and Wu, 2000).

In addition, according to Meng, Ren and Xie (2007), there is a lag for private information being fully incorporated into the stock price in China A-share markets. Consequently, the disclosure of information and related insider trading become a key issue to impact on market efficiency. Even the market can absorb any informative impact sooner or later, the lack of transparency or existence of asymmetric information block creates opportunities for insiders' rent-seeking behaviours. It has been a while that the Mainland market suffering less authority and lower litigable information disclosure guidelines till 30 January 2007, when the existing "Regulations on Information Disclosure of Listed Companies" became effective. The administrative deficiency substantially resulted in more incentives for insider trading and always generated unpredictable market volatility, which changed the government's role from a market regulator into a market "tuner".

Chapter IV tries to link accounting and disclosure practices with IPO underpricing and trading performances. Once pursuing an overseas listing, all of listing documents have to be formatted under the KDFRS or IFRS, while both are converged with the ISA Board. Hong Kong Society of Accountants (HKSA) always works at bringing HK into line with international practices in this area. Their affirmative updates and revisions in accounting standards have distinguished HK GAAP from Mainland China's norm. For instance, the Interpretation No.9 Accounting for Pre-operating Costs by HKSA (08 May 2000) revises the principle of matching expenses with income does not allow the recognition of items in the balance sheet which do not meet the definition of assets or liabilities. Accordingly, the capitalization of pre-operating costs can only be justified when realized and recognized in the balance sheet as defined asset. The revision effectively prohibits the capitalization of pre-operating costs is likely to have significant effect on HK enterprises, particular those with interests in Mainland China where capitalization of pre-operating costs is an accepted accounting practice. Consequently, shifting in accounting standards is mostly likely to change the picture of financial position and performance for overseas listed firms, which in turn affects their accounting practices, operating activities, and information disclosure incentives to meet more rigorous provisions.

In addition, the listing rules of HKEx have set out detailed and restricted requirements governing the accounting information disclosures (HKEx Listing Rules 4.01-4.29, updated No. 86, 10 March 2008). Chapter 4 finds a breakthrough point to affiliate primary equity

offerings with accounting and disclosure practices, i.e. the accuracy of forecasted earnings in the offering prospectuses and its effects to IPO initial returns and after-market performances, by involving both behavioural overreaction hypothesis (DeBondt and Thaler, 1990) and divergence of opinion (Miller, 1977).

As far as the insider trading is concerned, in Chapter 5, the investors protection brings attention of legal rules in the jurisdictions within the financial markets. Since Hong Kong used to be British colony, the law system is built up on English-origin, while the law system in Mainland China more likely belongs to the civil law system. The differences in legal provisions and public controls raise research questions to deal with asymmetric disclosure and insiders' rent-seeking activities.

2.3.4 Investor Structure and Limited Investment Alternatives

According to rough estimates, the aggregate investment value of the various institutional funds constitute approximately one-third of the investable Mainland securities market value (equities and government bonds), and the investable securities account for about one third of the total market capitalization. The balance is held by retail investors. The securities investment funds (SIFs) are the major regularized institutional investor type ranked by investment value in the domestic stock market, holding approximately 10% of the market value. The non-regularized privately-offered funds may hold another 12%. About 28% of the units in the SIFs are held by insurance companies, which are forbidden to participate in the stock market directly. Securities companies are second major type, holding an estimated 9% through their proprietary account and asset management business for clients. The National Social Security Funds (NSSF), which entered the stock market recently, constituted only 0.8% of market value, followed by trust and investment companies and the Qualified Foreign Institutional Investors (QFII) (estimated to be 0.6% each).

The development of the institutional investor base in China faces the obstacles of insufficient policy coordination and policy hindrance across sectors. But most important development obstacle is the lack of investment channels. Only investment in the domestic A-share and bond markets is allowed, no risk management tools are available, no overseas investment is allowed, and insurance companies may only invest through direct channels.

It is perceptible that to establish a formed institutional investor base with various investment channels needs more than time. Any forward moving requires further openness to free global capital flows and additional regulations to domestic market participants. Meanwhile, it is necessary to adjust the "policy-driven" psychology back to a "market-directed" mind by weakening the decisive role of government and minimizing volatile influences of policy alteration. However, at the current stage in China domestic market, precipitate modification can only disorder existing steady growth and hit investors' confidence, especially for retail investors. Simultaneously, the problems of Chinese SOEs press for immediate solutions. By all appearances domestic retail investors is not able to properly accommodate large-scale SOEs in the near future, which induces the likelihood of overseas listing as discussed in Chapter 5.

2.3.5 Restricted Capital Flows and Newly Launched International Investment Channels

Since accession to the WTO in 2001, China has taken significant steps towards enhancing the convertibility of its foreign exchange capital and integrating the domestic capital market into the international capital market. In light of China's huge foreign reserves and desire to further access to external financial environment, China has developed number of channels for global capital flows. Also, due to the trade imbalance, China is under great pressure to revaluate its currency and to maintain a steady fast economy growth. To that end, on 13 April 2006, "People's Bank of China[⑤] Decree No.5" established a Qualified Domestic Institutional Investors Regime (QDII) to channel its massive foreign exchange reserves into international capital market.

QDII covers qualified commercial banks, securities institutions, and insurance companies. The Regime provides new investment options for China's household bank saving deposits and National Social Security Fund. When combined with China's Qualified Foreign Institutional Investor Regime (QFII), which allows foreign capital to invest in Chinese A-share markets and bonds, QDII offers a two-way channel for international capital flows via institutional investors.

However, QDII is hard to be introduced since its establishment. First of all, being long time of short in investment options for Chinese citizens, buying investment fund and invest in overseas financial markets are more likely to remain at the stage of expectation and being

[⑤] People's Bank of China is the central bank of PR China.

prudent. Investors need more knowledge to adjust investment orientation and more preparation to enhance risk endurance. Meanwhile, growth of CPI inflation and downside import surplus engaged a certain amount of domestic capital liquidity, which in turn deflated the scope of capital outflows. In addition, the break-even required rate of return of QDII is high. Chinese currency is facing the pressure of appreciation at about 8-10% recently, while the one-year deposit rate is around 4%, thus at least the break-even point of overseas investment has to achieve a level as high as 12-14%. This perception is likely to be worse if Chinese government pursues campaign-style administrative tightening, aggressive interest hike, or one-off revaluation of currency. Consequently, even if the market is developed in right way, and opening more channels of investing diversification will spread capital distribution and facilitate domestic capital market, it still takes time. In this case, to encourage domestic companies listing on international open markets would be a more efficient and optimal alternative, which argument further interests Chapter 5.

2.3.6 Intensified Coupling and Informative Acceptance across Segmented Markets

Most recently, Hong Kong and China domestic markets are showing more significant closing movements and sentiments than years ago. So far, China-backed stocks have occupied more than half of Hong Kong market capitalization and are becoming more active. Considerably high market weight and subsequent influence of Mainland policies on Hong Kong stocks can be seen, not only to the extent of trading patterns, but also in terms of long-term fundamental implications.

First, after primary listing H-share stocks in Hong Kong, major SOEs have re-entered the A-share market, enhancing the impact of China-backed companies in both markets. By the end of 2007, five largest components in Shanghai Composite Index, namely the PetroChina, ICBC, Sinopec, China Life, and Bank of China, which are dually listing H-share stocks in Hong Kong, have already achieved a combined weight of 47.2%.

However, compared with matured markets, China domestic market appears to be intensively policy directed, since the high frequent changing in policies has remarkable and mixed impacts. From macroeconomic indicators, QFII, QDII, to the reduction of state shareholding, such policy-directed phenomenon is one of necessary characteristics in current stage of financial market development, and which is expected to continue for a fairly long period.

While, for Hong Kong, the impact of Mainland frequently adjusted policies can be less powerful. Hong Kong has been affected by global market and feasibly enhanced its speculative ability. Also, China domestic investment culture has much to do with the retail investors, which may not infect a market dominated by international institutional investors as Hong Kong.

To this extent, for avoiding endogenous negative influences raised by domestic economic reform, a smooth and diversified marketplace may become a dynamic force for Chinese government to initially accommodate large SOEs in Hong Kong. It allows foreign-listed firms introducing better corporate governance and other successful experiences back to A-share companies, facilitating domestic capital market, and benefiting the economic reform, as investigated in Chapter 5. More important, being attached with many political meanings, the partial privatization via an overseas primary listing approach does sent a signal of development and improvement in Chinese economic fundamentals.

In short, this section carefully intercepts the existing problems and possible explanations behind overseas primary listing. Meanwhile, it consciously extracts the subsequent empirical works in the thesis. The next section will provide further evidence regarding Hong Kong market as a preferable target market for Chinese enterprises to list on.

2.4 An Overview of Hong Kong Financial Market as a Preferable Choice of Chinese Enterprises' Overseas Listings

Prior sections have paid closed attention to the development of Chinese domestic financial market and indicated how Hong Kong, as an optimal trading platform for Chinese enterprises, can help listed firms to break through the domestic limits. This section, furthermore, will provide more information about current situation in Hong Kong, and eventually answer the question why Hong Kong is a best choice for Chinese companies seeking overseas primary listing.

Hong Kong Exchanges and Clearing Limited (HKEx) contributes an international market place for Hong Kong and Mainland China securities and derivatives products. Hong Kong has a well established legal system based on English common law and adopts Hong Kong or International Financial Reporting Standards (IFRS). In past decades, especially since 1990s, HKEx has provided a strong and attractive foundation and offshore capital market for

companies to raise funds, with sufficient market capability and liquidity, various investment alternatives and derivatives, restricted accounting and disclosure practices, as well as knowledgeable institutional and retail investors. Meanwhile, being Hong Kong Special Administrative Region (HKSAR) of China since 1st July 1997 and holding continuous close business links to the Mainland China, it is always strategically placed in a high growth region and provides an ideal platform for global issuers to achieve exposure in the rapidly growing Mainland market. As an internationally recognized financial centre with abundant professional China expertise, HKEx has provided many Asian and multinational companies a gateway to the Mainland China, and even to the Great China Area[⑥].

2.4.1 Mature and Circumspect Trading Platforms

HKEx operates two trading platforms of the securities market, namely the Main Board and the Growth Enterprise Market (GEM). According to existing Regulatory Framework and Rules[⑦], both markets adopt a disclosure-based regulatory regime in which listed issuers are required to make timely disclosure of price-sensitive information to help investors make informed investment decisions. The Main Board is a market for capital formation by established companies with a profitable operating track record or companies meeting alternative financial standards to the profit requirement. GEM is an alternative market established in January 1999 to provide capital formation opportunities for growth companies from all industries and of all size.

In particular, according to the rules governing the listing of securities (the Listing Rules) on the Main Board of HKEx, the issuer must satisfy either the profit test or the market capitalization/revenue/cash flow test, or the market capitalization/revenue test. In each of the test, it is all required that, to meet the profit test, a new applicant must have an adequate trading record under substantially the same management and ownership for no less than three financial years during which the profit attributable to shareholders must, in the profit test for instance, in respect of the most recent year, be not less than HK$20 million and, in respect of the two preceding years, be in aggregate not less than HK$30 million[⑧]. In addition, management continuity for at least the three preceding financial years; and ownership

[⑥] The Great China Area generally refers to East Asia countries/regions except for Japan in common sense, which have closed economic links with China, including Korea, Hong Kong SAR, Singapore, and other South East economies.
[⑦] Last updated Regulatory Framework and Rules of Hong Kong Exchanges and Clearing Ltd. can be found in its official website: www.hkex.com.hk.
[⑧] HKEx Listing Rules 8.05, 8.05A, and 8.05B, updated No. 86, 10 March 2008.

continuity and control for at least the most recent audited financial year. These criteria may vary between different industries, such as mineral companies, newly formed 'infrastructure project' companies, etc.

GEM is particularly designed to growth enterprises which do not fulfill the profitability/track record requirement of the Main Board. New applicants in the GEM must demonstrate at least 24 months of active business pursuits immediately preceding the date of submission of the listing application, with a minimum market capitalization of no less than HK$46 million[⑨]. Since profitability is removed from conditions of listing, this enables growth enterprises to raise capital on the growth opportunities of the region under a well-established market and regulatory infrastructure. Meanwhile, it offers investors an alternative of investing in "high growth, high risk" businesses, provides a fun raising venue and a strong identity to foster the development of technology industries in Hong Kong, and promotes the development of venture capital investments.

2.4.2 Steady and Growing Market Place

The first listing of H shares of a Chinese state-owned enterprise (SOE) in Hong Kong in 1993. Since then, a close relationship emerged between Mainland businesses and the Hong Kong market, a relationship that is reflected in the Hong Kong market's fund raising track record. By the end of 2007, a total of 154 domestic companies had issued IPOs, and 57 issued subsequent equity offerings (SEOs), raising capital up to US$107,508 million. The Capital raised by H-share companies in last 15 years has been briefly summarized in Table 2.2.

Mainland enterprises have sparked off waves of large scale capital formation by in the Hong Kong and other global securities markets. Three times of issuing upsurge can be found in 1997, 2000, and after 2005. In particular, apart from the one in 1997 is owe to the Hong Kong's return to Chinese sovereignty and domestic enterprises took the advantages of integrated economy body, the rests were more likely due to Chinese SOEs' partial privatization and grading economic reform, represented by the suddenly increased number of offerings, total capital raised, and average issuing size. In terms of China's partial privatizations via an overseas primary listing approach, Chapter 5 will aggressively investigate in more details.

[⑨] See Chapter 11 of GEM Listing Rules, www.hkgem.com.

Whatsoever, Hong Kong has become the first and preferable choice of China-backed companies raising capital and seeking overseas primary listings. According to the China Securities Regulatory Committee (CSRC) authoritative statistic[10], by 2007, there were 148 H-share traded on international stock exchanges, 111 of them were only listed on HKEx; 37 issued both A and H shares in segmented HKEx and domestic exchanges, 13 dually listed in HKEx and New York Stock Exchange (NYSE); 5 dually listed in HKEx and London Stock Exchange (LSE); and 3 solely listed in Singapore.

It raises a question that why China-backed companies will choose Hong Kong as a priority for overseas listing. On one hand, China has domestic stock markets and can also offering stocks for international subscription, such as B-share stocks, then seeking external funds to finance the companies cannot fully explain such amount of IPOs in various scales; on the other hand, Hong Kong market has very synchronous moving direction with highly closed tendency to China domestic stock exchanges (as shown in Figure 2.1), therefore, although Hong Kong provides more investment derivatives, it is still not an optimal choice to the extent of risk diversification. Thus a general sense about overseas listings and/or cross-border listings may not be applied in the case of Chinese-backed firms. However, this conflicting phenomenon has lasted for 15 years and is likely to be maintained at the current stage, offering abundant pending questions to the study in this thesis.

The first reason can be the level of market development. Compared with the newly established Chinese stock market, Hong Kong's mature market should make a bigger contribution in channeling foreign funds to Mainland enterprises. In other words, correspondingly, HKEx is more preferable for large-scale China-backed companies to maximize capital raised. The comparison of Hong Kong, Shanghai, and Shenzhen stock exchanges is shown in following Table 2.3.

Hong Kong market is a mature and fast-growing open market, with significantly higher market capability and more listed securities than two China domestic stock exchanges except for the extraordinary year of 2006.

[10] See CSRC's monthly report of Summary for H Shares (2008.02).

For one thing, after several decades of development, Hong Kong stock market accommodates more companies to list on than any domestic A-share markets, approximately 1.37 and 1.70 times to Shanghai and Shenzhen A- and B-share markets respectively[11].

In terms of the market capacity, by end of 2006 when China domestic stock exchanges recovered from the most recent market fundamental reform, the total market capitalization of HKEx (including both of Main Board and GEM) represents approximately 1.51 times to the sum of Shanghai A-shares and Shenzhen A-shares[12], and the situation is likely to hold throughout most of sample years. However, the jumping happened in 2007, which was the first time when the total Shanghai A-share capitalization exceeded Hong Kong; simultaneously. During this year, the market size dramatically enlarged by 1.55, 3.78, and 3.30 times in Hong Kong, Shanghai, and Shenzhen respectively. Actually, as suggested in many empirical studies, the immature market conditions always result in more uncertainties on pricing and market movement.

The underlying sudden change was largely inflicted by the unsuccessful approaches of selling off state-owned shares around 2000, which upset the investors and brought into a bear market from the following year. In 2005 the Chinese authorities pursued a new round of market reform to reclassify non-tradable shares into tradable shares. Chapter 5 will aggregately put emphasis on this issue. Meanwhile, the CSRC suspended IPO issuing for all Chinese companies in every classes of shares, which in turn dragged market down to the bottom in the middle of 2005. Right after phasing completion in the end of April 2006, on 17 May, the CSRC released the "Administrative Measure on IPO issuing" and reopened the launch of IPOs. However, such structural break has had deep and significant affects to the domestic markets. Since extremely lack of turnover and market liquidity, the reopened equity offering channel brought great attentions of domestic enterprises and investors, the cumulated offering applications were rolling into newly formed stock exchanges and created one-off capital bursting.

As known, the abnormal initial returns of China A-share IPOs are remained puzzle, though some studies addressed the reason on investors' limited investment alternatives. It can be imagined, with a mass of new shares issued at the same time, retail investors, which carries

[11] Although the total number of listed A-share firms is more than Hong Kong listed companies, the calculation can hardly integrate two A-share trading platforms, since Shanghai and Shenzhen stock exchanges are operating separately.

[12] The increasingly marginalized B-share markets are excluded. With no equity offering since 2004, there has been argued that B-share markets are lack of turnover and liquidity and set to be merged into the country's A-share markets.

the major component in domestic market, crowded into the stock markets, subscribed shares, frequently traded, and lead to the wild fluctuation and over liquidity. Panel B in Table 2.3 provides more details to the sound bull market during this period. In particular, with more IPOs were introduced to the market and more Chinese residents opened new investment accounts, total market turnover immediately reacted to this change and was enhanced by 226% in Shanghai and 243% in Shenzhen, while Hong Kong market still kept a comparably steady growth. As a consequent to the weakness external environment (the subprime problem in the U.S at the end of 2007) and the increasing threat of inflation and over-liquidity in internal economy, such one-off transformation finally returned back to original level, with the P/E ratio dropped from the peak of over 60 times on average down to 30 times in the beginning of 2008. Although Hong Kong market was negatively influenced by the change to the extent of market pricing level, the market maintained the capability and order on the whole.

This gap indicates that, Hong Kong has reliable ability to accommodate more and larger firms to list on, to help them in accessing highly standardized accounting and disclosure practices, and to supervise them on establishing modern corporate governance. All of these are very important for China SOEs to consider with. Most of firms seeking public offerings incentively expect a steady and flourishing trading platform. Hong Kong market has kept on continuing growth in most aspects. Meanwhile, China A-share markets fluctuated in past years, and B-share market was at a standstill and even began to glide. Under this circumstance, domestic listing may bring additional risks to large companies, since they will become a market flags once trading, and become testers of related reforms likewise.

In short, listing in Hong Kong, which is the closed overseas stock exchange for both geographic and economic considerations, is not only an economic but more politic manner. The Chinese government is hardly concerned about sending signals to the market or gaining political support. Its main target at the early stage was to raise foreign capital. Later, the Chinese government wished to use foreign listings as means of improving the quality of SOEs and of making them role models for locally listed SOEs. As stated by Zhou Daojong, the former chairman of the CSRC: Overseas-listed companies are all outstanding enterprises that are representatives of their respective industries to an extent. I hope you can also be the models of listed companies. The achievement of an overseas-listed company is not only the company's own business, it relates to country's image of reform and openness (26 May 1995, CSRC web news).

2.5 Summary and Conclusion

In comparison of the Hong Kong and Chinese domestic financial markets, this chapter mainly discusses the possible explanations and motivations behind overseas primary listing. Through a detailed introduction of both Hong Kong and Chinese domestic financial markets, this chapter completes the task to catch sight of why Chinese enterprises are full of enthusiasm about overseas primary listing in Hong Kong. Chinese domestic financial markets are still facing number of significant structural challenges, i.e. remaining underdeveloped, lack of institutional investors, weaken element in banking system, and short of a predictable, transparent regulatory structure that fosters financial innovation. The ultimate development of the financial market still has a long way to go.

This chapter finds a number of possible reasons for overseas primary listings in Hong Kong:

(1) One of the characteristics for Chinese stock market is that it is highly government-controlled and the market is at most a partially privatized one. The complicated classification system of Chinese stocks can be one of crucial limits to circumscribe certain sorts of companies to go public on either domestic or foreign market. Also, the ownership structure actually marks the importance of various firms to the national economy. In this case, SOEs, who form the lifeline of nation's economy, are naturally rated to have priority to choose a target issuing market when they seek to raise capital.

(2) Existing non-market-oriented listing selection procedures and simplified pricing methods create more information barriers and results in the market being inefficiency. Meanwhile, As a result of the serious imbalance in supply and demand, the A-shares are allocated through a lottery system. The permanent abnormal public subscriptions have been not appropriated to measure market response, while the subsequent underpricing represents the lack of market rationale.

(3) Exploring through the IPO issuing procedures and after-market performance, number of characteristics cannot be ignored, such as the imposed pricing methods, lottery allocation mechanism, noisy retail investors, restricted capital and liquidity flows, as well as limited investment channels. The development of the institutional investor base in China faces the obstacles of insufficient policy coordination and policy hindrance across sectors.

(4) The gap between accounting standards adopted in the domestic market and the widely used international accounting standards exacerbates asymmetric information block and the underlying disclosure mechanism in the Mainland marketplace is pending for norms.

(5)Although a number of new policies have been carried out to channel capital outflows across the border, the immediate influence is hardly observed at the current stage.

And (6) since Hong Kong and the domestic market are likely to merge to the extent of closed movements and sentiments, Hong Kong can still be regarded as a segmented trading platform by reducing the intensive-policy-directed effects and providing a steady-growing environment.

Apparently, Hong Kong has provided a strong and attractive foundation and offshore capital market for China-related companies to raise funds, with sufficient market capability and liquidity, various investment alternatives and derivatives, restricted accounting and disclosure practices, as well as knowledgeable institutional and retail investors. In one word, Hong Kong has been regarded as the most optimal target platform for Chinese domestic enterprises to raise capital over home market.

Table 2.1 Capital Raised by H-Share Companies in the International Financial Market (1993-2007)

The table reports the total capital raised by H-share companies during 1993 and 2007, including both initial offerings and subsequent equity offerings.

Year	IPOs	SEOs	Warrants	Delist	Capital Raised (US$ mil.)
1993	6				1,049
1994	12				2,234
1995	2	1			379
1996	6	1	1		1,212
1997	17	2	2		4,685
1998	1	2			457
1999	3				569
2000	5				6,790
2001	8	1		1	882
2002	16	1			2,323
2003	18	3	2		6,492
2004	18	8			7,826
2005	12	12		1	20,647
2006	23	11		2	39,348
2007	7	15	1	2	12,616
Total	**154**	**57**	**6**	**6**	**107,508**

Source: China Securities Regulatory Commission[13]

13 See the official website of China Securities Regulatory Commission (CSRC): www.csrc.gov.cn .

Table 2.2 Comparison of Hong Kong, Shanghai, and Shenzhen Stock Exchanges by Market Capability and Turnover (2002 – 2008*)

The table compares the market capability and turnovers between Hong Kong, Shanghai and Shenzhen stock exchanges from 2002 to 2008. In Panel A, Column 1 lists number of listed companies, Column 2 reports the total market capitalization, while Column 3 mainly highlights the average market valuation in three markets. Then Panel B reports the market turnover in both number of shares and in money amount.

Panel A: Market Capability

	Total		Hong Kong		Shanghai		Shenzhen	
	HK	A Share	Main Board	GEM	A Share	B Share	A Share	B Share
Column 1: Number of Listed Companies								
2002	978	1,201	812	166	705	54	496	56
2003	1,037	1,261	852	185	770	54	491	57
2004	1,096	1,349	892	204	827	54	522	56
2005	1,135	1,355	934	201	824	54	531	55
2006	1,173	1,398	975	198	832	54	566	55
2007	1,241	1,507	1,048	193	850	54	657	55
2008*	1,243	1,529	1,054	189	852	54	677	55
Column 2: Total Market Capitalization (Billion Dollar/Billion CHY)								
2002	HKD 3,611	RMB 3,739	HKD 3,559	HKD 52	RMB 2,492	RMB 44	RMB 1,247	RMB 34
2003	HKD 5,548	RMB 4,152	HKD 5,478	HKD 70	RMB 2,940	RMB 40	RMB 1,212	RMB 50
2004	HKD 6,696	RMB 3,631	HKD 6,629	HKD 67	RMB 2,571	RMB 30	RMB 1,060	RMB 42
2005	HKD 8,180	RMB 3,181	HKD 8,113	HKD 67	RMB 2,286	RMB 24	RMB 895	RMB 36
2006	HKD13,338	RMB 8,812	HKD13,249	HKD 89	RMB 7,112	RMB 49	RMB 1,700	RMB 79
2007	HKD20,697	RMB32,459	HKD20,536	HKD161	RMB26,850	RMB134	RMB 5,609	RMB128
2008*	HKD17,783	RMB20,758	HKD17,670	HKD113	RMB16,820	RMB 78	RMB 3,938	RMB 94
Column 3: Market Average P/E Ratio (Times)								
2002	--	--	14.89	21.75	34.5	30.61	--	--
2003	--	--	18.96	38.79	36.64	30.32	--	--
2004	--	--	18.73	28.65	24.29	20.15	--	--
2005	--	--	15.57	22.94	16.38	12.4	16.96	9.11
2006	--	--	17.37	21.86	33.38	23.97	33.61	21.01
2007	--	--	22.47	44.91	59.24	59.3	72.11	26.71
2008*	--	--	13.49	16.91	36.6	36.9	32.38	13.9

Panel B: Market Turnover

	Hong Kong		Shanghai Stock		Shenzhen Stock	
	Main Board	**GEM**	**A Share**	**B Share**	**A Share**	**B Share**
Column 1: Total Turnover (Million Dollar/Million CHY)						
2002	HKD 1,693	HKD 37	RMB 5,752	RMB 81	RMB 3,079	RMB 48
2003	HKD 10,921	HKD 98	RMB 11,004	RMB 145	RMB 4,551	RMB 402
2004	HKD 9,724	HKD 33	RMB 4,624	RMB 74	RMB 2,850	RMB 185
2005	HKD 18,500	HKD 85	RMB 10,128	RMB 68	RMB 5,629	RMB 88
2006	HKD 43,618	HKD 140	RMB 58,748	RMB 345	RMB 24,594	RMB 395
2007	HKD 43,364	HKD 229	RMB 133,165	RMB 515	RMB 60,389	RMB 384
2008*	HKD 72,664	HKD 273	RMB 62,302	RMB 206	RMB 27,517	RMB 208
Column 2: Total Turnover (Million Shares)						
2002	2,943	68	633	18	374	13
2003	6,504	116	1,428	28	635	74
2004	20,122	52	810	21	517	42
2005	21,104	106	1,980	23	1,137	25
2006	24,899	226	8,591	86	3,452	91
2007	60,501	310	7,666	53	3,388	49
2008*	117,433	1,194	4,555	29	2,031	31

Column 3: Total Market Turnover (Million Dollar/ Million CHY)			
2002	HKD 1,730	RMB 5,834	RMB 3,127
2003	HKD 11,020	RMB 11,150	RMB 4,953
2004	HKD 9,756	RMB 4,698	RMB 3,035
2005	HKD 18,585	RMB 10,197	RMB 5,717
2006	HKD 43,758	RMB 59,093	RMB 24,989
2007	HKD 43,593	RMB 133,680	RMB 60,772
2008*	HKD 72,937	RMB 62,508	RMB 27,725

* By 17 April 2008.
Source: HKEx[14]

14 See the Market Highlights published in the official website of Hong Kong Stock Exchange Ltd. www.hkex.com.hk

Table 2.3 Summary for China Domestic Security Markets (1992-2006)

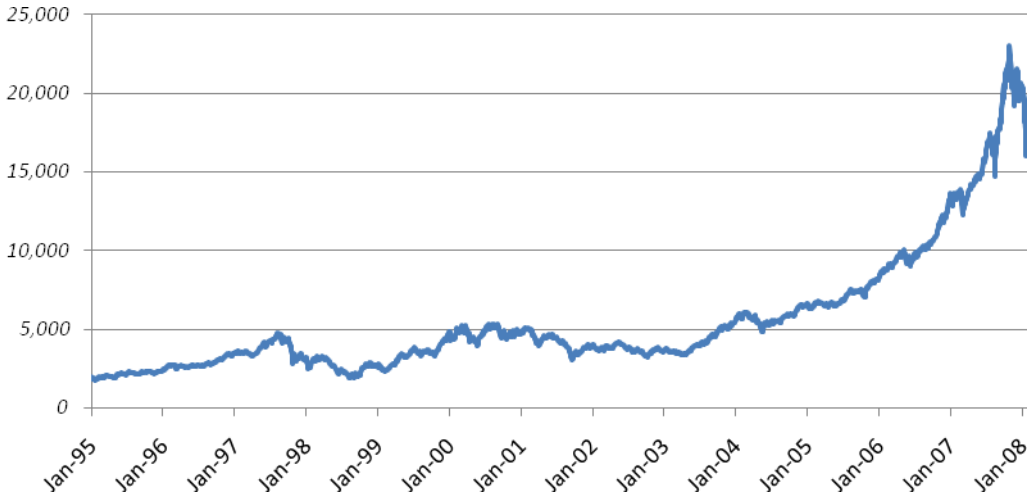
	1992	1993	1994	1995	1996	1997	1998	1999
No. of Listed Companies								
(A、B share)	53	183	291	323	530	745	851	949
(B share)	18	41	58	70	85	101	106	108
(H share)	-	6	15	18	25	42	43	46
Market Cap. & Valuation								
Total Issued Capital (Share bil.)	6.89	38.77	68.45	84.84	121.95	194.27	252.68	308.90
where: Negotiable (share bil.)	2.12	10.79	22.60	30.15	42.99	67.14	86.19	107.97
Total Mkt. Cap. (RMB bil.)	104.81	353.10	369.06	347.43	984.24	1,752.92	1,950.56	2,647.12
where: Negotiable Mkt. Cap.	—	86.16	96.89	93.82	286.70	520.44	574.56	821.40
Avg. PE Ratio（%）								
Shanghai	—	42.48	23.45	15.70	31.32	39.86	34.38	38.13
Shenzhen	—	42.69	10.28	9.46	35.42	41.24	32.31	37.56
Trading Performance								
Trading Vol. (share bil.)	3.80	23.42	201.33	70.55	253.31	256.08	215.41	293.24
Total T/over (RMB bil.)	68.13	366.70	812.76	403.65	2,133.22	3,072.18	2,354.43	3,131.96
No.of Investors (000)	2,166.50	7,776.60	10,589.80	12,424.70	23,072.30	33,333.30	39,111.30	44,811.90
Avg. T/over Ratio（%）								
Shanghai	—	—	1,134.65	528.72	913.43	701.81	453.63	471.46
Shenzhen	—	—	583.83	254.52	1,350.35	817.43	406.56	424.52
Shanghai Comp. Index (close)	780.39	833.80	647.87	555.29	917.01	1,194.10	1,146.70	1,366.58
Shenzhen Com. Index (close)	241.20	238.27	140.63	113.24	327.45	381.29	343.85	402.18

	2000	2001	2002	2003	2004	2005	2006
No. of Listed Companies							
(A、B share)	1088	1160	1224	1287	1377	1381	1434
(B share)	114	112	111	111	110	109	109
(H share)	52	60	75	93	111	122	143
Market Cap. & Valuation							
Total Issued Capital (Share bil.)	379.17	521.80	587.55	642.85	714.94	762.95	1,492.64
where: Negotiable (share bil.)	135.43	241.06	203.69	226.99	257.72	291.48	563.78
Total Mkt. Cap. (RMB bil.)	4,809.09	4,352.22	3,832.91	4,245.77	3,705.56	3,243.03	8,940.39
where: Negotiable Mkt. Cap.	1,608.75	1,446.32	1,248.46	1,317.85	1,168.86	1,063.05	2,500.36
Avg. PE Ratio（%）							
Shanghai	58.22	37.71	34.43	36.54	24.23	16.33	33.30
Shenzhen	56.03	39.79	36.97	36.19	24.63	16.36	32.72
Trading Performance							
Trading Vol. (share bil.)	475.84	315.23	301.62	416.31	582.77	662.37	1,614.52
Total T/over (RMB bil.)	6,082.67	3,830.52	2,799.05	3,211.53	4,233.40	3,166.48	9,046.89
No.of Investors (000)	58,011.40	66,504.20	68,418.40	69,812.40	72,157.40	73,360.70	78,540.00
Avg. T/over Ratio（%）							
Shanghai	492.87	269.33	214.00	250.75	288.71	274.37	541.12
Shenzhen	509.10	227.89	198.79	214.18	288.29	316.43	609.38
Shanghai Comp. Index (close)	2,073.48	1,645.97	1,357.65	1,497.04	1,266.50	1,161.06	2,675.47
Shenzhen Com. Index (close)	635.73	475.94	388.76	378.62	315.81	278.75	550.59

Source: CSRC

Figure 2.1 Total Market Capitalization of the Hong Kong Stock Exchange

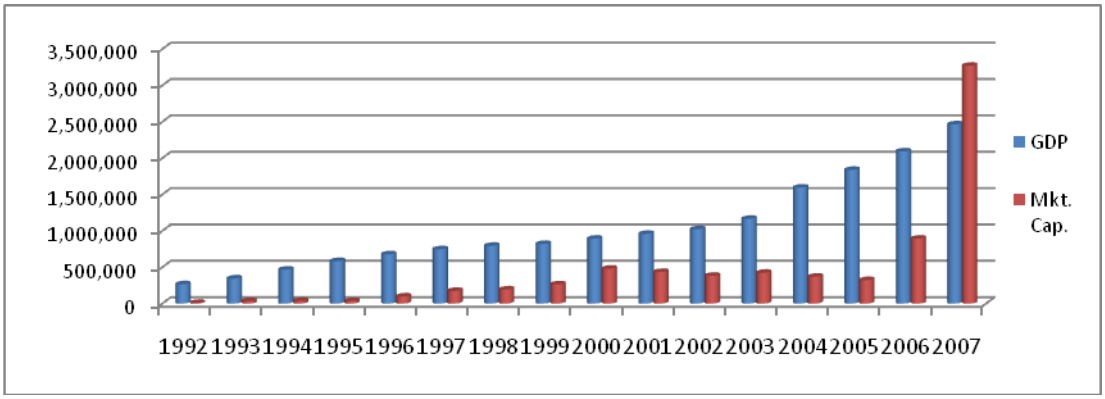
(*Jan. 1995 – Jan. 2008, HK$ in billions*)



Source: HKEx

Figure 2.2 Total Market Capitalization to GDP in China Domestic Markets

(*1992 –2007, RMB in billions*)



Source: CSRC

CHAPTER III

WHETHER HONG KONG IS AN OASIS FOR CHINA ENTERPRISES TO SEEK OVERSEAS LISTING – EMPIRICAL INVESTIGATION ON IPOS UNDERPRICING AND UNDERWRITING ACTIVITIES ☼

3.1 Introduction

The underpricing of initial public offerings (IPOs) has been widely discussed in Finance literature. Many prior studies, based on the experience of IPOs around the world, offer many wise explanations to the large amount of "money left on the table". More recent research develops the theories into various extensions, such as market participants' behavioural rent-seeking, cross-border listing and so on. However, none of existing models can be fully exacted from market specifications around the world, or explain the initial offering puzzles convectively and entirely. The gap in the literature motivates this chapter.

On the basis of the asymmetric information theories, this chapter is interested in the pricing of new shares, mechanism of equity offerings, and activities of market participants. Simultaneously, many studies pay attention to the cross-border listing. Additional costs, being either directly or indirectly, are normally raised by the diversity in accounting standards, disclosure requirements, investors' recognition, as well as systematic monitoring. By this token, an overseas listing can be associated with a higher level of information barrier.

Hong Kong market may offer an ideal testing ground for both the IPO underpricing and cross-border listing. As one of the world-leading stock exchanges, the Hong Kong Stock Exchange (HKEx) provides a strong and attractive offshore marketplace. Since 1993 when the first Chinese IPO, Tsingtao Brewery Co. Ltd. (0168.HK), primarily listed in Hong Kong, the HKEx has been regarded as the optimal platform for Chinese enterprises to seek primary overseas listings. By the end of 2008, 150 out of 154 overseas listed Chinese enterprises

☼ I am especially grateful to Mr. Brahim Saadouni, the external examiner, for detailed comments that substantially improved the chapter. He also kindly provide me with the data on offer information such as methods of offer, share allocation, price range, and subscription multiple.

chose Hong Kong as the initial listing marketplace, and the total market capitalization of Chinese enterprises have kept dramatically increase over time. These firms appeared to be quite distinct from others. According to the sample, during the period of 1996 and 2005, the underpricing was about 11.5% on average for all Hong Kong listed IPOs. However, Chinese enterprises received a mean return of 19% on first trading days, doubling the initial returns of their local counterparts.

The ongoing events of Chinese IPOs in Hong Kong and their obvious underpricing motivate studies in this chapter. First, irrespective of the origin of the firm (Chinese or non-Chinese IPOs), the determinants of the level of underpricing in Hong Kong is investigated. Also, the progressive changes in the market may have impacts to the price-setting framework, such as facing difficulties in the economy. In addition, many questions are raised on the bookbuilding method. It is the dominant offer method in the U.S., but is gaining popularity in Hong Kong in recent years. Since many IPO studies pay close attentions to the pricing, share allocating as well as the incentives of underwriters during the bookbuilding process, it is worthy to find the common ground and differences by alternatively applying Hong Kong data. All above may be help to figure out how Chinese IPOs go public in Hong Kong. Their higher initial returns should be enhanced by a pricing and marketing strategy to offset the loss and costs raised by possible asymmetric information and overseas listing.

In this chapter three models of asymmetric information are jointly tested. They are the winner's curse model (Rock, 1986), the partial adjustment hypothesis (Benveniste and Spindt, 1989; Hanley 1993) and the principal-agent models on underwriters' activities. Rock's theory establishes the most frequently used framework in the IPO literature, which argues that a higher level of underpricing will be positively related to a higher level of *ex ante* uncertainty. Hanley's study is consistent with the Benveniste-Spindt model and the "partial adjustment hypothesis" treats underpricing as compensation paid by underwriters to investors who truly release information about the issuing firms. Meanwhile, underwriters may strategically allocate discounted shares to their favourite investors. Especially when the valuation is costly but accurately pricing is less crucial, underwriters play an important role in strategically setting the prices. Holding their superior information level, investment bankers are more likely to receive benefits from both issuing firms and investors. However, the mispricing will be limited if investment bankers care their reputation capital at stake. Last but not least, issuing firms tend to time the offers and take advantages of optimistic valuation during the "hot issue market".

The testable sample includes 410 observations which went public on the Main Board of HKEx during the period between January 1996 and December 2005. The empirical investigation begins from the systematic characteristics on underpricing for all observations regardless their offer methods. Then, bookbuilding IPOs are separated from original sample and serve to examine the price revision and share allocation based on bookbuilding theories. According to the empirical results, Hong Kong listed IPOs were suffering a high initial return of 11.5% on average. The cross-sectional results on IPO underpricing are reliably consistent with the positive relationship between *ex ante* uncertainty and IPO initial returns, but the explanatory power of some conventional proxy appears to be minor. In addition, although there is no direct and statistical evidence to prove top underwriters' persistent underpricing phenomenon, highly reputable bankers are able to enhance investment expectations and further promote the aftermarket trading performance. And Recent IPOs' initial trading performance has very significant impacts on follow-up issues thereafter.

To further test the partial adjustment hypothesis and other related theories, this chapter then isolates 180 observations which going public by bookbuilding method. The investigation covers many key aspects in building-the-book, ranging over pre-offering marketing, public subscribing, pricing discovering, share allocating, as well as immediate aftermarket trading. This section also summarizes the idiosyncratic characteristics of Chinese IPOs, which may help to reduce the implicit costs and mitigate risks of failure in the overseas offerings. Main findings are summarized as follow:

(1) The bookbuilding services in Hong Kong are normally provided by a few top international bankers and China-related leading financial institutions, their procedure is very much alike. Due to the existence of underwriters' pre-offering activities, the private information from prospective institutional groups may have already been incorporated into the announced preliminary offer price range in IPO prospectuses. Then the substantial information leakage in Hong Kong market acts to form information cascade (Welch, 1992), lower the costs of valuation, and aggregate the retail sector.

(2) Hong Kong always stresses the importance of fair dealing and retail investors are more preferable in non-discretionary IPO allocation. The exercise of the overallotment option solely depends on the level of public subscription. Consequently, once holding other things equal, larger price revisions are associated with larger proportion of retail allocations. And high public subscription can be transmitted to the aftermarket via a positive price revision, which in turn attracts more investors buying new shares and stimulates further ascent in share price (Ljungqvist and Wilhelm, 2002).

(3) Larger price revision reflects a greater yield of private information from the public tranche, which will carry the expectation of higher underpricing (Hanley, 1993; Lowry and Schwert, 2000; Loughran and Ritter, 2002). A positive price revision indicates underwriters have knowingly incorporated more favourable information. However, the proportion of institutional allocation provides inconclusive evidence to predict initial returns. Also, the firm-specific characteristics cannot consistently and powerfully explain the level of underpricing The empirical results also confirm the market timing hypothesis (Loughran and Ritter, 2002; Lowry and Schwert, 2002). Lastly, there is no strong evidence to reject the public information is freely available to all participants and price-setting reflects the market movements.

(4) Ultimately, the market weights and influencing power of Chinese firms imply that Hong Kong is an optimal overseas market. Facing the additional costs raised by either regulatory differences or information asymmetry in overseas listings, Chinese companies are endowed with a specific pricing and marketing strategy to ensure the success of equity offerings. The issuing size and ownership background make H shares and Red Chips easily become high-profile in the market. They are normally underwritten by top investment bankers, and the overwhelming majority of Chinese firms went public via bookbuilding. Referring to their oversubscription in both placing and public tranches, the average price range seems to be relatively conservative. However, when the abundant valuation opinions and subscription indications are exchanged among investors, the growing number of subscription applications encourages underwriters to force up the offer price accordingly. Besides, the successful offering has to take market timing into account.

This chapter makes several contributions to the literature that has practical implication. The findings are expected to provide references in both academic literature and market practice. First, based on existing IPO literature, this chapter examines the role of various determinants of IPO underpricing simultaneously and accounts for the market features of the Hong Kong Stock Exchange. It concludes that asymmetric information models can insistently but partially explain the level of underpricing. Evidence on bookbuilding theories is consistent with the partial adjustment hypothesis. It also confirms the important roles of underwriters and the facts of timing the issues. However, there is no much conclusive result to the institutional allocation, and the existing theories do not provide enough evidence to validate the influence of pre-offering rewards paid by underwriters to their regular clients. Consequently, the non-discretionary allocation is terminated, current studies stress more on the process after the drawing up IPO prospectuses. Secondly, in term of the practical implications, for prospective Chinese IPOs in Hong Kong, it is essential to understand the underlying meaning behind the

pricing strategy. Hong Kong market is entitled as the preferred platform to accommodate large Chinese IPOs. The strengths come from the restricted systematic monitoring (the non-discretionary share allocation), smooth information interchange (the information cascade), high-class underwriting services, matured institutional base, and affirmative investors recognition (the public demand). Besides, this study is likely to help investors, especially retail investors in Hong Kong, to make conclusive investment decisions in IPO events. They can figure out the significant determinants during the offering and possibly estimate the likelihood in pricing and share allocating.

However, the study has some limitations. The empirical results are possibly driven by the regulatory concern and irreplaceable market features. Meanwhile, although the regression functions have jointly considered many asymmetric information models, none of them is powerful enough to solely explain the underpricing phenomenon. This situation not only shows the current gap in the literature, but also implies the possibility that empirical findings may be sensitive to the selection of samples and measurement of variables.

The rest of this chapter is arranged as follows. Initially there is a literature review in Section 3.2. Section 3.3 lists the testable hypotheses and underlying research questions. Section 3.4 gives the description of methodology and definitions of variables used. Sample and its features are reported in Section 3.5, followed by empirical tests in Section 3.6. Then the chapter is concluded in Section 3.7.

3.2 Literature Review

This section summarizes many widely cited studies in IPO underpricing literature, especially researches conditional on the information asymmetry. The review begins with the decision of going public and timing of the issues, according to the testable sample in this chapter, the number of IPOs and their initial returns dramatically fluctuate over time. The "hot issue market hypothesis" is expected to offer some solutions to this phenomenon. More importantly, this section lists the most popular theory of the "winner's curse model" in Rock (1986) and the prevailing studies on its core implication, i.e. the positive relationship between the *ex ante* uncertainty and IPO underpricing. Review also highlights the subsequent Benveniste-Spindt Model (Benveniste and Spindt, 1989) and the "partial adjustment hypothesis" (Hanley, 1993), which focus on how can price revision and share allocation strategically reflect the investors' indication received during bookbuilding period and its influence to the level of underpricing. In addition, this study has not ignored the important roles of underwriters and the potential agency problem between investment bankers and other market participants. On one hand, underwriter will not misprice new shares too much to hurt their reputation; on the other hand, the small oligopolies in investment banking industry may provide opportunities for top bankers to seek additional benefits.

3.2.1 Decision of Going Public and Timing of IPOs

Generally, most of firms issuing IPOs may be due to the desire of raising capital and entering a public marketplace. Many prior studies investigate the motivations for enterprises to do so. According to Welch and Ritter (2002), the first formal theory, the life cycle theory (Zingales, 1995), indicates a potential relationship between going public and takeover. By going public, enterprises thus help facilitate the acquisition of their company for a higher value than what they would get from an outright sale. However, this may over simplify the decision making of issuing IPOs. Black and Gilson (1998) indicate that motives of going public vary across different type of firms.

Alternatively but more conventionally, Chemmanur and Fulghieri (1999) link the decision of going public with the dispersion of ownership. Early in its life cycle a firm will be private,

but if it grows sufficiently large, it becomes optimal to go public. Maksimovic and Pichler (2001) point out that favourite market performance can positively influence the product market competition.

Theories mentioned above all consider the determinants of going public decision from the point of issuing firms. Besides, the market-timing develops a series of asymmetric information models where firms try to time the market for more favourable pricing, which in turn maximizes the capital-raising (Lucas and McDonald, 1990; Choe, Masulis, and Nanda, 1993; Subramanyam and Titman, 1999; Schultz, 2000).

By using a unique data of Italian firms, Pagano, Panetta, and Zingales (1998) find that larger companies and companies in industries with high market-to-book ratios are more likely to go public. To do so may help to reduce the costs of capital. This argument is consistent with Lerner (1994) that industry market-to-book ratios have a substantial effect on the decision to go public rather than to seek additional venture capital financing.

More recently, relevant studies pay increasing attention to the growth opportunities of the issuing firms. Lowry (2002) finds that, investors' sentiments, growth opportunities, and adverse selection considerations all are determinants of aggregate IPO volume. In addition, Lowry and Schwert (2002) find that high IPO initial returns lead high IPO activity by about six months. Valuation of most recent issued IPOs triggers more IPOs and higher initial returns.

It is actually difficult to test the decision of going public since it is hard to determine which and how many private firms could have issued IPOs. Meanwhile, for many state-owned enterprises, their going public may be attached many other non-economic reasons. The following review will turn to focus on more testable hypotheses, i.e. IPO theories based on information asymmetry.

3.2.2 Asymmetric Information Models I – The Winner's Curse

Early studies, including Stoll and Curley (1970), Reilly (1973), Logue (1973), and Ibbotson (1975), have observed a systematic high initial return (or called "underpricing") between the offer price and the first day closing price. The general focus of the underpricing puzzle is how to properly price new shares in order to match market supply and demand.

Most of popular explanations on the underpricing phenomenon are based on the existence of information asymmetry. There are many discussions around who own superior information than the others, informed investors, issuing firms, or investment bankers.

The best known asymmetric information model is Rock's (1986) Winner's Curse Model, which is an application of Akerlof's (1970) lemons problem. This model depends upon the existence of two types of investors. Among which, there is a group of outside investors who have better knowledge about the prospective cash flow than does the issuing firms. Meanwhile, it is assumed that both the issuing firms and its underwriting banks are completely uninformed about the true value of the shares on offer.

Faced with the adverse selection problem, uninformed investors require an additional initial return on average. In particular, if the new shares are priced at their expected value, these informed investors crowd out the others when good issues are offered and withdraw when bad issues are offered. This is also called "to leave a good taste in investors' mouths" (Ibbotson, 1975). Moreover, to justify assumptions in the paper of 1986, Rock additionally notes that the market aggregately has better information than any individual participant, including the issuer itself. Since the issuer and banks are assumed to have the same information, the model differs from the agency problem: the bank acts in the firm's interest.

The winner's curse model generates a number of testable implications. Once to resume being rational, there should have no any underpricing when all outside investors receive the same information about the firms and truly release their interests. Similarly, the informed investors' conditional underpricing return should just provide a normal return on their information production. However, a direct test for the model may not be feasible because informed and uninformed investors cannot be distinguished in practice.

A fundamental empirical implication, according to Ritter (1984) and formalized in Beatty and Ritter (1986), is that the greater is *ex ante* uncertainty, the higher is expected underpricing. Further supports include Allen and Faulhaber (1989), Grinblatt and Hwang (1989), Welch (1989), etc.

This hypothesis has received overwhelming empirical supports and various proxies of *ex ante* uncertainty have been used in the literature, including characteristics of the issuing firm, offering process, underwriting syndicate, and market movement.

Popular proxies based on company characteristics include age (Ritter, 1984; Megginson and Weiss, 1991; Ljungqvist and Wilhelm, 2003, etc.), size (Ritter (1984)), or the industry difference (Benveniste, Ljungqvist, Wilhelm, and Yu, 2003). Besides, it is common to include the number of uses of IPO proceeds as disclosed in the prospectus (Beatty and Ritter, 1986) or the number of risk factors listed in the prospectus (Beatty and Welch, 1996). However, with a lack of standardization, it remains unclear how variations in each proxy can reflect underlying uncertainty. Similarly, aftermarket variables such as trading volume (Miller and Reilly, 1987) or volatility (Ritter, 1984 and 1987) rely on information which was not in fact available at the time of the IPO.

Another approach of comparing *ex ante* uncertainty proxies is on underwriters' reputation. Through the choice of the underwriter, the firm can reduce the uncertainty about its prospects and therefore reduce the need for underpricing (Carter and Manaster, 1990). This argument can be traced back to Beatty and Ritter (1986). They first demonstrated that there is a relationship between expected underpricing and the uncertainty of investors regarding its value. The underpricing equilibrium is enforced by investment bankers, who have reputation capital at stake. 'Cheating' will lose either potential investors if it does not underprice enough, or issuers if it underprices too much. Therefore, it forfeits the value of investment bankers' reputation capital to avoid greater mispricing so as to avoid the loss of business. Proxies of underwriter reputation have intersection with models on bookbuilding theories and the agency problem, which is raised by information asymmetry based on the interest conflicts between investment bankers and issuing firms (Booth and Smith, 1986; Carter and Manaster, 1990; Michaely and Shaw, 1994) or a reputable auditor (Titman and Trueman, 1986). However, this raises a question to the chapter. There is a significant characteristic of China-related companies' overseas listing: the hiring of highly reputable investment bankers as sponsors of lead managers. Meanwhile, these companies consistently underprice their new shares more than local firms. The normal hazard problem therefore particularly needs to be underlined and this chapter will continue the discussion on underwriters' activities in the following section.

Apart from previous discussion, underpricing can also be reduced by removing the information barrier between informed and uninformed investors. Habib and Ljungqvist (2001) model their optimal behaviour and generalize the notion that issuers have an incentive to reduce underpricing. They argue that if issuers can take costly actions that reduce underpricing, they will do so up to the point where the marginal cost of reducing underpricing further just equals the marginal benefit. This marginal benefit is not measured by underpricing itself, but by the reduction in the issuer's wealth loss from underpricing.

It is noted that, almost every underpricing theory predicts a positive relationship between risk and returns. These can be used as indirect tests for the winner's curse model, however, Ritter (1984) attempted to square underpricing cycles with the winner's curse, and he argues that, if the winner's curse is the only reason for underpricing, then changes in the extent of the winner's curse – say, arising from changes in *ex ante* uncertainty – should be the only reason why underpricing varies over time. However, he finds that it is industry specific events, rather than changes in the risk composition of IPOs, that drive changes in initial returns.

Alternatively but relatively, Loughran and Ritter (2004) find some changes in the characteristics of firms going public. Classical proxies have been too minor to explain much of the variation in underpricing over time and there is a stationary risk-return relation. It is noted that, their changing risk composition hypothesis is also based on Ritter's (1984) that riskier IPOs being underpriced by more than less-risky IPOs.

Furthermore, besides the winner's curse model, a information cascade model developed by Welch (1992) offers more explanations under the information asymmetry. In an informational cascade, investors attempt to judge the interest of other investors. They only request shares when they believe the offering is hot. In support, Amihud, Hauser, and Krish (2003) find that IPOs tend to be either undersubscribed or hugely oversubscribed, with very few offerings moderately subscribed.

This asymmetric information may be applied to most markets. Investors, especially retail investors, are normally regarded to be less informed than other market participants. In Hong Kong, retail investors may have better knowledge on China's macroeconomic development as well as China-backed companies, especially when the company being representative of its respective industry. The level of information asymmetry for individual retail investors is expected to be less on average but not vanish at all because, according to the sample, China-backed companies still suffered from higher underpricing on average. However, this is normally followed by a significantly greater level of demand than for other firms. Such relation between demand and return may demonstrate a more serious asymmetric information problem such that, when Chinese companies list in Hong Kong, all market participants recognize or even assume the drawback of information asymmetry. Consequently, issuing firms and underwriters have flexibility to choose whether or not to underprice new issues. However, for retail investors in Hong Kong, they may persistently assume the existence of information asymmetry and hold passion of subscribing China-backed IPOs. As disclosed by the Hong Kong Monetary Authority in 2004, with the rise of institutional investors, by 2003, local retail investors still contributed less than one-third of total cash market turnover. This

implies the Hong Kong market has a larger proportion of retail investors than other major international security markets, and as a result, the whole market's asymmetric information level may be aggravated.

3.2.3 Asymmetric Information Models II – Benveniste-Spindt Model and Partial Adjustment Hypothesis

Another explanation on the underpricing comes back to the original assumption about the level of information hold by various market participants. If some investors are better informed than either the issuing firm or other investors, their information will become one of the main concerns for the investment bank when taking a company public. With bookbuilding becoming increasingly popular, gathering information during the bookbuilding is attached with more meaning. During the bookbuilding process, especially when the issuers go on a "roadshow", the underwriter pursue marketing the company to prospective investors, collecting information on the demand as an indication of interests to adjust pricing level. In this circumstance, the underwriter often provides some combination of more IPO allocations and higher underpricing for those who reveal the decision to buy newly offered shares.

A commonly cited study is from Benveniste and Spindt (1989). Based on Baron and Holmstron (1980), they investigate how investment bankers use indications of interest from their client investors to strategically price and allocate IPOs. Their model demonstrates an asymmetric information environment. Investors provide underwriters with their private information about the value of IPOs during the preliminary filing period. As compensation, underwriters allocate more discounted new shares to these investors. Also, underwriters do not fully incorporate this private information into the offer price. Spatt and Srivastava (1991) are consistent with Benveniste-Spindt model (B-S model) and show that bookbuilding allows underwriters to induce investors to reveal their information truthfully, by underpricing and discretionarily allocating new shares.

So far, it has reviewed a few most cited studies on this topic. There are two components in the bookbuilding theory, i.e. the asymmetric price discovery and strategic share allocation. Therefore, the following will summarize related studies on the price revision during the bookbuilding period.

3.2.3.1 Evidence on the Price Revisions

Price discovery is one of the essential components in the bookbuilding theory, which is mainly concerned with how underwriters incorporate information received during the subscription period and whether the price revision is systematically related to the initial returns.

Hanley (1993) builds a "partial adjustment" model, which illustrates the effects of price revisions in the pricing period and subsequent influence to the initial returns. The paper suggests bookbuilding allows informed investors to extract positive information and raise the offer price in response, though the price will rise further in the after-market because some money has to be left 'on the table'. However, underwriters do not entirely adjust their pricing upward to keep underpricing constant when demand is strong. Thus the price revision and underpricing level are positively correlated.

Sherman and Titman (2002) confirm that information asymmetry should affect the precision of the price-setting process. Ljungqvist and Wilhelm (2002) also argue the offer price reflects a conditional expectation.

To the extent of the content of information, Loughran and Ritter (2002) criticize Hanley's interpretation and show that underwriters do not fully incorporate both private and public information into the offer price. This appears to contradict the B-S framework, since by definition, public information is freely receivable for all market participants and the underwriter does not need to pay any compensation. They alternatively prefer the "prospect theory", which predicts pre-issue shareholders care more about the wealth change rather than the money been left on the table.

Lowry and Schwert (2001) also develop the partial adjustment model into public information view. They firstly indicate that the midpoint of the filing range is not an unbiased predictor to the offer price and price updates are affected by both positive and negative information asymmetrically. Meanwhile, underwriters do not fully incorporate either private or public information into the offer price. Their study provides further evidence to Loughran and Ritter (2002). As a complement, Shleifer and Daniel (2002) find initial returns are significantly related to market returns up to three months before the offering. Lowry and Schwert (2004) re-examine this question. While their findings confirm the existence of a positive and statistically significant relationship between offer price revisions and pre-pricing market returns, they argue that this effect is negligible economically. Therefore, this chapter

is interested in how underwriters incorporate information to revise the offer price and whether the price revision is positively related to IPO underpricing.

3.2.3.2 Evidence on Share Allocations – Discretionary or Non-discretionary?

Price revision and share allocation are always interacting and supplementing each other. Benveniste and Wilhelm (1990) confirm Hanley's conclusions. When given the opportunity to allocate IPOs among both regular and retail investors, underwriters would maximize proceeds by using a combination of price and allocation discrimination. The results are subject to the restrictions on uninformed-price and restrictions on the allocation of oversubscribed issues. Hanley and Wilhelm (1995) additionally suggest that institutional investors capture a large fraction of the short-run profits associated with IPOs and US underwriters tend to strategically allocate more shares to their favourite clients.

Sherman and Titman (2002) also confirm underwriters' discretionary allocation mechanism is used to maximize the information gathered during the bookbuilding period. Once pricing being costly and accuracy is less important, underpricing is expected to just compensate to the revealed private information. However, when accurately pricing is essential, the number of participating investors will be positively associated with the level of underpricing, which is also regarded as to earn the economic rents.

Empirical investigation faces a problem of data availability. Lee, Taylor, and Walter (1999), and Jenkinson and Jones (2004) directly test the bookbuilding theory and the results are consistent with the partial adjustment hypothesis. However, their samples are collected from a private database and are relatively small.

Latter studies include Aggarwal, Prabhala and Puri (2002) which support a positive relationship between institutional allocation and IPO initial returns. Institutional allocations contain indication of private interests and are not reflected in pre-market public information. Fernando, Krishnamurthy, and Spindt (2003) also find both institutional allotment and underwriter reputation increase monotonically with the chosen IPO price level, i.e. post-IPO turnover displays an inverted U-shaped relation to the IPO price. Firms choosing a higher (lower) stock price level experience low (higher) mortality rates.

As underpricing is an international phenomenon, there are differences on IPO share allocation between the U.S and Hong Kong. Many studies emphasize the diversity among international markets in IPO share allocation and underpricing. Cornelli and Goldreich (2001) use a unique data set of 39 European equity issues to test the bookbuilding and strategic allocation problem. Because their detailed data includes all the bid details and the allocations to each institutional investor, they actually look more closely at underwriters' discretionary allocation activities. Their paper finds allocations are related to certain characteristics of more informative indication of interests, for instance the quantity bids with price limits by regular investors. The conclusions are supported by Cornelli and Goldreich (2003). However, Jenkinson and Jones (2004) find that, except for valuable information received during bookbuilding, allocation is more likely to be influenced by whether the investor is a long-term holder of the stock. Again, this paper remains the problem of limited data.

By using international data, Ljungqvist and Wilhelm (2002) push forward via a multivariate approach. Their results support the argument that IPO allocations, price revisions, and initial returns are jointly determined. In other words, the degree of price revision depends on the information collected from investors, which also reflects their expected rewards in both allocation and aftermarket trading, which can be one of the essential ideas in this chapter. They find a diverse set of allocation restrictions in bookbuilding, i.e. being discretionary or non-discretionary. Their paper finally concludes that initial returns are directly related to information production and inversely related to institutional allocations. If so, there may indirectly indicate that allocation restrictions can lead to higher initial returns.

Close to French and U.K., there are restraints on IPO share allocation and requirements of the clawback provision in Hong Kong. Hong Kong always advocates fair dealing with small investors. Interests and subscription demand from the public offering tranche are apt to receive more attentions from underwriters. Hong Kong's high disclosure standards allow this chapter to assess the effect of allocation restriction on price discovery and initial returns of IPOs. As stated in Cheng, Chan and Mak (2005), underwriters use non-discretionary allocation of IPOs to favour small investors in Hong Kong. They conclude the result may be driven by the regulatory concern.

It is worth noting that the theoretical paradigm in the IPO literature has no systematic evidence about the nature of the private information released by investors. In practice, there always has the pre-roadshow marketing, though which underwriters and prospective investors interact extensively before building the book. In such a case, their interests and expectations may have already influenced the preliminary price range. There are many channels for the

pre-selling information leakage in Hong Kong. “Grey market” for new shares sometimes even starts “trading” during the bookbuilding period. The potential importance of pre-roadshow interaction has been firstly explored by Jenkinson, Morrison and Wilhelm (2006). In many markets outside the U.S and Japan, this interaction may begin with the pre-selling research by analysts, whose pre-bookbuilding evaluation will often involve prospective investors’ view. The survey by Jenkinson and Jones (2007) also provide valuable evidence on this issue. However, currently it is not feasible to define the source and details via assessable data.

In short, since the pre-roadshow information leakage is very likely to happen in Hong Kong, and top underwriters always arrange meetings for prospective investors before the subscription period, IPOs in Hong Kong are expected to differ from those in the U.S to the extent of the interaction between subscription, price revision, share allocation, and initial returns. In addition, the B-S framework assumes underwriters and their issuing firms have the same information level. But this is not necessarily the case in practice. A further critical discussion around underwriters’ activities will be summarized as the agency problem in the next section.

3.2.4 Asymmetric information Models III – The Principle-Agent Models

Theories of bookbuilding emphasize the important role of investment bankers and their benefits over information processing and allocation decisions. Many researchers, such as Loughran and Ritter (2004), discover the ‘dark side’ of these institutional arrangements, by highlighting the potential agency problems between the underwriter and the issuing firm. It is noted that, although this chapter isolates the principal-agent models from other asymmetric information models, the key condition and sole content are common. The separation is more likely to emphasize bankers’ incentives. Once assuming underwriters have a superior information level than issuing firms, the information gap will automatically encourage underwriters to seek additional benefits.

The topic is not new but the empirical evidence on this point is mixed, reflecting the phenomenon that underwriter’s balancing the gain and loss of their stake. As mentioned, the underpricing represents a wealth transfer between the issuer and investors, which can give rise to rent-seeking behaviour. A key feature of bookbuilding is the power enjoyed by IPO underwriters over both the pricing of new shares and allocation to investors. Underwriting fees are typically proportional to IPO proceeds, and are inversely related to underpricing. This

provides a countervailing incentive to keep underpricing low. But banker's private benefits of underpricing are expected to greatly exceed the loss of underwriting commissions. Early studies tend to define a negative relationship between underwriter reputation and initial returns. However, more recent research starts to criticise this negative relationship, especially conditioning on the monopoly of investment banking industry.

The original agency conflicts are concerned with investment bankers' informational advantage. Baron and Holmstrom (1980) and Baron (1982) construct screening models to exam underwriter's benefits from underpricing. To induce optimal use of the underwriter's superior information, the issuer delegates the pricing decision to the investment banks. Given its information, the underwriter self-selects a contract from a menu of combinations of IPO prices and underwriting spreads. Once assuming the determinant power of market demand, to do this can optimize the underwriter's unobservable selling efforts.

Underwriters, as requisite intermediaries, collect indications of interests from investors and advise the issuer on pricing the issue. If underwriters receive compensation from both the issuer and investors, the underwriter has an incentive to recommend a higher offer price than merely charging for the gross spread. Also, underwriters, being repeat participant, have to ensure that new issues are properly priced so as to win future business.

As shown in Beatty and Ritter (1986), underwriters that underprice too much should subsequently lose credits in the market. Carter and Dark (1990) and Carter, Dark and Singh (1998) have already proved that the underwriter reputation proxy is significantly related to IPO initial returns, thus the better the reputation of the underwriter, the less is the short-run underpricing. Nanda and Yun (1997) and Dunbar (2000) come to the same conclusion that mispricing hurts an investment bank's reputation capital.

Several proxies for underwriter reputation have been developed in the IPO literature. Logue (1973) and Beatty and Ritter (1986) first develop a measure of underwriter reputation. Carter and Manaster (1990) formulize this argument to examine the returns earned by subscribing to IPOs. By conducting tests of underwriter reputation measures using a sample of IPOs issued from 1979 to 1991 in the US, Carter, Dark, and Singh (1998) conclude that, among the various existing proxies for underwriter reputation, including Cater and Manaster (1990), Johnson and Miller (1988), and Megginson and Weiss (1991) measures, the Carter-Manaster reputation ranking is the most significant in the context of initial returns and also in the context of the three-year performance.

It is noted that, although the Cater-Manaster ranking is for investment bankers in the US market, most of them have subsidiaries or branches in Hong Kong. These institutes largely maintain the business standing and have extensive influences in the local market. Moreover, according to the sample, most of large Chinese enterprises are likely to hire one of these top investment bankers as a core sponsor to underwrite their overseas IPOs. Thus the Cater-Manaster measure is applicable in this study.

Dunbar (2000) additionally summarizes on underwriters' market share. For established banks, IPO initial returns, one-year abnormal performance, abnormal compensation, industry specialization, analyst reputation, and association with withdrawn offers have significant impacts on changes in market share. The less reputable banker is placed at higher risk and higher *ex ante* uncertainty.

However, the empirical results can be sensitive to the sample period. Beatty and Welch (1996) find the sign of the relationship has changed since the 1970s or 1980s. There is a conceivable positive relationship between prestigious bankers and IPO underpricing, which may conflict from Rock's (1986) expectations. One hypothesis, demonstrated by Loughran and Ritter (2004), is that banks have begun to underprice IPOs strategically, in an effort to enrich themselves or their investment clients. Another is that top banks have lowered their criteria for selecting IPOs to underwrite, resulting in a higher average risk profile as well as higher underpricing for their IPOs.

The choice of lead underwriter is usually known a few months before the initial trading day. Issuers and investors thus have ample time to condition their participation on its predicted returns. Many studies, such as Habib and Ljungqvist (2001), argue that issuers do not choose underwriters randomly, nor do banks randomly agree which companies to take public. In this case, the underwriting contracts actually are presumably made by optimizing agents. They generalize the notion that issuers have an incentive to minimize underpricing. As costs, to hire a higher reputable underwriter may help to reduce the potential loss.

The early analysis of costs tends to focus on the fees charged by the underwriting syndicates. Since underwriting fees are typically proportional to gross proceeds, investment banks are expected to have an incentive to minimize underpricing. A widely cited paper is Chen and Ritter (2000) on the seven percent solution among investment bankers in the U.S. They believe underwriters will not prefer a blind competition through "cents-off promotion". This leads to an almost fixed high commission among the industry.

More recent research alternatively turns to the underwriter persistent underpricing phenomenon. On the understanding that local investment banking industry is under the oligopolistic competition, there is a tendency for some underwriters to persistently underprice more than others. Strategic underwriters can leverage their exposure since the selectively information processing is profitable.

By using the U.K data, Ljungqvist (2003) find that making the bank's compensation more sensitive to the issuer's valuation should reduce agency conflicts and subsequent underpricing. Loughran and Ritter (2002) also develop a prospect model to explain how and why underwriters may profit from these transfers. The model focuses on the covariance between the underpricing amount and broad wealth changes of underwriters. Their empirical results predict that there should be partial adjustment in the "hot issue market" and the underpricing is a form of indirect compensation to underwriters.

Loughran and Ritter (2004) further support this conclusion and develop the changing issuer objective function hypothesis. Facing a local oligopoly of underwriters, both analyst coverage and 'spinning' activity can bring additional compensation to higher reputable bankers. This compensation motivates them to see rather than avoid underpricing. Additional evidence includes Hoberg (2004), which presents a rational model on the strategic persistence phenomenon. The model predicts IPO underpricing will arise because underwriters compete imperfectly, while bankers with more market power actually have left more tastes in investors' mouths.

The investment banking industry in Hong Kong is within oligopolies and the majority of the market power is shared by a few top international flagships and China-related 'pilots' of financial institutions. Also, this small group of investment bankers always has the ability to win any deals and is frequently hired by large China-related companies. In the light of the significant underpricing of Chinese IPOs, it is predicted that, at least partly, top underwriters behave strategically in setting the offer price. The results may be diversified, on the one hand, most investment bankers will be cautious to IPO valuation and fears to undermine their reputation; on the other hand, for a few top investment bankers, by holding superior information and advanced market share, there is temptation to seek additional compensation. Here the compensation refers to the tradeoffs between the wealth loss from underpricing and reputation capital, and the wealth gain from underwriter compensation and benefits of future business.

So far, this section has intensively reviewed a series of information asymmetry models, including the "hot issue market" hypothesis, the winner's curse model, the partial adjustment hypothesis, and the potential agency problem. However, none of existing theories can give a ready answer to fully explain the overseas listing activities of Chinese IPOs in Hong Kong. Current gap in the literature may inspire that investigations on IPO underpricing in Hong Kong have to synthesize explanatory powers of various models and take market features into account. This chapter tries to provide more empirical evidence for existing asymmetric information models and pays a closer attention to specific circumstances in Hong Kong. The research questions are summarized in the following sections.

3.3 Testing Hypotheses and Research Questions

3.3.1 Testing Hypotheses

Based on the discussion above, the testable hypotheses of this chapter are listed as follow:

1. As suggested by the winner's curse model (Ritter, 1984; Beatty and Ritter, 1986; and Rock, 1986), due to the adverse selection problem caused by asymmetric information, the new shares must be priced at a discount in order to guarantee the participation of uninformed investors, therefore, the *ex ante* uncertainty and the expected underpricing should be positively associated.

2. According to the B-S model (Benveniste and Spindt, 1989), the price revision during the bookbuilding period will incorporate the information gathered from investors. Underpricing therefore is the compensation paid by underwriters for investors to release the real interests. Therefore, the price revisions are expected to reflect newly received information about investors' demand. Then a larger price revision reflects a greater yield of private information, which will carry the expectation of higher underpricing (Hanley, 1993; Lowry and Schwert, 2000; Loughran and Ritter, 2002).

3. Since the reputation capital is valuable and preservable for underwriters, the reputation of the underwriter and the short-run underpricing should be inversely related. However, within the local oligopolies, their strategic activities may create opportunity for additional rent-seeking, which may lead to a positive relation between their reputation and the level of underpricing.

4. Firms' decisions to go public may be largely driven by market timing attempts (Baker and Wurgler, 2002). This chapter expects that valuation of most recent issued IPOs triggers more offerings and higher initial returns (Lowry and Schwert, 2002).

3.3.2 Research Questions

In addition to testing of the above hypotheses, this chapter seeks to answer following questions:

1. An overseas listing generally represents larger uncertainty and faces higher information asymmetry. If it is the case, have Chinese IPOs been consistently underpriced more than others in Hong Kong?

2. Regardless of the offer method being bookbuilding or not, which firm-, underwriter- and market-specific characteristics of *ex ante* uncertainty can systematically predict the level of short-term underpricing for IPOs listing in Hong Kong? This is not only for understanding the general situation of Hong Kong IPOs, but also convinced of the additional costs paid to overseas listing in the form of underpricing.

3. Hong Kong market differs from the U.S market to the extent of restrictions on share allocation. Also, the public demand has a significant effect for IPOs' pricing behaviours and aftermarket performance. If so, what can attract small investors rushing to IPOs?

4. If the pre-sale marketing activities have become routine, what is the impact to the price discovery during the bookbuilding period? Once the preliminary price range has been influenced by prospective institutional investors, how do underwriters incorporate newly received information from the public offering tranche? And does the persistent underpricing phenomenon exist in the Hong Kong market? All of these questions are expected to help with understanding the conscious activities of Chinese IPOs.

5. As for the share allocation, who have been favoured by underwriters, the retail or the institutional? And what is the reason behind?

6. Is there any strategy for overseas listed Chinese firms to secure their successful offerings? And does this pricing and marketing strategy have any necessary relation to their underwriters?

7. For all firms going public by bookbuilding, conditional on the non-discretionary share allocation and upward price revision, what are systematic determinants to the level of underpricing? And does the "hot issue market" provide opportunities to take advantages of optimistic valuation? Especially, the overseas listing is to effectively utilize the disparity among different financial markets, therefore a concentrative listing of Chinese IPOs in certain period is expected to be encouraged by the optimal market expectation.

3.4 Methodology and Definitions of Variables

The OLS cross-sectional regression equations are tested to investigate the series of underpricing phenomenon of IPOs on the Main Board of HKEx. Independent variables include the public subscription, price revision, share allocation, and initial return. Since the public subscription, price range, price revision and share allocation are particularly designed for the bookbuilding offer method, to a better understanding, independent variables will be clearly defined in Section 3.6.2.

Dependent variables are defined and categorized into three groups, i.e. the firm, underwriter, and market-specific characteristics. In particular, the firm-specific characteristics include the firm age (AGE), size (SIZE), China-related background (CHN), the days of subscription period (PRE_DAY), the public subscription level (SUPBSCRP), the percentage width of the preliminary price range (PR_WIDTH), and the allocation between different groups of investors (INST_ALLOT, RET_ALLOT); the underwriter-specific characteristics include the reputation ranking (RANK), and the dummy of top bankers (TOP_UNDWR). In terms of the market-specific characteristics, the pre-offering market return (RTN_MKT), volatility (VOL_MKT), and pre-offering average IPO initial returns (RTN_IPO) are included.

3.4.1 Firm-specific Characteristics - Companies' Age and Size

Prior literature, including Ritter (1984, 1991), Megginson and Weiss (1991), and Muscarlla and Vetsuypens (1990), all use relevant variables about years of companies' business in cross-sectional regression functions. Muscarlla and Vetsuypens argues that there was more underpricing of young firms than of older firms in the 1980s but the relation is not strictly monotonic. Between 1999 and 2000, there were more young firms went public, which increased the proportion of young firms associated with the internet bubble. Loughran and Ritter (2004) re-examine this position and find the increase in underpricing over time is not solely due to a shift towards younger firms in the age distribution of firms going public. Instead, the relationship between age and first-day returns is not stationary.

Alternatively, Lowry and Schwert (2004) apply a dummy variable associated with firms' age into the model to examine the relationship between the issuing firms' characteristics and price revision of IPOs. They predict that a 'carve-out' company will be more underpriced when going public.

Following existing literature, the age of firms is included into this study and a negative relationship is expected. The interval between the offer date and the date the firm was founded is used to determine the age of the issuing firm (***AGE***). The relevant information around found dates of observations can be collected from the offering prospectus and converted into years. Where the founding date was unavailable, the date of incorporation was used. The actual control variable here is the logarithm of AGE so as to reduce skewness. It is noted that, a number of prior studies adopt logarithm of (1+AGE) as the proxy, for instance Loughran and Ritter (2004). The main reason may be that there are a number of venture capital firms in their sample with an AGE less than 1 year. However, because a three-year trace record is required for all companies to list on the Main Board in Hong Kong, it is unnecessary to add plus one for the age of each observation.

It is noted that, particularly with regards to China-related observations, the mean value of AGE in the sample may be lower and, to some extent, this may result in testing bias. In particular, merely in order to list in Hong Kong, a common progress for Red Chips is to initially register in the Cayman or British Virgin Islands after they have already been maturely incorporated in mainland China for years. Similarly, H shares always have been restructured from previously state-owned factories or companies. Their actual operating periods are therefore much longer than the history of incorporation dates listed in prospectuses. However, since many H shares suffered much reorganization, either merger or segmentation, it is too hard to assign a unique criterion for their actual beginnings of incorporation. Thus most observations of China-related IPOs in this chapter are assigned the date of incorporation listed in the prospectus as the date of foundation.

To exam the relationship between a company's corporation history and the initial return when it going public, the following hypothesis is tested:

> *Hypothesis 1: An issuing firm with longer corporation history is expected to be more informative to investors. Its underpricing level therefore will be lower than IPOs of younger companies.*

The size of the issuing firm has also been commonly used as one of the *ex ante* uncertainties. As argued by Beatty and Ritter (1986) and Tinic (1988), smaller issues are more likely to be speculative in nature and offered by start-up firms. Fernando, Krishnamurthy, and Spindt (2003) also predict that there is a negative relationship between underpricing and issue size. In addition, an investment banker could use underpricing as a way to reduce marketing effort, which may be greater for larger issues (Baron, 1982). Hence, this chapter defines the logarithms of amount of funds raised (***SIZE***), which is the net offering proceed by excluding overallotment, as one of proxies. To be consistent with Rock's (1986) "winner's curse" model, this chapter expects as follow:

Hypothesis 2: Larger-size issuing firms are expected to underpriced less than small-size ones.

3.4.2 Chinese Enterprises' Overseas Primary Listing

Theoretically, the regulatory restrictions, disclosure requirements and information barriers will increase the indirect costs of cross-border listing. For various reasons, many Chinese enterprises choose Hong Kong as the primary listing platform. At least, to compare with other international stock exchanges, Hong Kong investors, including both institutional and retail groups, are expected to have better knowledge on Chinese economy and Chinese companies, which partially mitigates the potential loss raised by information asymmetry. However, investors' degree of recognition cannot entirely retrieve all of the market differences. Underpricing of China-related firms is still expected to differ from other IPOs. If it is the case, the successful offering should also be assisted by an effective issuing strategy.

Hypothesis 3: Conditional on information asymmetry and market disparity, Chinese IPOs are expected to be underpriced more than others in Hong Kong. Meanwhile, the bookbuilding offer method and effective issuing strategy may help Chinese companies achieve successful offerings.

3.4.3 Underwriter-specific Characteristics

Commissions paid to underwriting syndicate are often proportional to the funds raised, such as selling commissions and underwriting fee. Habib and Ljungqvist (2001) generalize the notion that, if issuers can take costly actions in order to reduce underpricing, such as hiring a reputable underwriter, the breakeven point is the marginal cost of reducing underpricing further equals the marginal benefit. Empirical analysis of the costs of going public tends to focus on the fees charged by investment banks, which are generally revealed in prospectuses and/ or to regulatory authorities.

As a regular participant in the equity offerings, investment banks also have an incentive to minimize underpricing. Empirical evidence includes Benveniste and Wilhelm (1990), Chan and Ritter (1991), Hanley and Wilhelm (1995), and Parbhala and Puri (1998), supporting that US underwriters behave strategically in the pricing and allocating of IPOs. The more uncertain the value of the firm, the greater the asymmetry of information between issuer and underwriter, and thus the more valuable the latter's services become, resulting in greater underpricing.

However, on the Main Board in Hong Kong, underwriters charge 2.5 percent of the principal amount in most cases, which is similar to the "7 per cent solution" in the US. The percentage of underwriting fee is therefore expected to have little power in explaining the IPO underpricing phenomenon.

Alternatively, the significant effect of underwriter's reputation has been widely discussed in the equity offering literature. Being intermediaries, underwriters may receive compensation from both issuing firms and investors. However, to do so may result in the loss of future business and fail from their competitors. Hanley (1993) document the relationship between reputation of underwriters and the price revision. The experience of the underwriter is included as an independent variable to capture two potential explanations for changes in the offer price. The first explanation is that smaller, inexperienced underwriters may be more likely to misprice new issues. If this is the case, the market share of the lead underwriter will be negatively related to changes in the offer price. The second explanation is that larger, experienced underwriters are able to sell to a greater pool of informed investors who provide valuable information during the waiting period. Therefore, changes in the offer price will be positively related to the experience or reputation of the lead underwriter.

Many proxies of underwriter reputation have been developed in IPO literature. Logue (1973) and Beatty and Ritter (1986) are among the first to develop a measure of underwriter reputation. Also Johnson and Miller (1988) and Megginson and Weiss (1991) measures

require less effort to construct. This chapter include two proxies to measure underwriters' reputation, i.e. the reputation ranking (***RANK***), and the top banker dummy (***TOP_UNDWR***).

It is noted there is no academically approved ranking particularly for investment bankers in Hong Kong. However, being one of the top international markets and offshore financial centres, most of world-leading investment bankers have established branches or subsidiaries for many years. Securities are freely traded by international investors. Therefore, this chapter continues to use the reputation ranking (***RANK***) from Carter and Manaster (1990) and Carter, Dark, and Singh (1998). This ranking is based on each investment bank's market weight, i.e. more prestigious underwrites more shares, and is ranked higher on a 0 to 9 scale. For the period not covered by Carter et al. (1998), Ritter further provide the ranking in the 1992-2000, 2001-2004, and 2004-2007 periods. Underwriting syndicates involve a few investment bankers but playing different roles. This chapter only measure the reputation of lead manager(s) (or called the "core sponsor(s)"), since only lead managers are crucial to the pricing of IPOs. If there is an IPO which hires more than one investment bank as joint sponsors or joint managers, the rank of this IPO will be the mean of joint sponsors or joint managers' reputation ranks.

Hypothesis 4: Once assuming investment bankers would not risk their reputation and future business, to follow the majority of IPO literature, prestigious underwriters will price new shares more accurately and in turn decrease the level of underpricing.

It is noted that, to use ranking as the only measure is likely to create problem. The rank represents each bank's ability and experience on pricing and marketing new firms, or provident other services. But retail investors are lack of macro concept regarding the whole-market. Their perception of investment is accumulated via day-by-day, one-by-one market news and trading results. It possibly leads to a phenomenon that, frequent market participants are easier to receive attentions from retail investors than a bank with large dimension of business but have a lack of deals. A large investment banker may have the ability to underwrite a big deal, but this ability does not necessarily lead to frequent market participation. For instance, some overseas investment bankers with a Japanese background, their business focuses on companies or companies' control shareholders which incorporate in Japan, therefore its business is limited by the frequency of this Japanese firms seeking listing in Hong Kong.

The investment banking industry in Hong Kong can be categorised as oligopoly, the majority of the market power is shared by a few top international flagships and China-related leading financial institutions. A global ranking cannot fully reflect the market weights and competition advantages of these regular participants. Therefore, this chapter further conducts a top underwriter dummy variable (***TOP_UNDWR***) to simulate this situation. It equals to one if the lead sponsor(s) is one of the following investment banks: Bank of China International, HSBC, Deutsche Bank, Merrill Lynch, China International Capital Corporation (CICC), Morgan Stanley, Credit Suisse First Boston, Goldman Sachs, Industrial and Commercial Bank Asia, and JP Morgan; zero otherwise.

Hypothesis 5: The investment industry in Hong Kong is within small oligopolies. If the main portion of market is intensively shared by a number of top bankers, they may intently underprice new shares to attract their investors and earn additional credits in future business. Therefore, both issuing firms, especially Chinese firms, and their underwriters have reasonably balanced the pricing, allocating, market-making, and the need of raising capital in IPO events.

According to the sample, about 27% of observations were underwritten by these ten bankers. For IPOs went public by bookbuilding, 84 out of 180 firms (about 46.7%) chose these top bankers to be their core sponsor(s), or called lead manager(s). And Chinese firms seem to prefer top bankers when going public in Hong Kong. This can help to answer two questions, i.e. *ex ante* uncertainty and banker's persistent underpricing phenomenon. Two proxies have been tested separately due to their high correlation.

3.4.4 Market-specific Characteristics – Public Information

Lowry and Schwert (2001, 2004) preciously examine the effects of information learned between the prospectus date and the offer date. According to their empirically results, the underwriter's treatment of public information beginning at the time the preliminary price range is set, and continuing through the determination of the final offer price. The price revision not only depends on the demand from investors, but also significantly reflects the market movements prior to the offering date. And finally the public information has been fully incorporated into the final offer price.

Since one of the objectives of this chapter is to examine the pricing efficiency of IPO, public information should necessarily be investigated. Loughran and Ritter (2000) argue that, in the partial adjustment model, private information should only be partially incorporated into the offer price, but public information should be fully reflected. Public information is costless to receive for all market participants.

This chapter adopts two public information proxies in regressions to measure the market return and risks on the whole, i.e. the average market return and market volatility prior to the offering. In particular, the average market return (***RTN_MKT***) is defined as the return of Hang Seng Index twenty trading days before the offering; the market volatility (***VOL_MKT***) is defined as the daily volatility of Hang Seng Index within the same period. The set of time window is based on the general process of IPO events in Hong Kong. It is noted that, the volatility is one of the typical measures of risk. Since a high volatility represents a wavy fluctuation in the market and the dispersion in expectations, it is also a proxy for the *ex ante* risk facing by investors when they decide to subscribe new shares.

> *Hypothesis 6: The underpricing is expected to be influenced by the market environment. Particularly, for firms going public by bookbuilding, the price revision is expected to reflect the market condition. Thus IPOs can be priced efficiently to the extent of incorporating public information into the offer price.*

As far as the "hot issue market" phenomenon is concerned, recent empirical research has focused on information spillover as the main driver for it. The supporting evidence for the spillover effect is strong. Lowry and Schwert (2002) and Benveniste, Ljungqvist, Wilhelm and Yu (2003) find that IPO volume is highly sensitive to the outcomes of recent offerings. Specially, if the offering performance of IPOs in a given month exceeds original expectations, the number of IPOs in the subsequent months increases dramatically. Ljungqvist, Nanda, and Singh (2003) provide explanation for the ascending underpricing during the hot market period, which is because the hot market can end prematurely, carrying IPO stock inventory become more risky. Moreover, the hot market has offered IPOs advantages of optimistic valuation, issuing firms, therefore, appear not to price their stock very aggressively.

According to this phenomenon, another proxy of market information is adopted to measure the "hot issue market" situation, i.e. the average initial return of recent IPOs (***RTN_IPO***). It is the average initial return of IPOs going public within 60 trading days (approximately three

calendar months) before the offering date. The reason of setting the time window of three calendar months is because, when companies decide to go public, they normally file an application with the Hong Kong Stock Exchange to launch an IPO three months before the prospective first trading date. The offering is also subject to document preparation and required interrogation**.**

Hypothesis 7: According to the "hot market" hypothesis, the initial return of an IPO should be positively related to the average initial return of recently issued new firms.

So far, this section gives the definitions of mainly used control variables in the cross-sectional investigations and corresponding expectations. These variables have been widely applied in the IPO literature to test underpricing models based on information asymmetry. The next section will turn to report the data selection and sample distribution.

3.5 The Sample and Its Features

From the Hong Kong Exchange Clearing Limited's (HKEx) New Listing Annual Reports of the Main Board, this chapter identifies 410 IPOs of common stock between January 1996 and December 2005, covering up to 96% of the population, as shown in Table 3.1. During the sample period 479 IPOs were made in the Main Board of HKEx, 18 investment funds and 32 introductions[15] are excluded from the sample. In addition, 19 observations are deleted because of unavailability of sufficient data.

Table 3.2 further reports the sample distribution by ownership backgrounds. The sample includes 89 Chinese firms and 321 non-Chinese ones. There is a special period from 1998 to 2002 during which, Hong Kong was suffering the post-crisis economic adjustment. Meanwhile, China's financial market was processing several reforms for future development. From 2002, with the development of China's reform and the economic recovery of the Hong Kong financial market, an increasing number of Chinese SOEs finished their incorporation re-organization to weak their state-owned impression, followed by more and more H-share companies seeking to list in Hong Kong. Table 3.3 further reports the sample distribution by offer methods. The pure fixed-price offering has not been a commonly used offer method in recent years, while there is a clear transition towards the bookbuilding since 2000. There are 180 IPOs going public by bookbuilding, about 44% of the sample.

The offering prospectuses of IPOs during the period of 1996 and 1999 are obtained from Thomson Research. Rest of listing documents in other years and the list of Chinese-related companies are published in Hong Kong Stock Exchange official website. Firms' characteristics are collected from prospectuses, including prospective price range, lead underwriter(s), firm size, firm age, and shareholding background. The offering price and net proceed (funds raised) are gathered from the HKEx New Listing Annual Reports. The offering information, including offer method, share allocation, and subscription multiples are gathered from the Hong Kong Stock Exchange website and the Factiva database. Then market trading data are from the Datastream.

[15] Defined by the Hong Kong Stock Exchange Main Board Listing Rules (Chapter 7, 7.13 – 7.17), an introduction is an application for listing of securities already in issue where no marketing arrangements are required because the securities for which listing is sought are already of such an amount and so widely held that their adequate marketability when listed can be assumed. Therefore, the switch of the issuer's listing platform is not the same as purely new listing. The Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited (Volume One) is published on the official website of Hong Kong Exchange Clearing Ltd. (http://www.hkex.com.hk). Chapter 7 is under the Equity Securities Rules. The version in this chapter is updated on 1 January 2005.

3.6 Empirical Investigation on IPOs' Subscription, Price Revision and Initial Returns

The empirical investigation begins from the systematic characteristics on underpricing for all observations regardless their offer methods. Then, bookbuilding IPOs are separated from original sample and serve to examine the price revision and share allocation based on bookbuilding theories. Lastly, as one of the main implications, this section compares the differences between Chinese and non-Chinese IPOs, then realizes a specific strategy used by Chinese large IPOs to offset drawbacks of information asymmetry and simultaneously ensure the success in equity offerings.

3.6.1. The Systematic Characteristics of IPOs' Underpricing for All Offer Methods

This section is a direct test of the Winners' Curse Model (Rock, 1986) and the principal-agent problem to the extent of underwriters' activities. As a general implication, following Beatty and Ritter (1986), there expects a positive relationship between the *ex ante* uncertainty and initial returns, which ensures the uninformed investors will make investment decisions and subscribe the new shares. This section has not particularly separated observations by offer methods, since the rest of empirical works will examine the bookbuilding firms in detail.

3.6.1.1 The Level of Underpricing in Hong Kong

This chapter defines two measures for IPOs' underpricing, i.e. the initial return (IR) (Equation 3.1), and the market-adjusted initial return (MIR) (Equation 3.2). In which,

$$Initial\ Return\ (IR) = \frac{P_1 - P_0}{P_0} \quad (3.1)$$

$$MIR = IR_i - R_m \quad (3.2)$$

where P_0 is the offer price, and P_1 is the closing price of the first trading day. Market-adjusted initial return takes the difference between IPO's initial return and Hang Seng Index daily return on the first trading day (R_m).

The summary statistics of initial returns is reported in Table 3.4. The average initial abnormal return of new shares is about 11% during the sample period. Firms going public by pure fixed pricing method are underpriced more than others. Although bookbuilding has a lower initial return on average as compared to the pure fixed-price offers, it cannot simply draw the conclusion on which method may help to reduce the level of underpricing. Since equity valuation and trading performance are largely influenced by the market environment, while the frequency of each offer method keeps changing, it needs to take a closer look on the year-by-year base.

Table 3.5 lists the average returns by years. The level of underpricing does vary over time, which may provide a reasonable expectation of market timing theory. Again, the changes in average initial returns reflect the post-crisis economic recovery period from 1998 to 2002. Also, the fluctuation of annual average initial return may clarify whether bookbuilding IPOs actually underpriced more than fixed-price ones.

Table 3.6 further separates the average initial returns by offer methods. Pure fixed-price has not been used recently. The gap of average initial returns between fixed-price and bookbuilding methods dramatically waves during the sample period. There is no method persistently underpriced more than the other, but the bookbuilding appears to have left more money on the table in most recent years. In bookbuilding offers, underwriters have to incorporate the "indication of interests" gathered during the filing period and adjust the offer price to meet the market demand. However, many asymmetric information based bookbuilding theories have discovered the relationship between the market demands, price revisions, and initial returns. This section empirically examines the systematic determination or prediction of IPO's underpricing in general. And the following Section 3.7.2 will intensively discuss the price discovery, share allocation and initial returns for bookbuilding IPOs.

The summary statistics and correlation matrix of explanatory variables are given in Table 3.7 and Table 3.8. In particular, comparisons of explanatory variables between different offer methods markedly represent the traits of bookbuilding. Most of Chinese IPOs went public by bookbuilding, especially large companies. While bookbuilding firms are normally underwritten by highly reputable bankers, with an average rank at 6.78. In which, 46% is

categorized as oligarch. However, pure-fixed price offers appear to take more advantages of the favourable market movements. Indeed, this factor can be treated as exogenous, since 72 out of 91 pure-fixed price offers are within the years of 1996 and 1997 when Hong Kong market abnormally soared and feared slump before the financial crisis. Moreover, in Table 3.8, only the RANK and TOP_UNDER show a high correlation. Therefore the subsequent cross-sectional examination regards them as substitutes and tests separately. Before turn into the cross-sectional investigation, the chapter also provides an elementary comparison between Chinese and non-Chinese IPOs in the following section.

3.6.1.2 A Comparative Analysis of Features of Chinese and Non-Chinese IPOs

Since this chapter aims to find whether the level of asymmetric information will consistently influence the underpricing of overseas listed firms, this section, in addition, splits observations into Chinese and non-Chinese firms. The comparison of offering characteristics between two groups is reported in Table 3.9, and the last column reports the *t*-statistics for difference in means.

During the sample period, the average initial returns and market-adjusted initial returns of Chinese firms are significantly higher than non-Chinese ones. To list on the overseas stock exchange, large-size Chinese enterprises persistently hire more experienced bankers to underwrite their public offering. They may assume that only higher reputable bankers are capable to ensure a successful offering. In other words, the corporate with top bankers not only meets Chinese enterprises' requirement, but also become a part of overseas listing strategies. Accordingly, the public demand appears to be much higher than local issues. As a result, their underpricing exceeds the market average level. They are also likely to time their offers to seek advantages from the "window of opportunity". It is expected that the demand curve of Chinese IPOs is more sensitive to the market movement, especially other IPOs' trading performance immediately after offering.

This is only a very general comparison. Accordingly, this chapter may argue that, if mentioned variables are proved to be determinants of IPO underpricing, they can also give hints to Chinese IPOs to act strategically. To support this argument, Section 3.7.1.3 composites a cross-sectional model and directly tests the determinant characteristics of IPOs' underpricing, including proxies of the *ex ante* uncertainty, the principal-agent problem, and the market timing hypothesis.

3.6.1.3 Empirical Results of Cross-sectional Regressions on IPOs' Short-run Underpricing (All Offer Methods)

So far, the chapter has reported the level of underpricing in Hong Kong, the differences between offer methods, and the comparison between Chinese and non-Chinese firms. According to existing literature, a number of characteristics are deductively as determinants or, at least, have significant impacts on IPO underpricing. Then this section aims to provide more evidence via a cross-sectional investigation. Explanatory variables comprehend issuing firm, underwriter, and market environments. The results of cross-sectional regressions are reported in Table 3.10.

Main results are consistent with the classical expectations of the Winner's Curse Model, i.e. high *ex ante* uncertainty related to the issuing firms is normally followed by larger underpricing.

In particular, China-backed IPOs are persistently and significantly underpriced more than others. Longer preliminary price-setting period represents a higher level of uncertainty about the issuing firms and market demand, the initial return, therefore, is significantly and negatively correlated to the number of days between prospectus releasing and the close date of subscription application. In addition, the negative coefficient of issuing firm's size is consistent with the prediction of the Winner's Curse Hypothesis. However, the relationship between the initial price jump and the age of firm is statistically insignificant in the regression. A possible cause can be explained by the changing risk composition hypothesis (Loughran and Ritter, 2004). To coincide, they also obtained an insignificant result in this case. They indicate the reasons that, although Ritter's (1984) argument of higher *ex ante* uncertainty can result in higher underpricing, there have been some changes in the characteristics of firms going public, and these changes have been too minor to explain much of the variation in underpricing over time if there is a stationary risk-return relation. The insignificant result of Age may be also raised by the so-called pre-listing reorganizations, especially in the case of Chinese-related IPOs. The pre-listing reorganization includes many aspects, such as adjusting capital structure, optimizing financial position and performance, improving corporate governance, as well as other preparations to meet high listing standards and secure a better performance in the initial offering. The newly reformed enterprises sometimes are split from their parent companies, and register to become a separate legal entity in Hong Kong as their

own. Consequently, many enterprises' corporative records are much shorter than their real business. They only "look young".

In terms of underwriter-specific characteristics, the proxy of reputation indicates that creditable bankers are able to enhance investment expectation and further boost the market demand, which will in turn result in a more favourable price jump after the offering. Chemmanur and Fulghieri (1994) develop a model where investment banks with special expertise in evaluating firms use high standards to determine the value of an issue. Such activities develop a high reputation because investors observe better aftermarket trading performance. If prestigious underwriters tend to show a high quality of the firm and their own services level, underpricing will be a gratified symbol.

As far as the prediction of top bankers' persistent underpricing activities is concerned, the empirical evidence has not statistically provided strong support to this argument. However, according to the definition of this variable, the chosen underwriters have actually carried about 80% market weight. In this case, the positive sign of the coefficient still have its economic meaning as the indication of this phenomenon. Booth and Smith (1986) emphasize the certification role of bankers' reputation that pricing may reflect potential adverse inside information. In addition, Menyah and Paudyal (2002) criticize that low quality issues marketed by reputable underwriters will be more underpriced[16]. If underwriters compete imperfectly within small oligopolies, such as in Hong Kong, the imperfect competition allows underwriters to sell IPOs at lower prices without losing market share to rival. Therefore, underpricing is an alternative to reduce the costs associated with the underwriters and, to further build reputation by the aftermarket trading performance. It also can be interpreted as an agency problem between the issuer and its banker (Baron, 1982). This problem arises from the fact that bankers deal repeatedly with institutional investors but infrequently with issuers. If treating underwriter choice as *exogenous*, it always leads to the erroneous inference that more reputable bankers are related with higher level in underpricing (Habib and Ljungqvist, 2001).

Variables of market-specific characteristics clearly demonstrate a few systematic relations between individual IPO return and market movement. On one hand, the level of underpricing is influenced by recent new shares' trading performance. Statistically significant and positive relationship between underpricing and recent IPO average return is consistent with majority

[16] Menyah, K. and K. Paudyal, 2002, IPO decisions and the costs of going public (Version 1.4, 28 Feb. 2002), *EFMA 2002 London Meetings*, page 5, Available at SSRN: http://ssrn.com/abstract=302331 or DOI: 10.2139/ssrn.302331.

of existing literature on the "hot issue market". Loughran and Ritter (2002) predict an increase in the expected average underpricing of all IPOs that are in the hot market period, which may last for a few weeks. Meanwhile, it may be worthy to predict that the price setting of new shares actually follows a usual routine and regards the recent IPOs' after-market performance as reference. On the other hand, newly offered stocks and the market as a whole, interact to each other. More volatile market movement represents higher risks and uncertainty; the new shares will therefore be further underpriced to secure a successful offering. The negative coefficient of market return does also make sense.

In short, this section provides many empirical evidences to the existing literature, including the winner's curse model, *ex ante* uncertainty, and market timing hypothesis. However, the tests so far have not distinguished the impacts of different offer methods, especially when bookbuilding become the dominant offering mechanism in recent years. The next section will turn to focus on the pricing and allocation in bookbuilding offers and test a number of asymmetric information models related to this issue.

3.6.2 Pricing and Allocation Strategies in the Bookbuilding Offers and their Relationship to the Initial Returns

3.6.2.1 Demand of Retail Investors – The Predictions of Public Subscription Multiples

Cornelli and Goldreich (2003) examine the institutional bids submitted under the bookbuilding procedure. They find oversubscription has a significant effect for IPOs. Oversubscription and demand elasticity are positively correlated with the first-day aftermarket return.

Public subscription multiples of over 200 times are not uncommon in Hong Kong. According to the sample, there are 21 out of 180 bookbuilding IPOs have been oversubscribed more than 200 times by the public. 9 of them even had over 500 times retail subscription. Such enthusiastic demand indicates that small investors, in such case, are able to correctly guess that the offer price was "too low", even without a precise valuation approach.

The phenomenon of extremely high level of oversubscription can be explained by the particular contractual arrangement. There is a substantial information leakage about market demand that occurs after the preliminary price range or the offer price has been set, and before the issue closes for bidding by investors. As a result, the information leakage allows investors (including the previously uninformed ones) to realize that the sometimes issuing firm has actually been highly underpriced.

As argued by Chowdhry and Sherman (1996), rumours spread about the number of applications that were picked up on any given day. Newspapers and news media often carry stories about investor sentiment towards a given issue. For instance, the case of BOCOMM (3328.HK)[17], was one of the most popular big-ticket IPOs in Hong Kong for over a year. The retail tranche was 204 times over-subscribed and the institutional tranche more than 20 times covered. Even on 09 June, four days before the subscription period began, a reporter claimed that "Bank of Communications' shares have been expected two times oversubscribed by institutional investors … (which) began its initial public offering (IPO) road show on 06 June", while during the subscription period it reported that "Bank of Communications' - US$1.9 billion IPO is 155 times oversubscribed by private investors … Bank of Communications' IPO price will be set on 18 June" (Pacific Epoch, 2005 a, b).

[17] BOCOMM, a H-share stock trades on the Main Board of HKEx with stock code of 3328.

Another important channel to release the market demand is that, investors often borrow from banks to pay for large subscriptions. Far Eastern Economic Review (1993) states a "snowball effect" in Hong Kong, which means investors are forced to apply for many more shares than they want and usually have to borrow money for the subscription in hot IPOs.

In some cases the information leakage may be even greater because of grey markets in Hong Kong. "Grey markets" for IPO shares sometimes begin trading during or even before the subscription period. According to Harrison (1994, page 273), "(the grey market) become apparent whether or not the stock is a good buy at the offer price … Consequently, issues tend to either flop or to be massively oversubscribed". For instance, a few days before the pricing determining date in the already-mentioned Bank of Communications case, the price in grey market reached HKD 2.80, which was over the preliminary filing price range between HKD 1.95 – HKD 2.55. However, the grey market price dropped back to HKD 2.50 on the date before offering, which is exactly equal to the final offer price determined by the issuer and lead underwriters (Goldman Sachs Asia and HSBC). If investors could realize the offer price is 'too high', and the failure of the offering is costly, the new shares may have to be underpriced more compared to the situations in which there is no information leakage.

The demand level is closely related to the price revision as well as the initial return. If the subscription is predictable, both the price adjustment and underpricing will be predictable to some extent. The following will take a close look at the level of public demand.

Public Demand for Chinese IPOs

This section highlights the difference between the demand for Chinese and non-Chinese IPOs. Chinese IPOs received a markedly higher level of public subscription at about 116.28 times on average during the sample period, while other non-Chinese observations had no more than 69 times in their public subscriptions. To further specify the offering style of Chinese firms, Table 3.11 provides a clear comparison of public subscription (Column 1), price revision (Column 2 and 3) and market-adjusted initial returns (Column 4) between Chinese and Non-Chinese observations by year.

In the years of 1996 and 1997, just before the East Asian financial crisis, the average subscription times of Chinese IPOs doubled others. Then, in the years from 2003 when the China B-share market started to be stagnant in domestic stock exchanges and Chinese

enterprises crowed into Hong Kong market, the demand of China-backed firms still appeared to be enthusiastic. Only from 1998 to 2002 the subscription levels appear weak. During this recovery period of the East Asian financial crisis, the investment expectation and financial ability of retail investors were seriously destroyed. Although local shares seemed to perform a little better, the market on a whole were suffering the downward pressure. Also, Chinese domestic financial market embarked on two structural reforms regarding to the management over the reduction of state shares in 1999 and 2001 respectively. These two reforms neither successfully sold off the state-owned shares, nor strengthened investors' confidence on SOEs' reform. The number of Chinese enterprises to seek overseas primary listing has reached the bottom. In 1998, there is only one Chinese company, Yanzhou Coal Mining Co Ltd. (1171.HK) issued IPOs by bookbuilding in Hong Kong. Actually, it is still hardly to make conclusion that Chinese IPOs were not attracted for Hong Kong retail investors. During the unfavourable period from 1999 to 2002, most of H-share and red chip firms received a certain level of public subscription all along. Especially, the most oversubscribed offer in 1999 and 2000 were all Chinese firms, i.e. Great Wall Tech Co. (74.HK) at 97 times and China Insurance International (386.HK) at over 50 times. And in 2001, 3 out of 6 Chinese IPOs exercised the over-allotment option due to their high public subscription. After 2003, Chinese IPOs became most favoured once more to predominate over local firms. Meanwhile, Chinese issuing firms are more likely to positively revise the offer prices and receive favourite initial returns eventually.

Apart from the negative influence raised by Chinese SOEs' reform, there may be four reasons why China-backed companies can obtain such enthusiastic demand from Hong Kong retail investors. Firstly, the demand is enforced by their China background. For either H shares or Red Chips, they are directly or indirectly owned by China's leading ministries, the State Council, provincial authorities, or other State-owned enterprises. Before listing overseas, they had certified with the CSRC's pre-selection criteria and represent outstanding performance in the related industries. This ownership structure and favourable corporate results enhance retail investors' confidence on the expected return in immediate-market trading. Secondly, Hong Kong retail investors are expected to have better knowledge in China-backed firms and their steady trading performance, which has become an attraction for retail investors. The SOEs' desire of raising capital and concern of ensuring successful offerings encourage retail investors. Thirdly, China-backed firms are normally underwritten by reputable investment bankers which have already released positive information to the market. Top bankers' high service level enhances retail investors' confidence. The relationship between underwriters and China-backed companies as well as their pricing and marketing strategies will be discussed based on empirical results. Last but not least, China-

related firms tend to time the offerings. In brief, the higher level of oversubscription may become a component rather than outcome of their pricing and marketing strategy.

Distribution of Oversubscription Multiples and Other Related Characteristics

Table 3.12 reports the distribution of oversubscription multiples and corresponding price revisions, initial returns, and mean of dependent variables. The separation points of 1, 15, 50, 100 and 200 times are basically in reference to the code of clawback provision. In particular, the transfer from public offer to placing may occur under insufficient public subscription (less than 1); 10% of total shares offered will be automatically transferred from placing to public offering when the public subscription multiple is between 15 and 50 times, 30% when it is between 50 and 100 times, and even 50% when it is 100 times or more.

40 out of 180 bookbuilding IPOs have been oversubscribed beyond 100 times and, they are always followed by significantly higher initial returns of more than 20%. It is noted that, these subscription times refer to Hong Kong public offering which normally allocate 10 percent to 30 percent of total shares in IPOs. However, even carrying a relatively small proportion, a significant oversubscription can still result in a positive price revision and subsequently high initial return. In the sample, when subscription times are below 15, issuing firms and their underwriters are likely to negatively adjust the offer price by about 2.5% from the midpoint on average to avoid a failed offering without sufficient demand. Nevertheless, the aftermarket returns were still unfavourable. Paradoxically, when the demand level being extremely high, such as more than 200 times, the initial return will be remarkably higher at 44.7% on average. The average price revision, in this circumstance, has reached the upper limit of the price range. Therefore, a direct and positive relationship between subscription multiples and the underpricing level is expected to coincide with the winners' curse model and the partial adjustment model. Once controlling other systematic characteristics, following a rational line, the subscription level is predicted to be positively related to the price revision, and so leads to a higher initial return in aftermarket trading on the whole.

In terms of other variables, firm-specific characteristics, as measures of *ex ante* uncertainty around new shares, are too minor to explain the difference in the levels of oversubscription. Meanwhile, public information available before the release of prospectus shows a significant effect to the public subscription multiple. Although market index return appears to be stable across every subscription level, the recent IPOs' average return indicates a significantly

positive effect to the public demand. As far as the agency problem models are concerned, underwriters, especially high reputable underwriters, play an important role in marketing, pricing, and offering new shares. Good quality issues underwritten by more reputable bankers are more attractive to investors.

So far, Section 3.6.2.1 has investigated the public demand for bookbuilding IPOs in Hong Kong. The pricing of an IPO begins at the time the IPO is filed, and thus next section starts the investigation of the pricing process at this point. The preliminary price range should provide some information about how underwriters expect to price the offering. In fact, prior literature which has used the midpoint of this price range as an unbiased predictor of the final offer price assumes that underwriters incorporate all available information in setting the preliminary price range. However, anecdotal evidence suggests that this might not be the case. Some people argue that, investment bankers deliberately set the price range low during the 1990s, with the hope of generating momentum and thereby increasing demand for the offering. Yet many investment banks deny that this is the case, and Loughran and Ritter (2002) also provide some evidence against this story. Therefore, the bookbuilding process may not be fully informative and the public subscription level may subsequently be predicable by some systematic characteristics. The following section will turn to focus on the price discovery during the bookbuilding period, and aim to find how underwriters price new shares.

3.6.2.2 Price Discovery in the Bookbuilding Process and Subsequent Price Revision

3.6.2.2.1 Definitions of Price Revision

Setting preliminary price range and price revision during bookbuilding period is quite different between Chinese and non-Chinese observations. Rock (1986) assumes initial offerings gives underwriters wide discretion in allocation and setting prices. Benveniste and Spindt (1989) investigate that bookbuilding allows underwriters to induce investors to reveal their information truthfully, by underpricing and favourable allocation of new shares.

Following prior literature, this section applies a number of variables to measure and illustrate the pricing and allocation in the bookbuilding process. In discovering the pricing strategies, the empirical examination conducts three proxies on the price range and price revision, including the Hanley price revision (***H-PR***) (Hanley, 1993) (Equation 3.3), Cornelli-

Goldreich price revision (***CG-PR***) (Cornelli and Goldreich, 2001; Ljungqvist and Wihelm, 2002) (Equation 3.4), the percentage width of price range (***PR_WIDTH***) (Equation 3.5).

$$H_{PR} = \frac{P_0}{\frac{1}{2}\times(P_H + P_L)} - 1 \tag{3.3}$$

$$CG\_PR = \frac{P_0 - P_L}{P_H - P_L} \tag{3.4}$$

$$Width\ of\ Price\ Range\ (PR\_WIDTH) = \frac{P_H - P_L}{P_L} \tag{3.5}$$

where, P_H P_L P_M are the upper limit, lower limit, and midpoint of the preliminary offering price range respectively, which are released in the IPO prospectus. And P_0, again, is the offer price. As argued by Ljungqvist and Wilhelm (2002), the offer price as reflecting a conditional expectation, it represents the culmination of primary market price discovery. Both of H-PR and CG-PR are most commonly used proxies in literature and do not have fundamental difference to each other. In particular, CG-PR is negative if priced below the lower limit, and equal to 1 if priced at the upper limit. Many studies, including Hanley (1993) and Loughran and Ritter (2002), used to regard the midpoint of price range as an unbiased predictor to the offer price. Therefore, if new shares are priced at the midpoint of preliminary price range, H-PR is 0 and CG-PR is 1/2. To enhance the comparability of empirical results, this chapter include both measures to investigate the price discovery in primary markets. Only using CG-PR may slightly increases the standard errors over those obtained by H-PR (Ljungqvist and Wilhelm, 2002, page 178).

Also, the chapter defines two measures to proxy share allocation for institutional and retail investors respectively, i.e. the proportion of institutional allocation (***INST_ ALLOT***) (Equation 3.6) and proportion of retail allocation (***RETL_ ALLOT***) (Equation 3.7).

$$Institutional\ Allocation = \frac{Exp.Placing\ Shares}{Total\ Shares\ Offered} \tag{3.6}$$

$$Retail\ Allocation = \frac{Exp.Public\ Offer\ Shares}{Total\ Share\ Offered} \tag{3.7}$$

Bookbuilding in Hong Kong normally involves a hybrid offering mechanism, with both of placing and public offer tranche. In which, bookbuilding is only used with the institutions participating in the placing tranche, while individual are required to take part in the public offer. Literally, institutions can submit bids in either placing or public offer tranche. However, due to the existence of oversubscription in public offer, larger bids are usually associated with

lower allocations subject to lottery rationing. In this case, an institution would rather believe it stands a better chance to receive higher allocation in placing tranche. Therefore, by excluding shares offered by other method, this chapter assumes all of placing shares have been allocated to institutional investors, and the rest of new shares are subscribed by retail participants.

3.6.2.2.2 Magnitudes of Price Revision in the Bookbuilding

Baron and Holmstrom (1980) indicate an investment banker has an opportunity to obtain private information by conducting pre-selling activities. Benveniste and Spindt (1989) further investigate how investment bankers use indications of interest from their client investors to price and allocate new issues. The most commonly cited study is the "partial adjustment hypothesis" by Hanley (1993), indicating that underwriters do not fully incorporate information received during the pre-offering period and always strategically allocate discounted shares to their favourite investor groups. Things may be different in Hong Kong, which always emphasizes "fairness" and offers more priority to protect small investors' wealth. Consequently, conditioning on the non-discretionary allocation policy and the overallotment option, this section will exam the price discovering and share allocation in Hong Kong.

For the testable sample of 180 bookbuilding IPOs, Table 3.13 reports the distribution of the price revision as well as means and standard deviations of related offering characteristics, segmented by CG-PR and H-PR respectively.

According to Panel A in Table 3.13, only 3 out of 180 observations are priced below the range, and none of them has an offer price which exceeds the upper limit of the range. This phenomenon may be partially explained by underwriters' additional costs. In Hong Kong, along with investors' bids to subscribe new shares, they must submit a check for the desired shares, price at the high end of the preliminary price range. If the final offer price is set below the range, or if a bidder gets less than the requested shares, the underwriter will issue a refund without interest. Apparently, if the offer price is expected to be set above the upper limit, underwriters have to issue an amended prospectus and give investors the option to resubmit application or withdraw. In other words, an exceeded high offer price not only involves more direct costs for underwriters to reissue listing documents, but also indirectly requires re-collecting information of market demands. This is also consistent with Hof (1999) that, since potential investors anchor on the midpoint of the file price range, if the offer price is raised

too far above this, some potential investors will withdraw. In this case, it is rational to set a wider price range rather than riskily surpass the upper limit. Underwriters are unwilling to adjust the offer price too much.

For the rest of 177 observations, 21 IPOs have the offer prices set equal to the lower limit. Their average initial return is consequently the lowest among subsamples. Apparently, 54 firms (about 30% of all bookbuilding samples) eventually set a final offer price equal to the upper limit of the price range. They also received heated public subscription and highest initial returns. Therefore, roughly speaking, the result is consistent with Loughran and Ritter (2002) that, once a file price range has been set, there tends to be a positively sloped demand curve. It also can be explained by the Welch's (1992) cascades argument. An increasing in the offer price generally results in increased demand, because it is the signal to both institutional and retail investors that other investors want to purchase the issued new shares.

However, institutional and retail allocations seem to have insignificant difference among various levels of price revisions. It is not saying to contradict to Ljungqvist and Wilhelm's (2002) conclusion that constraints on bankers' discretion reduce institutional allocations and result in smaller price revision. For one thing, the hybrid offers have to be pre-assigned to the public offer tranche in Hong Kong. The indifference is mainly driven by the conventional concern. Meanwhile, in Hong Kong, a standard IPO process includes a pre-roadshow section. It is a combination of sell-side pre-selling research, educating sales team, and marketing to preponderating prospective investors. The underwriter can collect information of valuations and main concerns on firm's uncertainty. Large investors are easier to access to more resources and relatively fixed costs of constructing their own valuation models. This is not only the preparation for the roadshow after the releasing the prospectus, but also the important step to verify the potential buyers. If it is conjectured that many institutional investors' information has been incorporated into the preliminary price range, it is important to clarify retail investors' interests. However, small investors hardly build their own valuation models. Many popular methods, such as earning and cash-flow ratios, may be narrow and limited. In this circumstance, they always follow a perceived consensus among other investors, which is impossible to distinguish being informed or uninformed. Consequently, the most necessary of the roadshow would be receiving information from the public sector, to estimate the demand from "the rest of investors". The additional evidence is that price range itself has been hardly revised in Hong Kong. However, the chapter still expect an inverse relationship between institutional allocation and price revision to give evidence of Ljungqvist and Wilhelm's theory.

Chinese firms are more likely to positively revise their stocks and price them close to upper limit of the price range. Except that only one H share whose offer price dropped below the lower bound of the price range, nearly all of overseas primary listed Chinese stocks have been set at a higher offer price right before the offering. Thus it is unilateral to merely account for *ex ante* uncertainty, since its influence can be a two-way effect rather than a purely positive variation. Therefore, this chapter expects to discover a specific offering strategy for Chinese enterprises that they are good at exploiting retail investors' sentiments to promote pre-market subscription. By setting a visually wider price range followed by a more positive price range, this strategy can ensure a successful offering, i.e. to minimize associated costs and maximize fund raised simultaneously. A further discussion of Chinese enterprises' offering strategy will be specified in latter section.

In terms of public information incorporated in the price revision, most recent IPOs' average initial return has significant and positive impact on the magnitude of price revision. In other words, underwriters tend to seize the occasion of "hot issue market". Meanwhile, the price revision is also associated with the market volatility, which is to control for noise and idiosyncratic information reflected in the market. A downward movement in the market sent the signal to the underwriter to price new shares conservatively. The sophisticated opinion would be that greater uncertainty surrounding the true value of the shares is more likely to be reflected in the offer price.

In Panel B of Table 3.13, initial returns, CG price revisions, and other characteristics are segmented by various levels of the Hanley price revision measure. To coincide with the partial adjustment hypothesis, bookbuilding allows underwriters to response to positive information and raise the offering price, though the price will rise further in the aftermarket because some money has to be left "on the table". However, 27 firms with price revision above 10% obtain lower initial returns than other positively revised ones. There may have three possible explanations. For one thing, they received hot market demand but did not meet the hot market, noted the market average return is relatively low during their offering period. Or, their less-discounted shares were not able to attract more investors to participant in aftermarket trading. Also, as far as the larger width of price range is concerned, this revision may be caused by uncertainty regarding to the intrinsic value of the issuing firm.

The comparison of other variables also provides supplementary evidences. More than 70% Chinese firms prefer an upwards adjustment in setting the final offer price. This common practice may be due to higher level of risks to seek overseas listing. Also, the positive revision can enhance capital-raising and in turn secure a successful equity offering.

As far as the public subscription multiple is concerned, the larger price revision may be a pricing strategy to give an expectation of more money being left on the table. Then a further update of offer price may positively signal to the market for a subsequent higher initial return. This may be explained by both investment confidence and cascade effect. Thus investors do not really care whether the IPO has been mispriced too much or not. Essentially, they are concerned with how much money they could obtain from this investment decision. Therefore, once the new shares have become highly desired, they will naturally predict a higher initial return in the aftermarket. In this circumstance, underwriters will send positive signal to the market via a positive price revision.

In terms of sponsors' activities, IPOs having "modest" price revision are underwritten by most reputable bankers. On one hand, prestigious bankers will not misprice; on the other hand, as repeated participants in equity offerings, they have more experience and better ability to discover the intrinsic value of the issuing firms. Consequently the preliminary price range will be set more conservatively. Of course, the underwriter's reputation also account as the offering strategy of Chinese firms, since most of them serve large Chinese enterprises.

It is noted that, according to the Benveniste-Spindt model and Hanley's argument, bookbuilding theory has two components, i.e. pricing and allocation. On one hand, the final offer price will be adjusted based on the information gathered during the preliminary filing period; and this information will not be fully incorporated into the final offer price. On the other hand, how to allocate new shares between institutional and retail investors is also the key issue that underwriters may seek benefit in the process of building-the-book. It is worthy to distinguish which offering characteristics can systematically influence the direction and magnitude of the price revision, as tested in the following section.

3.6.2.2.3 The Predictability of Price Revisions during the Pre-listing Period

So far, it is clear that the average price revision of the sample is positive. Meanwhile, according to Benveniste and Spindt (1989) and Hanley (1993, 1995), this pricing adjustment is based on the information gathered during preliminary filing period. Therefore, underpricing is regarded as compensation paid by issuing firms and their underwriters to those investors who release their private information on subscription interests. However, the pre-selling research and educating investors are commonly adopted in Hong Kong, which facilitates the information leakage among investors, reduces the cost of valuation, and shapes the cascade

among retail investors. In this circumstance, if new shares are allocated upon a non-discretionary base, can those well-documented systematic characteristics maintain the capability to predict the final offer price?

This section examines the extent to which underwriters incorporate available information about the company at the time they set the initial filing range, especially the predictability of price updates between prospective filing price range and final offer prices. Table 3.14 and Table 3.15 report the descriptive statistics for control variables used in the cross-sectional models to test the price revision in bookbuilding mechanism. And the regression results are shown in Table 3.16.

Firm-specific Characteristics

Coefficients of companies' age, as a classical proxy of the *ex ante* uncertainty, are not statistically significant in all three models. The may be explicable to the extent that underwriters have already incorporate this aspects into the preliminary filing price range. As mentioned before, there is normally a pre-roadshow meeting between issuing firms, underwriters, and the major prospective institutional investors. It is logic to believe that, most of the considerations around the *ex ante* uncertainty have been incorporated into the price range. In this circumstance, demand from retail investors, as the unachievable objective in the pre-roadshow section, become the most sensible influence to the price revision. This intuition of the relationship between the public demand and price revision has been approved by the positive and significant coefficient of the public subscription multiples. Meanwhile, China-related dummy is not statistically significant in Model 1, indicating that the public demand is indeed a very crucial influence to the price revision, especially the upward revisions. When excluding the subscription from the regression, coefficient of China-related dummy become positively significant to the price revision. Therefore, the results still support the expectation that Chinese IPOs are more likely to positively revise their offer price. To do this may be due to the high public demand, or part of their pricing and marketing strategy to induce capital-raising from IPOs.

Underwriter-specific Characteristics

IPOs underwritten by highly ranked investment bankers are likely to have a more positive price revision. This suggests that bankers that are more reputable are more conservative in setting the initial price range. One potential explanation is that in some cases issuers and their underwriters implicitly agree on the prospective price range before it is publicly released in the prospectuses. Apparently, the larger price revision may give an expectation of more money being left on the table. Retail investors normally care the money they could earn from buying new shares, therefore once the demand level is higher than expected, they will naturally predict a higher initial return. A positive price revision obviously becomes an optimal signal from the underwriter. However, when the demand is not satisfied enough, a negative revision may be due to underwriter seeking a higher subscription to ensure a successful offering and leave more benefits to investors. Conditional on small oligopolies, prestigious underwriters may be likely to set a relatively conservative prospective filing price range to win the business from issuing firms. They hold a superior information level than do issuing firms, investors, and even other investment bankers, which results in a more significant price revision.

Market-specific Characteristics

Benveniste, Ljungqvist, and Wilhelm (2002) argue that issuers learn not only through their own marketing efforts but also through those of their rivals. Ljungqvist and Wilhelm (2002) further interpret that price discovery is related to both deal-specific information and information spilling over from contemporaneous transactions, including secondary market performance. The insignificant coefficients of market return, market volatility and recent average IPO return provide the evidence that, public information, as being costless for every participants in the market, has been incorporated into the filing price range. That is to say, the price revision more depends on the private information received during the bookbuilding period, especially the demand from retail investors. The modest movement in the market is not likely to be a very sensitive issue for underwriters.

Last but not least, the institutional allocation appears to have statistically significant influence to the price revision. According to prior literature, the bookbuilding theory includes two components, i.e. price discovery and share allocation, the next section will intensively give further analysis on the issue of share allocation.

3.6.2.3 Allocation of New Shares – Are some subscribers favoured by underwriters to receive more discounted shares?

3.6.2.3.1 Definition of Variables and the Non-discretionary Allocation in Hong Kong

Ljungqvist and Wilhelm (2002) argue that IPO allocation policies favour institutional investors. By test 1032 IPOs in 37 countries in 1990s, they find that shares allocated to institutional investors are about two times than those received by retail investors. However, in the U.S., allocation policies are discretionary and have no enough constrains to investment bankers' rent-seeking behaviours. Therefore many studies, such as Benveniste and Wilhelm (1990) and Hanley and Wilhelm (1995), suggest that institutional investors capture a large fraction of the short-run profits associated with IPOs and U.S. underwriters tend to strategically allocate new shares. In addition, Cornelli and Goldreich (2002) find institutional investors' demand is the influential determinant to the price setting.

However, there are rules and constraints on allocation discretion in many other countries. Asian underwriters believe institutional investors are more likely to do rushing selling on the first trading day. In Hong Kong, to prevent institutional investors' short-term profit-taking activities, share allocation of IPOs is non-discretionary. Retail investors receive priority in share allocation to ensure aftermarket stability. Hong Kong introduced the clawback provision (or called the "overallotment option") in 1997. It stipulates that, when public offering is highly demanded, shares in the placing tranche should be transferred into public offering tranche. The exercise of clawback provision only depends on public demand. Although the insufficient subscription in public offer may result in the inverse transfer back to placing offer, underwriters do not frequently meet this situation. In other words, the overallotment option enables retail investors to condition their investment decision upon feedback received from institutional investors. Therefore, an inverse relationship between the institutional allocation and price revision as well as the initial return is expected to provide further evidence to the bookbuilding theories.

This chapter conducts two proxies for share allocation, i.e. the proportion of intuitional or retail allotment (Equation 3.6 and 3.7). As mentioned above, placing shares are not offered for public but only involve institutional investors. On the contrary, public offers are allocate on a pro rata basis and most likely to be subscribed by retail investors exclusively.

In addition, two measures of institutional investors' profits will be investigated, as defined in Equation 3.8 and Equation 3.9.

$$\textit{Amount of Inst. Profits} = (P_1 - P_0) \times \textit{Shares hold by institutional investors} \quad (3.8)$$

$$\textit{Return of Inst. Investors} = IR = \frac{(P_1 - P_0) \times \textit{Shares hold by institutional investors}}{P_0 \times \textit{Shares hold by institutional investors}} \quad (3.9)$$

Table 3.17 reports the distribution of share allotment in bookbuilding IPOs and descriptive statistics of individual variable, which are segmented by proportion of institutional allocation (Column 1), exercise of overallotment option (Column 2), institutional profits amount (Column 3), and institutional profit ratio (Column 4). On all accounts, the price revision, initial returns and institutional profits are inversely associated with the proportion of institutional allocations. This is consistent with Ljungqvist and Wilhelm (2002) that constraints on bankers' discretion reduce institutional allocations and result in smaller price revision. According to the bookbuilding theory, bankers simultaneously have the determinant power on how much to allocated to any group of investors and how much to revise the offer price in response. Therefore, the level of price revision also depends on allocations to two groups of investors.

3.6.2.3.2 The Relationship between the Price Discover and Share Allocation

To begin with Column (1) in Table 17, variables are segmented by median of institutional allocation (90%). The listing rules in Hong Kong always require a certain level of public holding for listed companies. The implicit restriction in hybrid offers that 10% of the issued shares have to be pre-assigned to the public offer tranche. In this column, the public subscription multiple, width of price range, and the average price revision are dramatically distinguishing between subsamples. Apparently, other ex *ante* uncertainty factors, underwriter reputation proxy, and market information characteristics show relatively insignificant difference. In particular, the public demand is negatively associated with the proportion of institutional holdings, while the price revision more relies on the retail demand, it also has an inverse relation to the institutional allotment. This may be at least partially due to the clawback provision.

To step further, in Column (2), variables are segmented by the exercise of overallotment option. 108 out of 180 bookbuilding IPOs eventually exercised the clawback provision,

because of the high oversubscription in the public offer mechanism. Ljungqvist and Wilhelm (2002) indicate that allocation restrictions affect the price discovery associated with bookbuilding and in turn affect the level of underpricing. Larger price revisions should be inversely associated with large institutional allocations, other things equal.

As predicted, these 108 IPOs received high public subscription at over 100 times, had a significant and positive price revision right before the offerings, and consequently performed better in the aftermarket with a average initial return of 17.7%. The Securities and Futures Commission in Hong Kong always emphasizes faire dealing with small investors. Chen, Chan and Mak (2005) find evidence that underwriters use non-discretionary allocation of IPOs to favour small investors in Hong Kong. When the market is lack of the steady trusting relationship between investment bankers and large investors, or when the market is not able to effectively control for block trading activities, underwriters prefer to allocate relatively more underpriced new shares to retail investors. To conclude, to be consistent with previous expectation, the share allocation of IPOs in Hong Kong is non-discretionary and more disposed to small investors in policy.

In addition, more than half of heavily oversubscribed IPOs were underwritten by top investment bankers with an average reputation ranking at 7.5, getting the advantage over the rest of issuing firms. This finding is consistent with Chowdhry and Sherman (1996) and Brennan (1996) that, underwriters allocate relatively more profitable IPO shares in order to entice small investors to take part in the subsequent IPOs by the same underwriters. To do this may strengthen the reputation of these underwriters and bring in higher services charges in their future business.

3.6.2.3.3 The Gains of Institutional Investors from Bookbuilding IPOs

Chinese issuing firms seem to make more profits in money for their institutional investors than other firms. And large size companies also provide more steady return than small one. It is noted that, more than half of large companies are Chinese firms. Proportion of institutional allotment appears to be negatively related of the institutional profits, which again suggests that retail investors are more favoured by underwriters. All things considered along with the public subscription multiple and price revision, it may be the truth that informed investors provide their superior valuation information during pre-roadshow marketing period which is useful in setting the initial price range rather than revising the offer price. Since this group of

investors have already had impact on the price setting, their final bids to new shares cannot be inferred to be informative or uninformative. As indicated in Jenkinson, Morrison and Wilhelm (2006), in most of countries outside the U.S. and Japan, the interaction between the buy-side and sell-side starts when researches circulated by analysts working for sponsors or other syndicate members (Jenkinson and Jones, 2007). Not all of investors have their own valuation models to serve as a proxy for incremental information production, especially retail investors. Consequently, it is reasonable to expect the tightly progressive relationship between share allocation and public subscription, price revision as well as the initial return of IPOs.

At the same time, the whole progress of pricing and allocation procedure cannot be lack of underwriters' operation. As more frequent participants in the equity offering events, the top underwriters can provide superior services on pre-sale research and marketing to institutional investors. Rely on their competitive advantages in accurately pricing new shares, they can always attract retail investors to take part in IPO events.

In Column (3) of Table 3.17 when segmenting by the zero rate of institutional return, the results are most likely to be accordant. As it is defined, the institutional return ratio is equivalent to the initial return. However, Chinese firms' initial return, or equivalently called institutional return, is not significantly different from non-Chinese firms, implying that allocation can be non-discretionary.

3.6.2.3.4 A Perceived Offer Strategy of Chinese Overseas Primary Listed IPOs

So far, this chapter has compared Chinese and non-Chinese issuing firms to the extents of retail demand, institutional allocation and the subsequent price revision. Before further investigating the underpricing phenomenon, this section also try to summarize a perceived offer strategy of Chinese overseas primary listed IPOs.

Table 3.18 compares offering characteristics, share allocation, price revision, and initial returns with *t*-statistics between Chinese and non-Chinese IPOs which went public by bookbuilding method.

Within the group of firm-specific characteristics, only the coefficient of company's size is statistically and significantly different between two subsamples. It is noted that, most of Hong Kong listed Chinese enterprises are partially owned by state authorities, even government

departments themselves. These enterprises constitute a certain part of mainstay of the national economy. Consequently their large size is more likely to be regarded as an inherent characteristic rather than reducing *ex ante* uncertainties.

However, as far as a few key pricing indications are concerned, Chinese issuing firms are statistically different from rest of observations. First of all, this pricing strategy has to have the consent of their underwriters. The group of underwriter-specific characteristics offers the necessary support to their pricing and marketing strategies. China-related companies are attending to hire more highly reputable investment bankers, especially those top bankers with sufficient experience and frequent market participation.

In addition, Chinese large issuing firms obviously need more subscription from institutional investors to ensure the successful offering in the placing tranche. Meanwhile, Hong Kong retail investors are not able to fully absorb such amount of capital needs. Nevertheless, if the underwriter provides pre-roadshow research and marketing, institutional investors' indication of interests have been incorporated into the preliminary price range and released in the prospectuses. In this circumstance, as mentioned, the main target of bookbuilding process becomes receiving information from retail subscribers. Both underwriters and their issuing firms understand that it is more costly for small investors to accurately build their own pricing model. Their decision making process may reflect more sentiments than rational judgements. This situation offers Chinese companies a good opportunity to avoid potential loss from overseas listing. On the basis of high public demand, they still try to price the IPOs as high as possible. Although China-related enterprises have a higher level of *ex ante* uncertainty, they retain the expectation to maximize the funds raised by offerings. The gap between the actual quality and the expectation is mitigated via a significantly positive price revision on average.

Last but not least, if the market condition is not satisfied, a pleasing initial return is difficult to achieve. Therefore, the last component of this pricing and marketing strategy has to take the market movement into account, i.e. timing the offering. The academic literature argues that increases in the valuation of comparable firms reflect improved growth opportunities. But more favourable investors' sentiments could also play a role in the increased valuations. When investors are overoptimistic, newly listed firms may take advantages in a "window of opportunity". Lowry (2002) finds that investor sentiments, growth opportunities, and adverse selection considerations are determinants of aggregate IPO volume. Moreover, Lowry and Schwert (2002) and other authors find that high IPO first-day returns lead high IPO activity by about six months. These studies are proved by market-specific characteristics, especially

the average return of IPOs going public in three months before the offering date. A significantly higher level of IPO returns may be one of the motives to encourage China-related firm going public during the 'hot issue market'.

To summarize, the strategy is formed by Chinese background, leading underwriters, conservative price range, substantial information leakage, high public demand, and finally the positive price revision. The issuing size and ownership background of Chinese IPOs always catches eyes in Hong Kong market. Then in the bookbuilding, their reputable sponsors additionally certify the quality and future prospects of the issuing firm. The problem is, referring to the overheated public demand, preliminary pricing seems to be relatively conservative. In this circumstance, if underwriter realises that investors only account their money return and pricing accuracy is relevantly negligent**,** the positive information leakage on valuation and subscription can easily result in the climbing in offer price. Besides, the successful offering has to take market timing into account.

Therefore, this section agrees with the argument that Hong Kong market is entitled as the preferred platform to accommodate large Chinese enterprises. Prospective Chinese IPOs may take advantages from the regulatory preferential treatments, affirmative investor recognitions, substantial information flows, and highly professional brokerage services.

3.6.2.4 The Determinants of Bookbuilding IPOs' Initial Returns – A Direct Test

So far, this chapter has examined the reasons of high public subscription, determinants of price revision, and non-discretionary share allocation in Hong Kong. Following prior studies, the final test of the bookbuilding theories will focus on examining the systematic factors of IPOs' initial returns. Based on information asymmetry, the existing literature have argued many theories to explain the underpricing puzzle, including the winner's curse model, the partial adjustment hypothesis, agency problem explanations, and market timing, etc. The following section will jointly test above hypotheses to provide more empirical evidence to the underpricing models.

To begin with, Table 3.18 reports the mean of variables used in the cross-sectional regressions, by decanting them into two groups. In Column (1), observations are separated by zero initial return, and in Column (2) observations are segmented by the median initial return (0.0349). Column (1) is more likely to reflect the same information as it is in Column (4) of Table 3.17. By definition, rate of institutional profit is equivalent to the initial return of IPOs.

When interpreting Table 3.18 as a whole, firm-specific characteristics cannot consistently and powerfully explain the level of underpricing. This may coincide with Loughran and Ritter's (2004) "changing risk composition hypothesis". On the contrary, share allocation, public subscription, price revision as well as market movements are confirmed to be intimately connected to the level of underpricing in the aftermarket. If a heavily subscribed IPO attracts more retail and institutional investors, even after an ascending price revision, its abnormal initial return are expected to be larger than other new shares.

In particular, according to Economics theories, levels of demand and supply decide the equilibrium price of goods. In like manner, when assuming the supply of issuing firms is controlled, the demand level is expected to be positively related to the first-day return. This prediction is consistent with the Benveniste-Spindt model that underpricing is directly related to the information gathered during preliminary period.

Meanwhile, the price revision is expected to be positively associated with the initial returns. As predicted by Hanley (1993), initial returns are positively and significantly related to the

percentage change between the preliminary price range and the final offer price. Underpricing is higher when offer prices are increased and positive information is released during the bookbuilding period. Most of the bookbuilding theories agree that, if it is not possible to compensate the release of information through increased share allocation, then underpricing must also be used to compensate investors for revealing good information. This also provides the explanation of the relationship between the institutional allotment and underpricing. If the published prospectuses have already incorporated institutional interests and expectations, and if bookbuilding mainly aims to receive indications of interests from small investors, a formalized clawback provision may not be adequacy enough to satisfy the public demand. In the immediate market, therefore, more investors, including both institutional and retail ones, are expected to take part the trading on the issuing date.

To further test these predictions, Table 3.19 reports the results of cross-sectional OLS regressions for average initial returns by groups of independent variables. Dependent variables include both initial returns in Column (1) and market-adjusted initial returns in Column (2). Results between two dependent variables are believed to be highly consistent. Also, both the Hanley price revision measure and the Cornelli-Glodreich price revision measure are adopted as substitute in the tested models.

In order to avoid the autoregressive problem, the testing model actually does not use public subscription multiple together with price revision or institutional allocation. Alternatively, it gives a simple OLS regression between public subscription multiples and the initial return. Although not been reported in the table, a *t*-statistics of 11.35 between public subscription multiples and the initial returns supports the prediction that underpricing is an increasing function of the public demand (11.49 for the market adjusted initial returns). That is to say, when the public subscription reaches 100 times, the expected abnormal initial return should obtain 9% on average. The result is consistent with Cornelli and Goldreich's (2003) statement that oversubscription has a small but statistically significant effect for IPOs. In particular, oversubscription and demand elasticity are positively correlated with the first-day return.

The previous sections in the chapter have clearly confirmed the important role of public subscription. In Hong Kong market, where the oversubscription level from retail investors is greater than 15 times but fewer than 50 times, 30% of shares are reallocated to retail investor. Even if the underwriters exercise the overallotment option (usually 15% of the shares offered) and fully allocate to institutional investors, the institutional allocation still decreases to 74%. Once there is a high demand from the public, institutional investors receive much fewer shares for oversubscribed IPOs, therefore investors with an unsatisfied demand will bid for

the issue and push up the price on the first of trading. This can be regarded as the market sentiment which drives the IPO price (Welch, 1992). It is noted that, the public demand is not only a crucial aspect to influence the exercise of overallotment option, but also the main determinant of the price revision. Consequently, both of share allocation and price revision are expected tightly associated with the public demand as well as initial return, which may indirectly offer some evidence to the functional influence of public subscription.

In Table 3.19, issuing firms' age have statistically significant result in all models, while the proxy of size being insignificant. A possible cause can be explained by the changing risk composition hypothesis (Loughran and Ritter, 2004). To coincide, they also obtained an insignificant result for proxies of *ex ante* uncertainty when they ran the regression of average initial returns for the firms which went public after the 1990s. They indicate that, although Ritter's (1984) argument of higher *ex ante* uncertainty leading to higher underpricing has been validated by many studies, there have been some changes in the characteristics of firms going public, and these changes have been too minor to explain much of the variation in underpricing over time if there is a stationary risk-return relation. Meanwhile, as far as the market specification is concerned, in Hong Kong, only large IPOs will choose the bookbuilding method to go public since this method normally involves more costs in underwriting, marketing and pricing. Therefore, merely size cannot distinguish companies' quality and aftermarket performance.

In terms of Chinese overseas listed IPOs, the China-related dummy variable has a significantly positive relationship to the underpricing as predicted before. First of all, there is a persistent underpricing of China-related companies listing overseas, which can be raised by either higher *ex ante* uncertainty or higher asymmetric information (Rock, 1986; Beatty and Ritter, 1986). In addition, since China-related firms have a larger range of price revision following a higher level of oversubscription, the immediate market price jump may be boosted by the higher demand. Once recognizing the possible underpricing of these firms, the investors who are not allocated new shares will bid immediately after trading as they expect a further increase in the secondary market. Also, even overseas listing associates with higher level of asymmetric information, Chinese companies' government-related background may give investors more confidence to the extent of their profitability and trading performance. Particularly in recent years, Chinese listed companies carry more market weight and higher quality of site, which have been in favour of Hong Kong investors.

Price revision, both H-PR and CG-PR, as predicted before, is positively and significantly associated with the underpricing for all observations. As bookbuilding theory suggest,

underpricing is payment for information. Larger price revision reflects a greater yield of private information, which will carry the expectation of higher underpricing (Hanley, 1993; Lowry and Schwert, 2000; Loughran and Ritter, 2002). A positive price revision on average indicates that the underwriters have incorporated more favourable information, especially interests of retail investors. Underwriters need to adjust the offer price according to the costly information gathered during the bookbuilding period. Sherman and Titman (2002) also suggest when investors' valuation is costly, there exists a moral hazard problem. Both the number of investors and subsequent underpricing will become larger in order that investors can earn economic rents.

However, the percentage width of the preliminary price revision is not statistically significant across models. A possible reason can be the pre-selling marketing activities. By arranging meeting with prospective institutional investors, underwriters have already mastered the majority of valuation information and investment interests before distributing prospectuses. Therefore the width of price range may not entirely reflect the uncertainty on setting the offer price. Only the negative sign of coefficient in width of price range represents the possible negative relationship. In other words, a wider range of price revision represents the greater uncertainty of underwriters when pricing the issue.

The proportion of institutional allocation is not statistically significant, providing inconclusive evidence about the role of the share allocation function on the underpricing. In the Benveniste-Spindt framework, allocation of discounted shares is the compensation provided to investors who truly release their private information about the issuing firms. When the IPO is heavily oversubscribed by the public sector, the underwriter must exercise the clawback provision, transferring a certain percentage of new shares from placing tranche to public offer. By design, this makes retail participation more attractive and is expected to reduce underwriters' reliance on underpricing to compensate other insiders. The clawback may result in a more diverse shareholder base without affect underpricing, which is inconsistent with many previous studies using U.S data. However, this result also indicates that investment bankers do not strategically price new shares in order to implement a target shareholder base. Both retail and institutional investors are relative to the successful offerings, while pre-roadshow marketing and overallotment provision make it unnecessary to underprice an IPO so much to attract investors. The negative coefficient hints the diversity in the initial shareholder base may actually be relatively more important for issuers. Moreover, since the investment capability for retail investors is relatively limited, and the proportion of public offered shares are limited as well, the negative sign may indicates some economic meaning.

The rank of underwriters has insignificant results in all three models. However, the negative the sign of the coefficient is consistent with Carter and Manaster (1990). Prestigious underwriters are associated with lower risk offerings which results in a smaller incentive to acquire information and fewer informed investors. Consequently, prestigious underwriters are associated with IPOs that have lower returns. Although the top underwriter dummy in Model 1.a and 2.a of Table 3.19 is not statistically significant and cannot provide very conclusive evidence either. In fact, the insignificant coefficient can also be regarded as a signal of the local oligopolies in investment banking industry. Recalling Table 3.7, to compare the mean of underwriters' ranking and number of top underwriters across different offer method, it shows a clear picture that 84 out of 180 bookbuilding firms are underwritten by few top financial institutes, and the average rank reaches 6.78. Without any doubt, only high prestigious bankers are able to provide bookbuilding services to the issuing firms. Underwriter's historic performance has a differential impact on the market share of underwriters. The results are consistent with the mutual choice model on firms and underwriters choosing each other, as documented by Fernando, Gatchev and Spindt (2005). Their model implies that more able underwriters underwrite more issues, which gives them a larger market share as well as a further building of reputation. However, even conditioning on the small oligopolies, there is the latent division of works within the investment banking industry in Hong Kong. Especially for many of Chinese enterprises seeking Hong Kong listing, their lead sponsor(s) normally have been engaged in the reorganizations before listing, such as consulting on the corporate governance, advising on the financial auditing, and even being as one of the strategic investors. The underwriting contracts often become a kind of subsequent services. This banking relationship may also explain the insignificant coefficient of underwriter-specific dummy. Lastly, the level of persistent underpricing is restricted because normally the after-market price stabilization support and continuing obligation of issuing firms are parts of underwriting contracts.

In terms of the pre-offering IPOs average initial return, a significantly positive effect is suggested by the results in Table 3.19. This is consistent with one of the puzzles regarding IPOs, the existence of 'hot issue' markets. Following Ibboston and Jaffe (1975), a 'hot issue market' is defined as a month in which the average first-day return is above the month's medium average first-day return. Other authors, such as Ibbotson, Sindelar, and Ritter (1994), argue that the IPOs' hot market lags average first-day returns by several months. There is strong positive serial correlation in the monthly average first-day returns. Currently, the literature offers no explanation to coincide with rational behaviour on the part of investors that can generate this positive autocorrelation when there is a rise in the market. Results are also consistent with Loughran and Ritter (2002) that an increase in the expected underpricing

of all IPOs which going public during the selling period, whether on the next day or in five weeks later. Moreover, because sell periods overlap, there will be autocorrelation in the first-day returns, which may result in an inertial trend in the IPO initial returns.

With respect to market movements, initial returns may not be predicted by the market index return during the bookbuilding period. In other words, the price of IPOs in Hong Kong may be more efficient to the extent that underwriters have incorporate public information into the offer price. However, market volatility appears to be statistically and positive associated with IPOs' initial returns. High market volatility represents a higher risk of investment since a highly volatile market means that prices have huge swings in very short periods of time. The positive sign of the volatility may be partially due to the variation in macroeconomic environment during the sample period. Recall Table 3.11, initial returns of IPOs fluctuated over time. It is reasonable that volatility is proportional to the market liquidity, trading volume, as well as the stock returns.

3.7 Summary, Conclusions, and Implications

3.7.1 Summary and Conclusions

Driven by the fast-growing tendency and large underpricing of Chinese overseas IPOs in Hong Kong, this chapter questions on the significant differences between Chinese and non-Chinese firms. Although being the Special Administrative Region of China, Hong Kong market is grounded on a different legal and ordinance system. Its accounting standards, investor structure and characteristics, pricing methods, and market premium significantly differs to the mainland. It is quite obvious that the doubled underpricing for Chinese IPOs cannot merely be the concession paid to offset information asymmetry from overseas listings, otherwise, the annual average initial return of Chinese IPOs should be less fluctuating or appear to be decreasing over time. Meanwhile, Chinese firms are generally distinguished from their local counterparts to the extents of inherent corporation characteristics, exceptive ownership backgrounds, demanding underwriting contracts, and inconceivable market demand. If the primary overseas listing inherently accompanies information barriers and systematic risks, it is worthy to investigate what makes Hong Kong become the optimal marketplace for Chinese enterprises to go public.

Well-developed asymmetric information models explore the underpricing phenomenon by assuming market participants, including issuing firms, underwriters, institutional investors and retail investors, are set to hold different levels of costly private information. This information is crucial in pricing new shares. Therefore, the transfer of private information involves additional costs (or compensation), and the costs (or compensation) are represented by the abnormal underpricing.

The study emphasizes the conjunction and combined effects of asymmetric information models. Empirical investigation is mainly based on the winner's curse model (Rock, 1986), the partial adjustment hypothesis (Benveniste and Spindt, 1989; Hanley 1993), the principal-agent models, the information cascade theory (Welch, 1992), and the hot issue market hypothesis (Lowry and Schwert, 2002).

By testing 410 IPOs of common stocks in Hong Kong from January 1996 to December 2005, the study finds China-related IPOs are significantly underpriced. The average initial return of Chinese firms is twice the mean of their local counterparts. The cross-sectional

investigation concludes the positive relationship between *ex ante* uncertainty and the level of underpricing. However, reputable investment bankers are more likely to act as the guarantee of successful offerings and the driving force of market subscription. If acknowledging that equilibrium price is determined by supply and demand, investment bankers' reputation cannot effectually reduce the abnormal initial return. However, the top underwriters' persistent underpricing receives statistically insignificant evidence and cannot provide more affirmative outcomes. In addition, it is certain that underpricing is largely stimulated by recent IPOs' optimistic performance of immediate aftermarket trading. This can be the strong support to the market timing argument.

The empirical investigations further moves on to testing bookbuilding related theories, especially the price discovery, share allocation, and how underwriters deal with received information during the preliminary period. The results are reliably in line with the Benveniste-Spindt framework and show that bookbuilding allows underwriters to induce investors to reveal their information truthfully. It is noted that, market features in Hong Kong essentially differs from the U.S market. Pre-selling research and educating investors are commonly adopted in Hong Kong, which facilitates the substantial information leakage among investors. Also, small investors take advantages of the existing "grey market". The information flow reduces the cost of establishing valuation models and shapes the cascade among retail investors. More importantly, as the key component of bookbuilding theories, the share allocation in Hong Kong is categorized as being non-discretionary. Fair-dealing term requires a certain proportion of public holding and protects retail subscribers. Then the clawback provision further secures retail group's rights. In this case, the empirical study is in the light of both well-developed bookbuilding models and market specific features.

For 180 bookbuilding IPOs within the sample period, the high-frequent oversubscription in the public offering tranche implies the subsistent information leakage in the market and supports the investors cascade hypothesis. The mean subscription multiple of 116 times for Chinese IPOs cannot only benefits from their inherent characteristics, such as production capacity and competitive strengthens. Investors' recognition partially owe to their experienced underwriters.

Two measures of the price revision (Hanley, 1993; Cornelli and Goldreich, 2001; Ljungqvist and Wihelm, 2002) all reflect an upwards adjustment on average. And apparently non-discretionary share allocation with positively sloped public demand together encourages about 30% observations eventually set a final offer price at the upper limit of price range. However, there is no statistical evidence for the impact of institutional allotment, implying the

possibility that announced preliminary price range may have already incorporated institutional valuation opinions. If it is the case, the primary task during the subscription period is to estimate demand of the retail group.

Also conditional on the non-discretionary allocation term, retail investors receive priority in share allocation. The exercise of overallotment option only depends on demand in the public tranche and enables retail investors to condition their investment decision upon feedback received from institutional investors.

The evidence shows that bookbuilding IPOs were not necessarily less underpriced than others. Larger and positive price revision reflects a greater yield of favourable private information from the public tranche, which will carry the expectation of higher aftermarket price. The underpricing also takes advantages of the "hot issue market" to the extent of optimistic valuation. However, the variable of institutional allotment receives statistically insignificant result, while the proxies of *ex ante* uncertainty appear to be less powerful to predict the level of underpricing.

Last but not least, this chapter draw the conclusion that, Hong Kong is a capable and optimal market to accommodate the Chinese companies that are going public. By learning a mass of experience and lessons from 1990s, Chinese overseas listed firms steadily improves their financing environment and offering skills. A perceived offering strategy at least can efficiently attract much attention in the market. Prospective Chinese companies are apt to obtaining relatively optimal underwriting contracts from a few leading investment bankers, which are always known for outstanding client base and distinct professional services. Via pre-selling marketing activities, issuing firms and their underwriters can primarily consult institutional investors to draft the listing documents. The filing price range in IPO prospectuses is a very important indication to the final offer price.

Since most of retail investors fear costs and are incapable to accurately build valuation model, it is common to assume they would use the intermediate value as benchmark and best estimate. Consequently, when substantive information leakage shapes demand and valuation among potential investors in the market, the conservative price range can convincingly promote public subscription. If the bookbuilding process also catches up with the "hot issue market", a positive price revision and subsequent high initial return become the anticipated outcomes.

3.7.2 Implications of Findings

As for implications, via jointly testing a number of outstanding models on asymmetric information, this study stands for the combined explanatory power all the while. More important, it makes much account for the market features in Hong Kong. The subsequent empirical results are liable as complements to the IPO literature and other related research. In addition, prospective overseas listing firms in China can benefit from this study. The introduction of listing regulations, offering procedure and market environments may help them to understand the target market, while the offering strategy can be a valuable reference. Moreover, retail investors, especially Hong Kong retail investors, can profit from this study as well. Empirical findings are able to be utilized in their valuation and decision-making process. They can have a better knowledge about IPO prospectus and underwriter's activities, make a better use of the existing information leakage and institutional feedback, and even possibly estimate the likelihood in pricing and share allocating.

However, the limitations cannot be neglected. As mentioned, the combination of popular underpricing theories implies the bottleneck in IPO literature to the extent of pricing model. Also, the specific features in Hong Kong may let empirical findings be sensitive to the sample and less applicable to other markets. Lastly, the pre-offering marketing behaviour has not attracted enough attention in academia. In many international markets, the pre-offering inquiry has become indispensable in underwriter's workflow. It is difficult to estimate costs paid for receiving valuable quotes in the pre-offering meetings. While it is not clear how far can this costly information be reflected in the IPO prospectus and roadshow. If this is the case, the existing bookbuilding theories are expected to be significantly revised. However, the information source may be hardly traced and required data may be not practically accessible.

Finally, this is the first empirical chapter in the thesis. This chapter mainly discusses the issuing costs and uncertainties faced by Chinese IPOs in Hong Kong, whose results are expected to provide a sin qua non for the subsequent investigations. Equity offering and underpricing is only a beginning on the Journey towards overseas listing. Next chapter will focus on the earnings forecasts and underlying impacts to the valuation and aftermarket performance of IPOs. Then last empirical chapter can reasonably question on the motives and main determinants to the upsurge of Chinese overseas listing.

Table 3.1 Total Number of IPOs on the Main Board in Hong Kong and Usable Sample (Jan. 1996 – Dec. 2005)

The table lists number of IPOs on the Main Board in Hong Kong from January 2005 to December 2006. Population represents the actual number of deals in the year. By excluding observations being introduction offer, mutual funds and with missing data, the "Tested Sample" reports the tested observations in this chapter.

	Population	Introduction	Mutual Funds	Missing	Tested Sample
1996	48	4	0	0	44
1997	82	3	1	1	77
1998	32	3	1	0	28
1999	31	2	0	1	28
2000	43	2	3	1	37
2001	31	0	1	0	30
2002	60	5	9	0	46
2003	46	7	2	0	37
2004	49	3	1	14	31
2005	57	3	0	2	52
All	479	32	18	19	410

Table 3. 2 Sample Distribution of Chinese (CHN) and non-Chinese (Non CHN) IPOs (by Years) (Jan. 1996 – Dec. 2005)

The table reports the sample distributions of Chinese (CHN) and non-Chinese (Non CHN) IPOs in the sample period. "No. of IPOs" represents the number of tested observations in each year. H-share firms (H Shr) and Red Chips (Red) are categorized as Chinese enterprises.

	No of IPOs	CHN	H Shr	Red	Non CHN
1996	44	12	6	6	32
1997	77	24	15	9	53
1998	28	2	1	1	26
1999	28	6	3	3	22
2000	37	5	3	2	32
2001	30	6	3	3	24
2002	46	5	4	1	41
2003	37	11	10	1	26
2004	31	6	5	1	25
2005	52	12	9	3	40
All	410	89	59	30	321

Table 3.3 Sample Distribution by Offer Methods in Hong Kong (Jan. 1996 – Dec. 2005)

The table shows the sample distribution by offer methods in Hong Kong during the sample period. Pure fixed price offer, fixed price offer, and bookbuilding offer are main offer methods in Hong Kong. The last row reports the percentage of each offer method in the sample.

	No of IPO	Pure Fixed Price	Fixed Price	Bookbuilding
1996	44	24	1	19
1997	77	48	5	24
1998	28	13	11	4
1999	28	3	16	9
2000	37	3	24	10
2001	30	0	19	11
2002	46	0	33	13
2003	37	0	16	21
2004	31	0	7	24
2005	52	0	7	45
All	410	91	139	180
% to Sample	-	22.2%	33.9%	43.9%

Table 3.4 Descriptive Statistic of IPO Initial Returns (IRs) and Market-adjusted Initial Returns (MIRs) by Offer Methods (Jan. 1996 – Dec. 2005)

The table reports the descriptive statistics of IPO initial returns (IRs) and market-adjusted initial returns (MIRs) by three offer methods during the sample period. "% of sample" is the percentage of whole tested sample.

	All		Pure Fixed Price		Fixed Price		Bookbuilding	
	IR	MIR	IR	MIR	IR	MIR	IR	MIR
No of IPO	410		91		139		180	
% of Sample	-		22.2%		33.9%		43.9%	
Mean	11.5%	11.6%	26.8%	27.0%	4.9%	4.8%	8.9%	9.0%
Median	4.3%	4.3%	13.9%	13.2%	2.0%	2.3%	3.5%	3.7%
Max	316.7%	317.1%	316.7%	317.1%	130.0%	131.4%	222.1%	223.1%
Min	-45.0%	-44.3%	-45.0%	-37.7%	-42.4%	-44.3%	-44.4%	-40.0%
S.D	0.342	0.341	0.530	0.529	0.225	0.226	0.265	0.264

Table 3.5 Descriptive Statistic of IPO Initial Returns (IRs) and Market-adjusted Initial Returns (MIRs) by Years (Jan. 1996 – Dec. 2005)

	No of	Initial Return					Market Adjusted Initial Return				
	IPOs	Mean	Median	Max	Min	S.D	Mean	Median	Max	Min	S.D
1996	44	21.6%	11.2%	125.0%	-14.9%	0.31	21.4%	11.3%	124.9%	-15.5%	0.31
1997	77	30.0%	13.9%	316.7%	-38.7%	0.62	30.2%	13.2%	317.1%	-40.0%	0.62
1998	28	-1.1%	2.4%	21.4%	-45.0%	0.16	0.0%	4.1%	22.2%	-37.7%	0.15
1999	28	3.8%	1.2%	64.1%	-24.1%	0.21	3.5%	1.1%	65.0%	-25.2%	0.21
2000	37	5.7%	2.0%	130.0%	-42.4%	0.33	6.2%	1.4%	131.4%	-44.3%	0.33
2001	30	3.4%	4.2%	34.0%	-44.4%	0.14	3.2%	3.8%	33.2%	-35.2%	0.13
2002	46	5.8%	4.0%	48.0%	-37.5%	0.15	5.7%	4.7%	47.5%	-35.8%	0.15
2003	37	12.5%	8.9%	72.7%	-35.0%	0.19	12.4%	8.0%	73.3%	-35.2%	0.20
2004	31	4.8%	1.9%	28.6%	-20.9%	0.11	4.7%	2.0%	30.0%	-20.8%	0.11
2005	52	3.6%	1.3%	42.2%	-22.9%	0.13	3.5%	1.1%	41.3%	-22.8%	0.13
All	410	11.5%	4.3%	316.7%	-45.0%	0.34	11.6%	4.3%	317.1%	-44.3%	0.34

Table 3.6 Comparisons of IPO Initial Returns (IRs) and Market-adjusted Initial Returns (MIRs) across Offer Methods by Years(Jan. 1996 – Dec. 2005)

	ALL			Pure Fixed Price			Fixed Price			Bookbuilding		
	No of IPOs	IR	MIR	No of IPOs	IR	MIR	No of IPOs	IR	MIR	No of IPOs	IR	MIR
1996	44	21.6%	21.4%	24	30.6%	30.5%	1	50.0%	49.5%	19	8.8%	8.5%
1997	77	30.0%	30.2%	48	35.4%	35.4%	5	12.8%	13.6%	24	22.8%	23.3%
1998	28	-1.1%	0.0%	13	-4.2%	-2.9%	11	2.6%	3.2%	4	-1.1%	0.8%
1999	28	3.8%	3.5%	3	8.1%	7.2%	16	2.0%	1.4%	9	5.6%	6.2%
2000	37	5.7%	6.2%	3	12.6%	15.8%	24	6.4%	6.7%	10	2.1%	2.3%
2001	30	3.4%	3.2%	0	-	-	19	4.8%	3.9%	11	1.1%	2.0%
2002	46	5.8%	5.7%	0	-	-	33	5.8%	5.8%	13	6.0%	5.6%
2003	37	12.5%	12.4%	0	-	-	16	5.8%	5.5%	21	17.6%	17.7%
2004	31	4.8%	4.7%	0	-	-	7	4.8%	4.7%	24	6.3%	6.1%
2005	52	3.6%	3.5%	0	-	-	7	3.6%	3.5%	45	4.6%	4.4%
All	410			91	-	-	139			180		
%	100%			22.2%			33.9%			43.9%		

Table 3.7. Descriptive Statistics of Control Variables in Testing IPO Underpricing for All Offer Methods (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 410 Hong Kong Main Board listed IPOs from 1996 to 2005 where the complete data on all of the variables is available, including 89 Chinese IPOs and 321 non-Chinese IPOs. The dependent variables in all regressions are the **Initial Returns (IR)** and **Market-adjusted Initial Returns (MIR)** of new shares. The **PRE-DAY is** number of days between the close of subscription application to the offering date. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **RANK** is the reputation ranks of underwriters. The **TOP_UNDWR** is the Dummy variable of local top underwriters, equal to one if the lead sponsor(s) is one of the following investment banks: Bank of China International, HSBC, Deutsche Bank, Merrill Lynch, CICC, Morgan Stanley, Credit Suisse First Boston, Goldman Sachs, Industrial and Commercial Bank Asia, and JP Morgan; zero otherwise. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **NO_IPO** is number of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering. For dummy variables, the table also reports the number of observations with the dummy equal to 1, and the correspondent proportions to the whole sample.

Panel A. All Sample

	PRE-DAY	CHN	SUBSCRP	SIZE	AGE	RANK	TOP_UNDWR	RTN_IPO	NO_IPO	RTN_MKT	VOL_MKT
Mean	8	-	67.64	19.34	2.43	4.98	-	0.12	11	0.01	0.01
Median	7	-	11.67	18.77	2.40	4.00	-	0.07	10	0.01	0.02
Max	21	-	1276.00	24.99	4.62	9.00	-	0.69	27	0.07	0.20
Min	3	-	0.06	17.73	0.00	1.00	-	-0.13	1	0.00	-0.37
S.D	2.52	0.41	149.27	1.58	0.80	3.01	0.45	0.16	5.69	0.01	0.07
Skewness	1.25	1.38	4.18	1.02	-0.24	0.19	1.02	1.34	0.75	2.36	-1.02
Kurtosis	2.32	-0.10	21.35	0.41	1.12	-1.70	-0.96	1.41	-0.08	1.04	4.03
No. of Dummy=1	-	89	-	-	-	-	112	-	-	-	-
% of Dummy=1	-	21.7%	-	-	-	-	27.3%	-	-	-	-

Panel B. Pure-Fix

	PRE-DAY	CHN	SUBSCRP	SIZE	AGE	RANK	TOP_UNDWR	RTN_IPO	NO_IPO	RTN_MKT	VOL_MKT
Mean	10	-	76.32	18.38	2.58	4.38	-	0.25	15	0.02	0.01
Median	10	-	26.40	18.23	2.48	3.00	-	0.27	15	0.01	0.02
Max	17	-	892.00	20.26	3.85	9.00	-	0.69	26	0.07	0.18
Min	5	-	0.42	17.73	1.39	1.00	-	-0.13	3	0.01	-0.33
S.D	2.34	0.25	143.04	0.56	0.51	2.83	0.35	0.20	5.91	0.01	0.09
Skewness	0.56	3.56	3.61	1.03	0.04	0.65	2.08	0.04	-0.03	1.79	-1.12
Kurtosis	0.26	10.89	15.21	0.85	0.10	-1.30	2.36	-0.64	-0.90	4.95	2.37
No. of Dummy=1	-	6	-	-	-	-	13	-	-	-	-
% of Dummy=1	-	6.6%	-	-	-	-	14.3%	-	-	-	-

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Panel C. Fixed-Price

	PRE-DAY	CHN	SUBSCRP	SIZE	AGE	RANK	TOP_UNDWR	RTN_IPO	NO_IPO	RTN_MKT	VOL_MKT
Mean	9	-	33.37	18.30	2.39	3.06	-	0.06	9	0.01	0.01
Median	8	-	4.52	18.06	2.40	2.00	-	0.04	8	0.01	0.01
Max	21	-	652.58	21.13	4.22	9.00	-	0.66	25	0.03	0.20
Min	4	-	0.52	17.73	0.00	1.00	-	-0.12	2	0.00	-0.18
S.D	2.77	0.19	80.69	0.71	0.73	2.25	0.31	0.12	3.88	0.01	0.07
Skewness	1.49	5.04	4.76	1.74	-0.56	1.80	2.56	2.36	0.85	0.87	0.06
Kurtosis	3.20	23.73	28.66	2.76	1.60	1.97	4.59	7.71	1.62	0.71	0.52
No. of Dummy=1	-	5	-	-	-	-	15	-	-	-	-
% of Dummy=1	-	3.6%	-	-	-	-	10.8%	-	-	-	-

Panel D. Bookbuilding

	PRE-DAY	CHN	SUBSCRP	SIZE	AGE	RANK	TOP_UNDWR	RTN_IPO	NO_IPO	RTN_MKT	VOL_MKT
Mean	7	-	89.39	20.63	2.39	6.78	-	0.10	11	0.01	0.01
Median	7	-	17.49	20.60	2.42	7.67	-	0.07	10	0.01	0.02
Max	15	-	1276.00	24.99	4.62	9.00	-	0.65	27	0.06	0.18
Min	3	-	0.06	17.75	0.00	1.00	-	-0.13	1	0.00	-0.37
S.D	1.84	0.50	184.40	1.48	0.94	2.55	0.50	0.14	5.91	0.01	0.07
Skewness	1.38	0.27	3.61	0.32	-0.01	-0.99	0.13	1.79	0.80	3.80	-1.72
Kurtosis	3.36	-1.95	15.27	0.14	0.35	-0.44	-2.00	3.58	-0.01	2.67	8.05
No. of Dummy=1	-	78	-	-	-	-	84	-	-	-	-
% of Dummy=1	-	43.3%	-	-	-	-	46.7%	-	-	-	-

Table 3.8. Correlation Matrix of Control Variables in Testing IPO Underpricing for All Offer Methods (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 410 Hong Kong Main Board listed IPOs from 1996 to 2005 where the complete data on all of the variables is available, including 89 Chinese IPOs and 321 non-Chinese IPOs. The dependent variables in all regressions are the **Initial Returns (IR)** and **Market-adjusted Initial Returns (MIR)** of new shares. The **PRE-DAY is** number of days between the close of subscription application to the offering date. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **RANK** is the reputation ranks of underwriters. The **TOP_UNDWR** is the Dummy variable of local top underwriters, equal to one if the lead sponsor(s) is one of the following investment banks: Bank of China International, HSBC, Deutsche Bank, Merrill Lynch, CICC, Morgan Stanley, Credit Suisse First Boston, Goldman Sachs, Industrial and Commercial Bank Asia, and JP Morgan; zero otherwise. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **NO_IPO** is number of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering.

	PRE-DAY	CHN	SUBSCRP	SIZE	AGE	RANK	TOP_UNDWR	RTN_IPO	NO_IPO	RTN_MKT	VOL_MKT
No. of days bet. appl. Close day to listing date	1.00										
CHN	-0.05	1.00									
Public Subscription Multiple	-0.04	0.21	1.00								
Ln (Fund Raised)	-0.07	0.62	0.15	1.00							
ln(Age)	-0.01	0.01	0.08	-0.01	1.00						
Ranking	-0.08	0.40	0.15	0.43	0.03	1.00					
Top Banker dummy	-0.05	0.26	-0.02	0.40	-0.02	0.66	1.00				
Recent IPO Rtn	0.03	0.12	0.34	0.10	0.02	0.15	-0.01	1.00			
No Recent IPO	-0.06	0.11	0.13	0.09	0.07	0.14	-0.05	0.42	1.00		
20D Mkt Rtn	0.04	-0.09	-0.17	-0.19	-0.02	-0.12	-0.09	-0.09	0.09	1.00	
20D Mkt Daily Volatility	-0.02	0.01	0.08	-0.02	-0.05	0.06	0.01	0.08	-0.15	-0.26	1.00

Table 3.9 Comparison of Control Variables between Chinese and non-Chinese IPOs for All Offer Methods (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 410 Hong Kong Main Board listed IPOs from 1996 to 2005 where the complete data on all of the variables is available, including 89 Chinese IPOs and 321 non-Chinese IPOs. The dependent variables in all regressions are the **Initial Returns (IR)** and **Market-adjusted Initial Returns (MIR)** of new shares. The **PRE-DAY is** number of days between the close of subscription application to the offering date. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **RANK** is the reputation ranks of underwriters. The **TOP_UNDWR** is the Dummy variable of local top underwriters, equal to one if the lead sponsor(s) is one of the following investment banks: Bank of China International, HSBC, Deutsche Bank, Merrill Lynch, CICC, Morgan Stanley, Credit Suisse First Boston, Goldman Sachs, Industrial and Commercial Bank Asia, and JP Morgan; zero otherwise. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **NO_IPO** is number of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering. *t*-statistics is reported in brackets.

	All IPOs		**CHN**		**NON-CHN**		***t-value***
	Mean	*Median*	*Mean*	*Median*	*Mean*	*Median*	(mean)
IR	0.12	0.04	0.19	0.06	0.09	0.04	(2.47)*
MIR	0.12	0.04	0.20	0.06	0.09	0.03	(2.50)*
PRE-DAY	8	7	7	7	8	8	(-5.02)*
SUBSCRP	67.64	11.67	127.73	32.50	50.83	10.18	(4.39)*
SIZE	19.34	18.77	21.21	21.07	18.82	18.39	(16.14)*
AGE	2.43	2.40	2.44	2.45	2.43	2.40	(0.12)
RANK	4.98	4.00	7.26	7.67	4.36	3.00	(8.75)*
TOP_UNDWR	112	27.3%	44	49.4%	68	21.2%	(5.47)*
RTN_IPO	12.1%	7.0%	15.8%	9.6%	11.1%	6.6%	(2.40)*
NO_IPO	11	10	12	11	11	10	(2.22)*
RTN_MKT	1.4%	1.2%	1.3%	1.1%	1.4%	1.3%	(-1.76)
VOL_MKT	0.01	0.02	0.01	0.02	0.01	0.01	0.13

Table 3.10 Results of Cross-sectional Regressions in Testing IPO Underpricing for All Offer Methods (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 410 Hong Kong Main Board listed IPOs from 1996 to 2005 where the complete data on all of the variables is available. The dependent variable in all regressions is the **Initial Returns (IR)** and **Market-adjusted Initial Returns (MIR)** of new shares. The **PRE-DAY is** number of days between the close of subscription application to the offering date. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **RANK** is the reputation ranks of underwriters. The **TOP_UNDWR** is the Dummy variable of local top underwriters, equal to one if the lead sponsor(s) is one of the following investment banks: Bank of China International, HSBC, Deutsche Bank, Merrill Lynch, CICC, Morgan Stanley, Credit Suisse First Boston, Goldman Sachs, Industrial and Commercial Bank Asia, and JP Morgan; zero otherwise. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **NO_IPO** is number of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering. The *t*-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent method.

	All Methods			
	IR		**MIR**	
Constant	1.216	1.031	1.231	1.044
	*(3.93)**	*(3.36)**	*(3.99)**	*(3.40)**
PRE-DAY	-0.014	-0.015	-0.015	-0.015
	*(-2.10)**	*(-2.21)**	*(-2.19)**	*(-2.30)**
CHN	0.134	0.138	0.134	0.138
	*(2.75)**	*(2.82)**	*(2.76)**	*(2.83)**
SIZE	-0.063	-0.050	-0.063	-0.050
	*(-4.05)**	*(-3.34)**	*(-4.07)**	*(-3.35)**
AGE	-0.028	-0.030	-0.026	-0.028
	(-1.42)	*(-1.54)*	*(-1.32)*	*(-1.44)*
RANK	0.021		0.021	
	*(3.08)**		*(3.12)**	
TOP_UNDWR		0.073		0.074
		(1.78)		*(1.80)*
RTN_IPO	0.562	0.589	0.567	0.594
	*(5.17)**	*(5.38)**	*(5.22)**	*(5.43)**
NO_IPO	0.001	0.003	0.001	0.003
	(0.43)	*(0.81)*	*(0.42)*	*(0.81)*
RTN_MKT	-4.259	-4.155	-4.218	-4.113
	(-1.95)	*(-1.89)*	*(-1.94)*	*(-1.87)*
VOL_MKT	0.557	0.624	0.487	0.554
	*(2.45)**	*(2.74)**	*(2.14)**	*(2.44)**
R^2	0.17	0.16	0.17	0.16

Table 3.11 Comparisons of Public Subscription Multiples, Price Revisions (Hanley and Cornelli-Goldreich Measures), Initial Returns and Market-adjusted Initial Returns between Chinese and Non-Chinese Bookbuilding IPOs by Years (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

	(1) Public Subscription			(2) Price Revision (Hanley)			(3) Price Revision (CG)			(4) Mkt-adj Initial Return (MIR)		
	All	***CHN***	***Non-CHN***	***All***	***CHN***	***Non-CHN***	***All***	***CHN***	***Non-CHN***	***All***	***CHN***	***Non-CHN***
1996	40.15	53.59	25.21	0.07%	0.03%	0.11%	50.47%	46.91%	54.42%	8.49%	13.42%	3.01%
1997	148.66	175.55	83.37	1.37%	2.71%	-1.89%	60.03%	72.63%	29.44%	23.30%	31.45%	3.50%
1998	10.02	2.25	12.61	-1.26%	0.21%	-1.75%	37.75%	50.98%	33.33%	0.81%	3.91%	-0.22%
1999	20.26	28.36	10.13	4.29%	2.50%	6.53%	67.78%	68.66%	66.67%	6.19%	1.95%	11.50%
2000	14.85	11.68	18.01	2.04%	0.75%	3.33%	67.52%	64.61%	70.43%	2.29%	-0.20%	4.78%
2001	48.69	44.68	53.50	4.65%	6.04%	2.98%	72.83%	86.83%	56.03%	1.98%	8.82%	-6.22%
2002	24.25	11.38	32.30	-1.84%	1.96%	-4.21%	47.42%	58.17%	40.70%	5.63%	5.18%	5.92%
2003	139.44	196.81	76.33	4.34%	8.25%	0.05%	71.21%	87.76%	53.00%	17.71%	20.32%	14.84%
2004	137.09	306.65	80.57	2.97%	3.56%	2.78%	62.62%	65.05%	61.81%	6.14%	9.78%	4.93%
2005	96.01	84.80	100.08	0.34%	2.22%	-0.34%	54.75%	57.73%	53.67%	4.42%	3.92%	4.60%
All	89.39	116.28	68.83	1.63%	3.17%	0.45%	59.53%	67.71%	53.28%	8.97%	13.97%	5.16%

Table 3.12 Distribution of Public Subscription Multiples and Mean of Variables for Bookbuilding IPOs (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 180 Hong Kong Main Board listed IPOs by bookbuilding from 1996 to 2005 where the complete data on all of the variables is available, including 78 Chinese IPOs and 102 non-Chinese IPOs. The **IR** is the initial returns of IPOs, while **MIR** is the correspondent market-adjusted initial return. The **H-PR** and **CG-PR** are measures of the price revision during the price setig period, defined as the percentage difference between the midpoint of price range (or the lower limit of price range for CG-PR) and the offer price. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **INST_ALOT** is proportion of the institutional allocation. The **RANK** is the reputation ranks of underwriters. The **PR_WIDTH** is percentage width of preliminary price range. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering.

	(0, 1)	[1, 15)	[15, 50)	[50, 100)	[100, 200)	[200, +∞)
No. of IPOs	12	75	33	20	19	21
Public Subscription	0.448	4.702	28.839	75.341	142.550	504.157
PR (Hanley)	-0.057	-0.025	0.047	0.034	0.082	0.083
PR (Cornelli&Goldreich)	0.307	0.368	0.745	0.689	0.931	0.955
IR	-0.027	0.009	0.028	0.074	0.209	0.447
MIR	-0.030	0.010	0.033	0.073	0.210	0.446
No. of CHN	6	29	12	11	9	11
SIZE	20.901	20.447	20.797	20.496	20.792	20.783
AGE	2.855	2.287	2.429	2.347	2.448	2.485
PR-WIDTH	0.296	0.232	0.230	0.219	0.214	0.208
RANK	7.876	6.288	7.035	6.664	7.948	6.549
TOPUNDWR	7	34	18	8	12	5
RTN_IPO	0.034	0.088	0.104	0.101	0.131	0.174
RTN_MKT	0.012	0.013	0.012	0.011	0.011	0.009
VOL_MKT	0.008	0.003	0.000	-0.003	0.037	0.025

Table 3.13 Distribution of Price Revision in Bookbuilding Offerings and Means of Offering Characteristics (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 180 Hong Kong Main Board listed IPOs by bookbuilding from 1996 to 2005 where the complete data on all of the variables is available, including 78 Chinese IPOs and 102 non-Chinese IPOs. The **IR** is the initial returns of IPOs, while **MIR** is the correspondent market-adjusted initial return. The **H-PR** and **CG-PR** are measures of the price revision during the price setig period, defined as the percentage difference between the midpoint of price range (or the lower limit of price range for CG-PR) and the offer price. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **INST_ALOT** is proportion of the institutional allocation. The **RANK** is the reputation ranks of underwriters. The **PR_WIDTH** is percentage width of preliminary price range. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering. *t*-statistics is reported in brackets.

Panel A. Segmented by CG-PR

	$P_0 < P_L$ (CG_PR<0)		$P_L \le P_0 \le P_H$									$P_0 > P_H$ (CG_PR>1)
			All		$P_0 = P_L$ (CG_PR=0)		$P_L < P_0 < P_H$		$P_0 = P_H$ (CG_PR=1)		*t*-value	
	Mean	*s.d.*	*Mean*	*s.d.*	*Mean*	*s.d.*	*Mean*	*s.d.*	*Mean*	*s.d.*	*Hi v.s Lo*	
No of IPOs	3	-	177	-	21	-	102	-	54	-	-	0
IR	0.078	0.129	0.089	0.267	-0.043	0.157	0.035	0.132	0.242	0.397	(3.18)*	-
MIR	0.076	0.130	0.090	0.266	-0.039	0.140	0.036	0.132	0.241	0.398	(3.14)*	-
H-PR	-0.147	0.058	0.019	0.081	-0.094	0.051	0.008	0.073	0.083	0.037	(-13.97)*	-
CHN	1	-	77	-	4	-	49	-	24	-	(2.07)*	-
INST. ALLOT.	0.852	0.050	0.860	0.076	0.875	0.028	0.863	0.086	0.848	0.066	(-1.79)	-
RETL. ALLOT.	0.111	0.030	0.104	0.048	0.115	0.029	0.096	0.049	0.114	0.049	(-0.08)	-
SUBSCRP	25.219	35.188	90.482	185.734	3.937	4.610	54.105	124.688	192.851	262.163	(3.29)*	-
PR_WIDTH	0.192	0.081	0.231	0.110	0.214	0.131	0.258	0.107	0.186	0.089	(-1.10)	-
RANK	7.334	0.577	6.769	2.575	6.128	2.979	6.623	2.681	7.294	2.116	(1.90)	-
TOP UNDWR	0	-	84	-	11	-	51	-	22	-	(-0.90)	-
RTN IPO	0.078	0.183	0.102	0.142	0.056	0.070	0.083	0.132	0.157	0.164	(2.71)*	-
RTN MKT	0.009	0.003	0.012	0.006	0.015	0.013	0.011	0.005	0.011	0.004	(-1.95)	-
VOL MKT	-0.025	0.045	0.009	0.067	-0.046	0.102	0.012	0.056	0.023	0.059	(3.63)*	-

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Panel B. Segmented by H-PR

	H-PR < 0		H-PR = 0		0 > H-PR > 10%		H-PR > 10%		*t*-value
	Mean	*s.d.*	*Mean*	*s.d.*	*Mean*	*s.d.*	*Mean*	*s.d.*	*(-tive v.s +tive)*
No of IPOs	61	-	7	-	85	-	27	-	-
IR	-0.011	0.147	0.039	0.047	0.156	0.337	0.117	0.158	(-4.57)*
MIR	-0.010	0.142	0.035	0.057	0.156	0.338	0.120	0.154	(-4.63)*
CG-PR	0.110	0.197	0.286	0.267	0.848	0.158	0.977	0.045	(-23.14)*
CHN	20	0.473	2	0.488	42	0.503	14	0.509	(-2.10)*
SIZE	20.413	1.614	19.470	1.058	20.776	1.403	20.940	1.375	(-1.33)
AGE	2.472	0.911	2.413	1.040	2.350	1.005	2.356	0.809	(0.80)
INST. ALLOT.	0.872	0.065	0.876	0.046	0.849	0.086	0.864	0.063	(1.65)
RETL. ALLOT.	0.109	0.059	0.124	0.046	0.104	0.044	0.089	0.017	(0.88)
SUBSCRP	8.143	13.446	17.610	31.056	127.44	226.54	171.80	197.46	(-6.21)*
PR_WIDTH	0.260	0.124	0.161	0.182	0.191	0.079	0.302	0.069	(2.49)*
RANK	6.117	2.919	6.572	2.299	7.238	2.192	6.878	2.606	(-2.33)*
TOP UNDWR	27	0.501	1	0.378	42	0.503	14	0.509	(-0.46)
RTN IPO	0.085	0.125	0.044	0.070	0.125	0.167	0.093	0.095	(-1.34)
RTN MKT	0.013	0.009	0.016	0.007	0.011	0.004	0.011	0.004	(1.18)
VOL MKT	-0.007	0.075	0.030	0.058	0.016	0.050	0.010	0.087	(-2.01)*

Table 3.14 Descriptive Statistics for Variables in Testing Predictability of Price Revision and Underpricing for Bookbuilding IPOs (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 180 Hong Kong Main Board listed IPOs by bookbuilding from 1996 to 2005 where the complete data on all of the variables is available, including 78 Chinese IPOs and 102 non-Chinese IPOs. The **IR** is the initial returns of IPOs, while **MIR** is the correspondent market-adjusted initial return. The **H-PR** and **CG-PR** are measures of the price revision during the price setig period, defined as the percentage difference between the midpoint of price range (or the lower limit of price range for CG-PR) and the offer price. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **INST_ALOT** is proportion of the institutional allocation. The **RANK** is the reputation ranks of underwriters. The **PR_WIDTH** is percentage width of preliminary price range. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering.

Panel A. All

	IR	MIR	H-PR	CG-PR	INST_ ALLOT	PR_WI DTH	SIZE	AGE	RANK	TOP_U NDWR	RTN_ IPO	RTN_ MKT	VOL_ MKT	CHN
Mean	0.09	0.09	0.016	0.103	86.00%	23.00%	20.63	2.39	6.78	-	0.1	0.01	0.01	-
Median	0.03	0.04	0.037	0.132	90.00%	22.20%	20.6	2.42	7.67	-	0.07	0.01	0.02	-
Max	2.22	2.23	0.179	0.453	95.70%	59.20%	24.99	4.62	9	-	0.65	0.06	0.18	-
Min	-0.44	-0.4	-0.227	-0.125	33.70%	0.00%	17.75	0	1	-	-0.13	0	-0.37	-
S.D	0.26	0.26	0.08	0.10	0.08	0.11	1.48	0.94	2.55	0.5	0.14	0.01	0.07	0.5
Skewness	4.02	4.11	-0.61	0.39	-2.74	0.74	0.32	-0.01	-0.99	0.13	1.79	3.8	-1.72	0.27
Kurtosis	26.8	27.6	-0.32	-0.08	14.42	1.18	0.14	0.35	-0.44	-2	3.58	26.72	8.05	-1.95
No. of Dummy=1	-	-	-	-	-	-	-	-	-	84	-	-	-	78
% of Dummy=1	-	-	-	-	-	-	-	-	-	46.70%	-	-	-	43.30%

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Panel B. CHN

	IR	MIR	H-PR	CG-PR	INST_ ALLOT	PR_WI DTH	SIZE	AGE	RANK	TOP_U NDWR	RTN_ IPO	RTN_ MKT
Mean	0.14	0.14	0.032	0.145	87.30%	22.00%	21.45	2.41	7.41	-	0.14	0.01
Median	0.05	0.05	0.053	0.139	90.00%	21.30%	21.25	2.4	8	-	0.08	0.01
Max	2.22	2.23	0.156	0.453	95.70%	59.20%	24.99	4.6	9	-	0.65	0.06
Min	-0.19	-0.21	-0.188	-0.125	69.80%	0.00%	17.79	0	2	-	-0.13	0
S.D	0.35	0.35	0.08	0.10	0.06	0.11	1.43	1.09	1.94	0.5	0.16	0.01
Skewness	3.76	3.77	-0.88	0.27	-0.73	0.9	0.22	-0.07	-1.41	-0.21	1.08	4.45
Kurtosis	18.26	18.36	0.28	0.24	-0.52	1.9	0.25	-0.24	1.41	-2.01	0.98	28.48
No. of Dummy=1	-	-	-	-	-	-	-	-	-	43	-	-
% of Dummy=1	-	-	-	-	-	-	-	-	-	55.10%	-	-

Panel C. NON-CHN

	IR	MIR	H-PR	CG-PR	INST_ ALLOT	PR_WI DTH	SIZE	AGE	RANK	TOP_U NDWR	RTN_ IPO	RTN_ MKT
Mean	0.05	0.05	0.004	0.123	85.00%	23.70%	20	2.38	6.3	-	0.08	0.01
Median	0.02	0.02	0.024	0.123	90.00%	22.80%	20.08	2.48	7	-	0.05	0.01
Max	0.53	0.52	0.179	0.438	91.30%	58.80%	23.1	4.62	9	-	0.63	0.03
Min	-0.44	-0.4	-0.227	-0.053	33.70%	0.00%	17.75	0	1	-	-0.1	0
S.D	0.17	0.16	0.09	0.10	0.08	0.11	1.19	0.82	2.85	0.49	0.12	0.01
Skewness	0.32	0.42	-0.42	0.50	-3.31	0.63	-0.01	0.07	-0.66	0.41	2.79	1.34
Kurtosis	1.46	1.3	-0.53	-0.19	16.49	0.89	-0.6	1.04	-1.22	-1.87	9.94	1.47
No. of Dummy=1	-	-	-	-	-	-	-	-	-	41	-	-
% of Dummy=1	-	-	-	-	-	-	-	-	-	40.20%	-	-

Table 3.15 Correlation Matrix for Variables in Testing Predictability on Price Revision and Underpricing for Bookbuilding IPOs (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 180 Hong Kong Main Board listed IPOs by bookbuilding from 1996 to 2005 where the complete data on all of the variables is available, including 78 Chinese IPOs and 102 non-Chinese IPOs. The **PR** is measures of the price revision during the price setig period, defined as the percentage difference between the midpoint of price range and the offer price. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **INST_ALOT** is proportion of the institutional allocation. The **RANK** is the reputation ranks of underwriters. The **PR_WIDTH** is percentage width of preliminary price range. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering.

	PRE-DAY	SIZE	AGE	INST_ ALLOT	SUBS CRP	PR_ WIDTH	PR	RANK	TOP_ UNDWR	RTN_ IPO	NO_ IPO	RTN_ MKT	VOL_ MKT	CHN
PRE-DAY	1.00													
SIZE	-0.14	1.00												
AGE	-0.15	0.48	1.00											
INST_ ALLOT	-0.03	0.01	0.06	1.00										
SUBSCRP	0.21	-0.14	-0.25	-0.02	1.00									
PR_WIDTH	-0.05	0.13	0.03	0.07	-0.01	1.00								
PR	0.03	-0.08	-0.07	0.09	-0.21	-0.11	1.00							
RANK	-0.08	0.16	0.22	0.03	-0.08	0.33	-0.15	1.00						
TOP_UNDWR	-0.16	0.22	0.45	0.07	-0.03	-0.01	-0.19	0.24	1.00					
RTN_IPO	-0.05	0.15	0.45	-0.06	-0.28	-0.18	-0.06	0.12	0.52	1.00				
NO_IPO	0.01	0.20	0.18	-0.17	0.29	0.31	-0.22	0.13	0.18	-0.04	1.00			
RTN_MKT	-0.02	0.10	0.07	0.01	0.11	0.08	-0.18	-0.06	0.09	-0.10	0.35	1.00		
VOL_MKT	-0.13	0.10	0.11	-0.05	0.07	-0.16	-0.12	-0.08	0.10	0.05	0.00	0.16	1.00	
CHN	-0.08	0.01	-0.01	-0.05	-0.10	0.09	0.08	0.09	0.09	-0.02	0.06	-0.10	-0.37	1.00

Table 3.16 Results of Cross-sectional Regressions in Testing Price Revision for Bookbuilding IPOs (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 410 Hong Kong Main Board listed IPOs from 1996 to 2005 where the complete data on all of the variables is available. The dependent variable in all regressions is the **Price Revision (PR)**, defined as the percentage difference between the midpoint of price range and the offer price. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **INST.ALOT** is proportion of the institutional allocation. The **RANK** is the reputation ranks of underwriters. The **PR-WIDTH** is percentage width of preliminary price range. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering. The *t*-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent method.

	***Price Revision* (PR)**		
Constant	-0.0232	-0.0405	0.0475
	(-0.19)	*(-0.34)*	*(0.38)*
CHN	0.0110	0.0167	0.0189
	(181)	*(1.98)**	*(2.05)**
SIZE	0.0054	0.0101	0.0040
	(1.03)	*(2.16)**	*(1.74)*
AGE	-0.0033	-0.0006	-0.0013
	(-0.51)	*(-0.10)*	*(-0.20)*
INST.ALOT	-0.1156	-0.1836	-0.1871
	(-1.41)	*(-2.22)**	*(-2.29)**
SUBSCRP	0.0001		
	*(4.23)**		
PR-WIDTH	-0.0569		
	(-1.00)		
RANK	0.0061		0.0061
	*(2.16)**		*(2.13)**
RTN-IPO	0.0493		
	(1.09)		
RTN-MKT	0.5340		
	(0.52)		
VOL-MKT	0.0395		
	(0.42)		
$\mathbf{R^2}$	0.20	0.08	0.10

Table 3.17 Institutional Allocation and Institutional Profits for Bookbuilding IPOs (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 180 Hong Kong Main Board listed IPOs by bookbuilding from 1996 to 2005 where the complete data on all of the variables is available, including 78 Chinese IPOs and 102 non-Chinese IPOs. The **INST_ALLOT** is the proportion of institutional allocation of new shares. **Institutional Profit** is calculated as shares hold by institutional investors multiplied by the difference between the offer price and first day closing price. The **Institutional Profit Ratio** therefore is equivalent to the initial return of IPOs. The **IR** is the initial returns of IPOs, while **MIR** is the correspondent market-adjusted initial return. The **PR** is measures of the price revision during the price setig period, defined as the percentage difference between the midpoint of price range and the offer price. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **INST_ALOT** is proportion of the institutional allocation. The **RANK** is the reputation ranks of underwriters. The **PR_WIDTH** is percentage width of preliminary price range. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering. *t*-statistics is reported in brackets.

	Column (1) Segmented by Median Institutional Allocation (Median INST.ALLOT=90%)			Column (2) Segmented by Exercise of Overallotment Option (Whether the option is exercised)			Column (3) Segmented by Median Institutional Profits (Median=HKD18.448 mil)			Column (4) Segmented by Zero Institutional Return (Inst. Prof Ratio = 0)		
	INST. ALLOT. < 90%	**INST. ALLOT. ≥ 90%**		**Not Be Exercised**	**Be Exercised**		**INST. PROF. < Median**	**INST. ALLOT. ≥ Median**		**INST. PROF. Ratio ≤ 0**	**INST. ALLOT. Ratio > 0**	
	Mean	***Mean***	***t-value***	***Mean***	***Mean***	***t-value***	***Mean***	***Mean***	***t-value***	***Mean***	***Mean***	***t-value***
No. of IPOs	86	94	-	72	108	-	90	90	-	52	128	-
IR	0.126	0.055	*(1.80)*	-0.042	0.176	*(-6.82)**	-0.049	0.226	(-8.14)*	-0.106	0.168	-
MIR	0.126	0.057	*(1.77)*	-0.042	0.177	*(-6.89)**	-0.046	0.226	(-8.06)*	-0.1	0.167	-
INST. PROF.	242.426	61.961	*(1.41)*	-134.217	336.45	*(-4.06)**	-	-	-	-283.738	323.651	-
CHN	34	44	*(-0.98)*	24	54	*(-2.25)**	29	49	(-3.07)*	20	58	*(-1.84)*
SIZE	20.809	20.46	*(1.60)*	19.974	21.062	*(-4.99)**	20.093	21.16	(-5.15)*	20.658	20.614	*(0.18)*
AGE	2.577	2.228	*(2.52)**	2.198	2.526	*(-2.29)**	2.256	2.533	(-1.99)	2.136	2.5	*(-2.48)**
INST.ALLOT	-	-	-	0.886	0.843	*(4.18)**	0.872	0.847	(2.27)*	0.882	0.851	*(2.75)**
SUBSCRP	122.283	59.305	*(2.31)**	16.468	138.012	*(-5.55)**	28.003	150.786	(-4.73)*	20.408	117.42	*(-4.93)**
PR_WIDTH	0.207	0.251	*(-2.81)**	0.245	0.22	*(1.36)*	0.24	0.219	(1.29)	0.237	0.227	*(0.49)*
PR	0.029	0.004	*(2.01)**	-0.034	0.05	*(-7.11)**	-0.017	0.05	(-5.83)*	-0.021	0.032	*(-3.81)**
RANK	6.859	6.704	*(0.41)*	5.771	7.45	*(-4.24)**	5.951	7.606	(-4.58)*	6.911	6.724	*(0.44)*
TOP UNDWR	37	47	*(-0.93)*	26	58	*(-2.36)**	35	49	(-2.11)*	26	58	*(-0.57)*
RTN IPO	0.109	0.098	*(0.55)*	0.091	0.112	*(-0.96)*	0.092	0.115	(-1.07)	0.12	0.096	*(0.93)*
RTN MKT	0.012	0.011	*(1.59)*	0.013	0.011	*(1.67)*	0.011	0.012	(-1.28)	0.011	0.014	*(-2.29)**
VOL MKT	0.003	0.013	*(-1.04)*	-0.001	0.014	*(-1.43)*	-0.008	0.024	(-3.39)*	-0.021	0.02	*(-3.14)**

Table 3.18 Comparison between Chinese and non-Chinese IPOs and Means of Offering Characteristics in Bookbuilding (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 180 Hong Kong Main Board listed IPOs by bookbuilding from 1996 to 2005 where the complete data on all of the variables is available, including 78 Chinese IPOs and 102 non-Chinese IPOs. The **IR** is the initial returns of IPOs, while **MIR** is the correspondent market-adjusted initial return. The **SUBSCRP** is the public subscription multiples. The **INST_ALLOT** is the proportion of institutional allocation of new shares. The **H-PR** and **CG-PR** are measures of the price revision during the price setig period, defined as the percentage difference between the midpoint of price range (or the lower limit of price range for CG-PR) and the offer price. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **INST_ALOT** is proportion of the institutional allocation. The **RANK** is the reputation ranks of underwriters. The **PR_WIDTH** is percentage width of preliminary price range. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering. *t*-statistics is reported in brackets.

	Column (1) Separated by Zero IR			**Column (2) Separated by Median IR**		
	MIR ≤ 0	**MIR > 0**		**MIR ≤ 3.49%**	**MIR > 3.49%**	
	Mean	***Mean***	***t-value***	***Mean***	***Mean***	***t-value***
IR	-0.106	0.168	-	-0.055	0.233	-
MIR	-0.100	0.167	-	-0.053	0.232	-
SIZE	20.658	20.614	*(0.18)*	20.522	20.731	*(-0.94)*
AGE	2.136	2.5	*(-2.48)**	2.393	2.396	*(-0.22)*
CHN	20	58	*(-1.84)*	34	44	*(-1.51)*
INST. ALLOT.	0.882	0.851	*(2.75)**	0.878	0.842	*(3.33)**
SUBSCRP	20.408	117.42	*(-4.93)**	23.371	155.418	*(-5.13)**
PR_WIDTH	0.237	0.227	*(0.49)*	0.242	0.218	*(1.52)*
H-PR	-0.021	0.032	*(-3.81)**	-0.009	0.041	*(-4.22)**
CG-PR	0.4301	0.6779	*(-3.99)**	0.442	0.748	*(-5.47)**
RANK	6.911	6.724	*(0.44)*	6.502	7.055	*(-1.46)*
TOP UNDWR	26	58	*(-0.57)*	41	43	*(-0.30)*
RTN IPO	0.12	0.096	*(0.93)*	0.092	0.115	*(-1.08)*
RTN MKT	0.011	0.014	*(-2.29)**	0.011	0.012	*(-1.59)*
VOL MKT	-0.021	0.02	*(-3.14)**	-0.011	0.028	*(-4.09)**

Table 3.19 Results of Cross-sectional Regressions in Testing Initial Returns for Bookbuilding IPOs (Hong Kong Main Board, Jan. 1996 – Dec. 2005)

The Sample includes 180 Hong Kong Main Board listed IPOs by bookbuilding from 1996 to 2005 where the complete data on all of the variables is available. The dependent variable in all regressions is the **Initial Returns (IR)** and **Market-adjusted Initial Returns (MIR)** of new shares. The **CHN** is the dummy variable equal to one if the issuing firm is either Red Chip or H-share stock, and zero otherwise. The **SIZE** is the natural logarithm of fund raised in the equity offering. The **AGE** is the natural logarithm of the years since the firm's founding date or incorporating date as of the IPO. The **INST_ALOT** is proportion of the institutional allocation. The **RANK** is the reputation ranks of underwriters. The **PR_WIDTH** is percentage width of preliminary price range. The **H-PR** and **CG-PR** are measures of the price revision during the price setig period, defined as the percentage difference between the midpoint of price range (or the lower limit of price range for CG-PR) and the offer price. The **RTN_IPO** is average initial returns of IPOs which going public in three months before the offering date. The **RTN-MKT** is return of Hang Seng Index twenty trading days before the offering. And the **VOL_MKT** is daily volatility of Hang Seng Index twenty trading days before the offering. The *t*-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent method.

	IR			**MIR**		
	Model (1.a)	***Model (2.a)***	***Model (3.a)***	***Model (1.b)***	***Model (2.b)***	***Model (3.b)***
Constant	0.108	0.175	0.052	0.094	0.160	0.034
	(0.28)	(0.48)	(0.14)	(0.24)	(0.43)	(0.09)
CHN	0.051	0.052	0.043	0.051	0.052	0.043
	(2.20)	(2.24)	(2.05)	(2.20)	(2.23)	(2.05)
SIZE	-0.004	-0.002	-0.001	-0.004	-0.002	-0.001
	(-0.27)	(-0.11)	(-0.06)	(-0.25)	(-0.10)	(-0.05)
AGE	-0.039	-0.041	-0.045	-0.038	-0.040	-0.044
	(-1.98)*	(-2.10)*	(-2.35)*	(-1.97)*	(-2.04)*	(-2.29)*
INST.ALLOT	-0.140	-0.161	-0.114	-0.119	-0.140	-0.093
	(-0.55)	(-0.64)	(-0.46)	(-0.47)	(-0.55)	(-0.37)
PR_WIDTH	-0.259	-0.259	-0.272	-0.262	-0.261	-0.276
	(-1.47)	(-1.47)	(-1.59)	(-1.48)	(-1.48)	(-1.60)
H-PR	0.546	0.546		0.567	0.567	
	(2.42)*	(2.43)*		(2.51)*	(2.51)*	
CG-PR			0.171			0.175
			(3.72)*			(3.80)*
RANK	-0.009	-0.012	-0.012	-0.009	-0.012	-0.012
	(-0.97)	(-1.35)	(-1.42)	(-0.96)	(-1.32)	(-1.39)
TOP	-0.029			-0.029		
	(-0.66)			(-0.64)		
RTN_IPO	0.492	0.509	0.479	0.490	0.507	0.476
	(3.62)*	(3.82)*	(3.67)*	(3.59)*	(3.79)*	(3.63)*
RTN_MKT	3.083	2.941	2.122	2.895	2.756	1.926
	(0.98)	(0.94)	(0.69)	(0.92)	(0.88)	(0.62)
VOL_MKT	0.966	0.983	0.914	0.865	0.882	0.811
	(3.28)*	(3.36)*	(3.18)*	(2.93)*	(3.00)*	(2.82)*
R^2	0.247	0.245	0.278	0.235	0.234	0.268

CHAPTER IV

THE ACCURACY AND RATIONALITY OF PROFIT FORECASTS IN IPO PROSPECTUSES – AN EMPIRICAL ANALYSIS IN HONG KONG

4.1 Introduction

Profit forecasts disclosed in prospectuses for IPOs provide important information to evaluate a company's performance and in assisting the prospective investors to decide whether to subscribe to the offered shares. New issues in many current and former British Commonwealth nations often publish profit forecasts in their prospectuses. Firth (1998) demonstrates that profit forecasts can be an extremely crucial signal for company valuation, and public disclosure of forecasts can reduce information asymmetry between managers and investors, hence lower the agency costs. However, in order for the earnings forecasts to be credible or useful, they need to be accurate. Some of the listed companies are found to have a wide gap between their actual earnings and what they have been forecasted in their respective prospectuses (Kwok, 1994).

One of the purposes of this study is to examine the accuracy of earnings forecasts released in IPO prospectuses by using firms listed on the Main Board in Hong Kong. This chapter highlights the difference between Chinese and non-Chinese firms, comparing their strategies of earnings management. The research is worthwhile since profit forecasts are the major valuation parameter for IPOs and knowledge of the general level of forecast accuracy is important for investors, regulators, and policy makers. Previous research in Hong Kong and elsewhere has yielded mixed findings on the accuracy of IPO profit forecasts, thus additional studies are warranted to shed more light on the issue. This study evaluates the reliability of earnings forecasts made in the prospectuses by IPO companies.

Meanwhile, the IPO underperformance in the long run is observed as an anomaly in the stock markets around the world. According to Ritter (1991), the relationship between the long-run underperformance and the short-run underpricing phenomenon is an unresolved mystery in the IPO literature, though these puzzling occurrences have prompted substantial research to investigate the causes of IPO underpricing. Moreover, little attention has been paid to the long-run differences between those IPOs that are under or over-priced. The majority of literature assumes management knows what the market value will be after listing; this may be a tenuous assumption in many settings. Therefore, apart from short-run tests for underpricing, this chapter will also discuss the IPO long-run underperformance.

Based on the asymmetric information assumption, this chapter incorporates the agency problem theory, signaling hypothesis, Welch's (1992) investors sentiment hypothesis, De Bondt and Thaler's (1990) overreaction hypothesis, Miller's (1977) divergence of opinion hypothesis, and Loughran and Ritter (1995) the windows of opportunities hypothesis.

The tested framework is designed as follow. Since the reliability of profit forecasts will be of important concern to investors, this chapter begins with testing the accuracy of IPO profits forecasts by using various measures. Then once the level of forecasting errors is discovered, it is necessary to investigate whether the management forecasting in IPO prospectuses is more accurate since managers are normally assumed to have better knowledge of the issuing firm than other do. In addition, due to much of the information in a prospectus is voluntarily disclosed, De Bondt and Thaler's (1990) theory is used to capture the bias and rationality of the earnings forecasts. Then the cross-sectional test is adopted to identify the determinants of forecasting accuracy magnitude. However, the question remains that, whether investors in the market can discover biases in forecasts or whether investors can rationally incorporate the level of forecasting accuracy when they make investment decisions. In other words, the followed section turns to investigate the relationship between forecast errors and the short-term underpricing phenomenon as well as the long-run IPO trading performance. Tests not solely incorporate variables representing whether actual earnings are above or below expectations, but links the magnitude forecasting errors with IPO performance. It is expected

that if the forecasts prove to be inaccurate, abnormal returns occur, which will affect the investors' expectations as well as long-run returns.

This chapter uses a sample of 256 IPOs listed on the Hong Kong Stock Exchange Main Board from 2000 to 2006, including both forecasting (172) and non-forecasting (84) observations. According to the empirical results, the mean of IPO profit forecasts error in prospectuses is about 5.4%, indicating the forecasted profits are slightly lower than the actual profit on average. The magnitude of forecasting errors, the absolute forecast error, is about 10%, which is consistent with prior studies in Chen et al. (2000). Although forecast errors exist, the management's forecasting has superiority over popular time-series forecasting models. The result shows evidence of a possible agency problem where, issuing firms have better knowledge than others, which yields the opportunity to seek additional benefits when they report the profit forecasting in initial offerings.

In the further tests for rationality of profit forecasts, De Bondt and Thaler's (1990) behavioural model of analyst forecasting bias is applied to management forecasts. The results demonstrate a pessimistic bias, and the significant slope coefficients of different portfolios, including all sample, H-shares and local firms, suggests forecasts are not rational in the sense that management correctly incorporates the available information (i.e. the historical profit) in its forecasts.

OLS cross-sectional regressions test various systematic determinants of the magnitude of forecasting accuracy. In which, proxies of higher level in *ex ante* uncertainty are inversely related to forecast accuracy, while China-related companies have a higher level of absolute forecast errors. Moreover, when the market is 'hot' and market conditions are more volatile, the managers have a strong incentive to incorrectly report profit forecast in prospectuses.

To test the relationship between forecast accuracy and short-run underpricing, this chapter conducts different portfolios to compare and contrast. By comparing the initial return and market-adjusted initial returns, in the first trading day, both forecasting and non-forecasting

IPOs have a similar level of underpricing, and the results are consistent with the whole sample in most of the tested years. The statistical insignificance between pessimistic and optimistic forecasting may due to the lag of first financial announcement, which is normally in three to six months after trading. However, the evidence suggests that if the forecast is over-biased, i.e. the forecasting error is excessive (higher than the median of the absolute forecast error), investors have the ability to adjust investment expectations, which results in extremely high underpricing.

To trace the effects of forecast accuracy to stock trading performance, the empirical section turns to conduct an event study during the first financial announcement period by using the cumulative abnormal returns of IPOs. According to Miller's (1977) theory, the empirical test includes a proxy of divergence of opinion, which is defined as the early-market volatility. For the whole sample, underpricing, IPOs' early-market volatility, market index volatility, and China-related background are significantly associated with abnormal returns. As far as portfolio of forecasting observations are concerned particularly, the result demonstrates that excessive forecast bias will have a short-term effect on stock prices since investors need time to discover the intrinsic value of the firm and adjust their expectation.

In terms of long-run investigation, this section directly tests the investors' sentiment hypothesis and divergence of opinion theory. In the first part, following prior literature of Ritter (1991) and Loughran and Ritter (1995), this chapter tests the long-run underperformance by using different abnormal return measures, the cumulative abnormal returns and buy-and-hold abnormal returns, which are adjusted by market indices as well as control firms matched by market value and industry. After three years of trading, IPOs significantly underperform than the benchmark. In addition, consistent with divergence of opinion theory, firms with higher initial returns actually underperform in the long-run, which is due to the initial overvaluation. Moreover, although only a few long-run performance measures are significant in the testing of performance difference between forecasting and non-forecasting firms, the magnitude of forecast errors still systematically affects the one-

year trading performance. And finally, all variables of divergence of opinion are powerful to partially explain the long-run underperformance of IPOs.

There are a number of contributions in this chapter. First, the chapter offers more detailed empirical evidence in testing the forecast accuracy as well as its effect to IPO performance in both the short run and the long run. Secondly, in testing the determination of forecast error magnitude, the study include new control variables, including public subscription times to simulate investors sentiment and an insider dummy to control the wealth effect and dilution effect. Thirdly, this chapter initially combines IPO forecast and the divergence of opinion hypothesis to explain the long-run underperformance. In addition, as an extension of Chapter 1, this study further investigates the characteristics of China-related companies' overseas listing. Moreover, the event study of IPO forecasting effect during the first financial announcement period will offer more topics to financial market studies. Finally, since the research is important as profit forecasts are the major valuation parameter for IPOs and so knowledge will benefit investors, issuing firms, regulators, and other market participants.

The chapter is arranged as follows: Section 3.2 will give an introduction of Hong Kong voluntary profit forecasting as well as short-sale constraint. Section 3.3 will be a literature review on a number of hypotheses. The methodology and research questions are summarized in Section 3.4, followed by Section 3.5, which is a data description. Empirical studies are in Section 3.6, including tests on forecasting accuracy, superiority, rationality, short-run effects, and long-run effects. The chapter will be concluded at the end.

4.2 Voluntary Profit Forecasting and Short Sale Constrains in Hong Kong

Empirical researches always take market specific features into accounts. Especially, to listing on HKEx, influences of market regulation and conventional practice act as constraints to mitigate management optimism on the earnings forecasts in IPO prospectuses. The profit forecasting information is voluntary in Hong Kong, which give managers' opportunities to take advantage from appropriately and effectively using forecasting information to market their IPOs. Meanwhile, only based on the short sale constrains, the theory of divergence of opinion can become a magnifying lens for the price discovery of IPOs. In particular, Miller (1977) proposes that divergence of opinion can lead to initial overvaluation and subsequent underperformance in markets with restricted short-selling. Because of the short sales constraints, optimistic investors have stronger wills to purchase shares whereas pessimistic investors mostly stay out of the market. In this case, an upward biased pricing level will exist at the beginning of trading. However, as short sale constraints are removed over time and the intrinsic value is found by the market, overpriced assets are likely to have underperformance in the long term. Consequently, this section provides further information on the profit forecasts disclosure in prospectuses and the short-sale constraints in Hong Kong.

4.2.1 Voluntary Disclosure in Hong Kong

The IPO process is similar to the practices in Australia, Britain, Malaysia, New Zealand, and Singapore, but contrasts with the US prior to 2004. American IPO shares are sometimes initially listed on an OTC market whereas in Hong Kong the shares are listed on the full exchange board. Moreover, in the US the precise offer price is not fixed in the prospectus but is instead set a day or so before share allocation and after the underwriter has measured the

likely demand. American IPO shares are often sold to specific clients of the underwriter and to specialist investors rather than the general public. The company, the underwriter, and other sponsors of the issue can communicate privately to these select investors and so the prospectus is of relatively less importance than in Hong Kong, where the prospectus is the only communication between the company and investors. In Hong Kong, the popularity of this practice has increased in recent years, as more than half of the offerings used bookbuilding after 2004. During half of the sample period, the use of this method is increasing but is still a small proportion. Nearly 70% of IPOs in the sample period chose fixed-price offerings whose offering price is determined before the subscription tranche opens. It is noted that, with the increased popularity of this offering method, gathering information during the bookbuilding process offers more meaning in pricing a new issue. Profits forecasts would appear to be important in fixing the issue price. Some authorities contend that the profit forecast is fundamentally important (Harford, 1969).

Companies that make new issues of shares in Hong Kong and list the shares on the Exchange must comply with the provisions of the Companies Ordinances and satisfy and abide by the requirements and rules of the Hong Kong Exchanges & Clearing Ltd. (HKEx). Initial public offerings, including Hong Kong companies, H-shares, or Red Chips[18], must be accompanied by a detailed prospectus which describes the terms of the share offer and discloses various prescribed pieces of information. Details of the offer that must be disclosed include the offer price, a number of shares to be sold, and the dates for the opening and closing of subscriptions. Details about the company include the operating and financial history of the company, business activities, pro-forma balance sheets, management team, major contractual obligations, debts and liabilities, future plans, planned uses of the issue proceeds, and names of the asset and property appraisers, auditors, bankers, underwriters and other advisers. Before 2004, IPOs were typically made at fixed offer prices and for a fixed quantity of shares. As the offer price is disclosed in the prospectus, it is in effect fixed two or

[18] H-shares and Red Chips are companies that list on the Stock Exchange of Hong Kong but have their principle operations and majority shareholders in China. Red Chips differ from H-shares in that they incorporate in Hong Kong and their senior management is often located there.

three weeks before the offer acceptance and share allocation takes place. Alternatively in the bookbuilding process, a preliminary price range is disclosed in the prospectus, and the final price is shown in the allotment announcement normally one day before the offering.

The offers are underwritten by financial institutions many of which are well known international firms. IPOs receive a lot of media coverage and are extensively reported in the popular press. Many IPO investors are non-professionals as it is very easy for the general public to subscribe to the new issue. The government as well as the stock exchange wants IPO shares to be sold to the general public so as to enhance market liquidity[19]. This characteristic of wide public ownership is common in current and former British Commonwealth countries. Issues are normally over-subscribed and companies have various schemes to allot the available shares. New issue shares generally start trading on the Stock Exchange of Hong Kong a day after the allotment of shares.

IPO prospectuses typically include a forecast of the current year's profit[20]. The profit forecast is made by the directors of the company and it is 'audited' by the reporting accountants to the issue (the reporting accountants are invariably the auditors). The 'audit' involves checking the calculations and ensuring the profit number is based on Hong Kong GAAP; the assumptions underlying the forecast are the sole responsibility of management. Although underwriters and other advisers (apart from the reporting accountants) are not directly involved with the profit forecast, they are, nevertheless, likely to assure themselves that the forecast has been adequately prepared and is free from deliberate bias. All the advisers to an IPO issue stand to damage their reputation and potentially incur litigation costs

[19] The Stock Exchange rules require that at least 25 percent of the share capital be in the hands of individual investors. Most Hong Kong IPOs issue the minimum number of shares to meet the 25 percent threshold. According to the investigation of Chan et al. (2001), the remaining 75 percent of shares are retained by the original owners who are often from the same family or family group; these shares are rarely traded. Over time the "75 percent family ownership" is diluted but a majority of Hong Kong listed companies still remain controlled by family groups.

[20] Although this disclosure is frequently observed in British Commonwealth countries (e.g. very common in Britain and Australia, and mandated in Malaysia, New Zealand, and Singapore), they are rarely found in some other countries including the United States.

if the prospectus is found to contain material mis-statements or contain erroneous information; this gives advisers the incentive to monitor management's profit forecasts.

The profit forecast is arguably the single most important valuation parameter given in the prospectus (Firth, 1998). IPO companies recognize this and prominently display the prospective earnings per share and, more pertinently, the prospective price earnings ratio at the front of the prospectus. The prospective price earnings multiplier is the issue price divided by forecasted earnings per share. The news media and stockbrokers' research reports focus on the prospective price earnings ratio. They compare the ratio with the ratios of already listed companies that are similar in industry, size, or other dimension, and then estimate a likely market price for the IPO. Based on the estimated market price (which is a function of the forecast profit), analysts and investors decide whether to subscribe to the new issue (or which IPO to subscribe to if there are several new issues occurring at the same time). Firth (1997, 1998) demonstrated empirically that investors rely on profit forecasts in pricing shares on the first day of trading and that deliberate underpricing of IPOs can be signaled via profit forecasts.

The decision to issue or not to issue a prospectus forecast, for companies to list on the Main Board of HKEx, reflects provisions set out in Chapter 11 of HKEx's Listing Rules[21] (Rules 11(16)-(19)). Rule 11(16), for instance, requires that, "A listing document (other than one supporting a capitalisation issue) must not contain reference (general or particular) to future profits or contain dividend forecast based on an assumed future level of profits unless supported by a formal profit forecast. Dividend forecasts not based on assumed future profit are not subject to this rule." (HKEx Listing Rules, parentheses shown as used).

As required by HKEx, the issuer must determine in advance, with its financial adviser or sponsor in the case of a new applicant, whether to include a profit forecast in a listing document. As a profit forecast appears in any listing document, it must be clear, unambiguous

[21] The shortened form, of 'HKEx Listing Rules', is used in the following to refer to the *Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Ltd.*, Update No. 84 (latest Update: 01 January 2007).

and presented in an explicit manner and the principal assumptions, including the commercial assumption, upon which it is based, must be stated and such a profit forecast must be prepared on a basis that is consistent with the accounting policies normally adopted by the issuer. The accounting policies and calculations for the forecast must be reviewed and reported on by the reporting accountants and their report must be set out. The financial adviser or sponsor must report in addition that they have satisfied themselves that the forecast has been made by the directors after due and careful enquiry.

According to the Rules, a 'profit forecast' for this purpose means any forecast of profits or losses, however worded, and includes any statement which explicitly or implicitly quantifies the anticipated level of future profits of losses, either expressly or by reference to previous profits or losses or any other benchmark or point of reference. It also includes any profit estimate, being any estimate of profits or losses for a financial period which has expired but for which the results have not yet been audited or published. Any valuation of assets (other than land and buildings) or businesses acquired by an issuer based on discounted cash flows or projections of profits, earnings or cash flows will also be regarded as a profit forecast.

A profit forecast appearing in a listing document (other than one supporting a capitalization issue) should normally cover a period which is coterminous with the issuer's financial yearend. If the profit forecast period ends at a half year-end the Exchange will require an undertaking from the issuer that the interim report for that half year will be audited. Profit forecast periods not ending on the financial year end or half year-end will not be permitted.

The assumptions upon which any profit forecast appearing in a listing document are based must provide useful information to investors to help them in forming a view as to the accuracy and reliability of the forecast. Such assumptions should draw the investors' attention to, and where possible quantify, those uncertain factors which could materially disturb the ultimate achievement of the forecast. The assumptions should be specific rather than general. All assumptions and those relating to the general accuracy of the estimates made in the profit forecast should be avoided. Furthermore it will not normally be acceptable for assumptions to

relate to matters which the directors, by virtue of their particular knowledge and experience in the business, are best able to take a view on or are able to exercise control over since such matters should be reflected directly in the profit forecast itself.

Although profit forecasting is voluntary, if the management of issuing companies and their underwriters opt to disclose their profit forecasts, they should follow the various provisions of the Listing Rules describing the requirements for such forecasts (as required by paragraph 34(2) of Part A and paragraph 29(2) of Part B of Appendix 1 of the Listing Rules). In fact, it is a company's commercial decision for the voluntary inclusion of any profit forecast in the prospectus. The underwriters believe that investors will be more inclined to have a stronger confidence in an issuer if there is a profit forecast available (Hung, 1993). Hence quite a large proportion of companies going public would provide profit forecasts so as to attract larger subscription rates and to push up the market prices on the listing date. The absence of a forecast can be damaging to the launch of an IPO.

4.2.2 Short-Sale Constraints in Hong Kong Stock Exchange

In January 1994, in line with the reform of the securities borrowing and lending regime, the Hong Kong Stock Exchange introduced a pilot scheme for regulated short selling. Under the scheme, 17 securities could be short sold, but a short sale could not be made below the best current ask price (the so-called "tick rule"). The scheme was revised in March 1996, when the number of securities designated for short selling was increased and the tick rule was repealed. The rule was reinstated in September 1998, following the October 1997 Asian financial crisis. However, short-selling transactions by stock options market makers to hedge the risk of the portfolio that results from their market-making activities are exempt from the rule. Finally, on 03 December 2001, an exemption from the tick rule on short selling in the stock market for index arbitrageurs and market makers took effect to help improve market liquidity, especially in a falling market. The number of designated securities for short selling is revised on a

quarterly basis, based on liquidity and market capitalization criteria. By the 4th Quarter of 2006, there were 364 common stocks (out of 975 common stocks traded on the Main Board and 198 traded on the Growth Enterprises Market) that could be short sold.

So far, this section has introduced the forecasting information disclosure and the short sell constraints in Hong Kong. The following section will summarize widely cited studies on IPO information disclosure, forecasts errors, and divergence of opinions, which are the literature foundations for the empirical investigations in this chapter.

4.3 Literature Review and Tested Hypotheses

4.3.1 International Empirical Evidence of Forecast Errors

Prior studies have provided much empirical evidence on the IPO profit forecast accuracy across global markets. For instance, earlier studies by Firth and Smith (1992) and Mak (1989) find actual profits were double the forecast profits in New Zealand, though it improved in the year 1987-1994 (Hsu, Hay and Weil, 1999). They argue a systematic relationship between deal characteristics with the accuracy of earning forecasts, including company's size and forecasting time horizon.

In terms of other markets, Pedwell, Harsame and Neu (1994) shows that, in Canada IPO forecasts, on average, exceed the actual profits with the mean absolute error being 88%. In their study, both of forecasting time horizon and auditors' reputation are highlighted as the crucial determinants to the level of forecasting biases.

In other market, Keasey and McGuinness (1991) discover more accurate forecasts in the U.K than those in New Zealand. They conclude that manager's profit forecasts in IPO prospectuses are more able to indicate a likelihood of future earnings than other statistical models.

Researches in the Asian markets report comparatively smaller errors. By testing Malaysia data, Mohamad, Nassir, Kuing and Ariff (1994) find the statistically negative relationship between leverage and the absolute forecast error, implying that higher risk companies (higher debt to gross assets ratio) are easier to forecast. A latter study by Jelic, Saadouni and Briston (1998) further conclude that, the future earnings of IPOs are under-estimated on the Kuala Lumpur Stock Exchange. They also find level of management forecasts are closely related to company's age and industry classification. It is noted that, it is a mandatory requirement for

Malaysian IPOs to report management earning forecasts in IPO prospectus, which is not as the same as the listing regulations in Hong Kong.

Widely cited papers using Hong Kong data are Chan, Sit, Tong, Wong and Chan (1996) and Jaggi (1997). They reported mean absolute forecast errors of 18% and 12.86%. Similar levels of forecast accuracy have been reported for China (Chen and Firth, 1999). The errors are very small compared to the errors from Australia and New Zealand. Both studies used cross-sectional regressions to model the variability in absolute forecast errors. Chan et al. found that low profit variability and smaller changes in economic growth accompany small forecast errors. Jaggi found that older companies were associated with smaller errors.

The present study extends the work of Chan et al. (1996) and Jaggi (1997) by using different measures of accuracy and by using a later sample period which allows us to include Chinese company initial public offerings that list in Hong Kong. This chapter also test whether investors anticipate forecast errors at the time of listing; this issue was not addressed in prior research on IPOs in Hong Kong. This chapter uses a sample of 256 IPOs listed on the Hong Kong Stock Exchange Main Board from 2000 to 2006, including both forecasting (172) and non-forecasting (84) observations. According to the empirical results, the mean of IPO profit forecasts error in prospectuses is about 5.4 percent, indicating the forecasted profits are slightly lower than the actual profit on average. The magnitude of forecasting errors, the absolute forecast error, is about 10 percent, which is quite close to prior results in Chen et al. (2000). Although forecast errors exist, the management's forecasting has superiority over other popularly used forecasting models. The result shows evidence of a possible agency problem where, issuing firms have better knowledge than others, which yields the opportunity to seek additional benefits when they report the profit forecasting in initial offerings.

4.3.2 Asymmetric Information, Uncertainty, and Signaling Models

4.3.2.1 Overview

Asymmetric information and *ex ante* uncertainty affect firm valuation and IPO underpricing, as outside investors are unable to properly value the firm due to a lack of information. Widely used valuation models, such as discounted cash flow analysis or comparable firms' analysis, are hardly capable enough to provide accurate estimations.

This lack of information has wealth transfer consequences for all parties involved in the IPO transaction. Many mechanisms for reducing *ex ante* uncertainty and the asymmetric information challenge are employed in practice. For instance, managers may voluntarily disclose the future profit estimate in the coming financial year so as to reduce *ex ante* uncertainty or promote the pre-IPO subscription level (Jog and McConomy, 2003). Also, managers may also disclose the number of uses of IPO proceeds, without providing detailed disclosure of proprietary information to competitors (Beatty and Ritter, 1986). Alternatively, insiders may attempt to signal the quality of their IPO by, for example, retaining a large fraction of ownership in the post-IPO period (Leland and Pyle, 1977; Firth and Liau-Tan, 1998). This assures potential investors that insiders will share the wealth consequences of improper valuation.

This chapter focuses on two of the key issues associated with the issuing of and investment in IPOs (Marshall, 1998). The first is the potential for mispricing (underpricing) at the time of the IPO issue and the second arises during the post-issue period (post-issue return performance). In particular, a reduction in asymmetric information via the inclusion of an earnings forecast may not only reduce underpricing, but is may also impact after-market performance by providing a better benchmark by which investors can assess *ex post* earnings realizations. In particular, those who 'cheat' by including a misleading forecast may be penalized by the marketplace (this would be consistent with Beatty and Ritter's argument that

'the market penalizes underwriters who cheat on the underpricing equilibrium'[22]). This is also consistent with recent research that indicates that IPOs perform more poorly in the long run when analysts are more optimistic about their long-term growth projections (Rajan and Srvaes, 1997). The stylized facts indicate that IPOs are, on average, underpriced and that they underperform (relative to a matched sample of firms or an index portfolio) in the post-IPO period.

4.3.2.2 Asymmetric Information and Voluntary Disclosure

Since wealth transfers among parties involved in an IPO may have unintended and negative consequences, various mechanisms have been developed to minimize the occurrence and the extent of these transfers. Voluntary disclosure of earnings forecasts provides an additional mechanism to alleviate the problem of information asymmetry, which can lead to market failure under certain conditions (Akerlof, 1970).

Studies on the voluntary disclosure generally presume that firms will disclose information such as earnings forecasts if the benefits of disclosure outweigh the associated costs (Verrecchia, 1983). Managers release earning forecasts in order to give investors an indication of management quality. This may enhance investors' assessment of the manager's ability to anticipate future changes and to adjust production accordingly (Trueman, 1986).

It has also been argued that there is equilibrium between the expected underpricing of an IPO and the extent of *ex ante* uncertainty regarding the IPO's value (Beatty and Ritter, 1986). Beatty and Ritter build on the asymmetric information model introduced by Rock (1986), where both informed and uninformed investors submit purchase orders for IPO shares. Even though, on average, IPOs have positive initial returns, a large fraction of IPOs experience price declines. Beatty and Ritter show that:

[22] Beatty and Ritter, 1986, Investment banking, reputation, and the underpricing of initial public offerings, *Journal of Financial Economics*, 15, pp.227.

> *(the) degree of underpricing is directly related to the ex ante uncertainty about the value of the issue … because as ex ante uncertainty increases, the winner's curse problem intensifies* (Beatty and Ritter, 1986, pp. 215-216).

The uninformed investor will therefore demand higher average underpricing as *ex ante* uncertainty increases. In their paper, Beatty and Ritter use two proxies for *ex ante* uncertainty (number of uses of proceeds and the reciprocal of grow issue proceeds) and show that there is a positive relationship between *ex ante* uncertainty and expected underpricing. Similarly this chapter tests the voluntary inclusion of an earnings forecast as a means of reducing *ex ante* uncertainty and underpricing. In this context, it can be argued that if the disclosure of earnings forecasts can reduce the uncertainty faced by uninformed investors, then it should result in reduced underpricing (on average) for those IPOs providing forecasts. It may also be argued that the post-issue return performance of those firms that provide misleading or overly optimistic forecasts may be affected negatively. These predictions are tested directly in this chapter.

4.3.2.3 Asymmetric Information and Signaling

Signaling literature is based on the notion that high quality issuers have lower costs for their signaling activities. Since signaling devices involve self-selection, for a signal to be effective, it must be unprofitable for issuers of low quality IPOs to imitate a high quality firm. It would appear to be particularly important to forecast only 'good news' in an IPO setting, where firms are unlikely to signal an earnings decline prior to going public. If lower quality firms do decide to forecast 'good news' (either because they are genuinely optimistic about their prospects or because they 'cheat') then they are more likely to suffer abnormal negative returns when actual results are released. This would be particularly costly to the extent that owner- managers retain shares that are subject to trading restrictions. Similarly a decision to forecast could be costly for a firm of lower quality to copy, because if the forecast is too

optimistic, then the firm, its directors, auditors and underwriters would not only suffer damaged reputations but would be subject to potential lawsuits and penalties. Other direct costs may include resistance the firm may face in raising additional funding through a subsequent offering.

In the context of IPOs, Leland and Pyle (1977) provide further evidence on the signaling theory. By retaining a higher proportion of ownership in IPO events, entrepreneurs actually face higher cost to diversify their risks. Hughes (1986) develops a model that is consistent with Leland and Pyle, in which the entrepreneur is willing to increase their retained ownership if the investment opportunity is sufficiently attractive. Then both of entrepreneur's estimates of future cash flows and retained ownership can properly indicate firm's value. Clarkson, Dintoh, Richardson and Sefcik (1992) also conclude a positive relationship between retained ownership and market value, and between the earnings forecast signal and market value. Titman and Trueman (1986) model that valuation of new issues in relation to information quality. They show that firm value is an increasing function of auditor and investment banker quality.

Overall, these studies suggest that because of information asymmetry, owner-managers have an incentive to signal firm value to differentiate their IPOs from firms of lower quality. Furthermore, IPOs are expected to use multiple signals to hit the target of maximizing fund raised, which may include the voluntary issuing of an earnings forecast. This chapter controls for the impact of signals such as retained ownership, choice of auditor and underwriter on underpricing, and post-issue performance, in order to focus on the ability of earnings forecasts to reduce information asymmetry and *ex ante* uncertainty. However, to the extent that an earnings forecast can also be considered a signal of value, results in this chapter provide evidence consistent with both voluntary disclosure and signaling theory.

4.3.3 The Divergence of Opinion

The literature proposes numerous theoretical explanations for the short-term underpricing and long-run underperformance of IPOs. This chapter tries to be in line with the divergence of opinion hypothesis and investigate whether initial trading performance plays a role in IPO long-term performance, which has received limited attention from the literature.

Miller (1977) proposes that divergence of opinion can lead to asset overvaluation and subsequent underperformance in markets with restricted short-selling, such as the IPO market. Because of the short-sales constraint, optimistic investors are more likely to show their opinions by purchasing shares, whereas pessimistic investors mostly stay out of the market. This would bias share price upward as long as there is sufficient demand. As short-sales constraints are removed over time, the IPO market price can freely converge to its fundamental value, producing underperformance in the long run. Miller proposes that a greater divergence of opinion among IPO investors will translate into greater short-run overvaluation, and hence, greater long-run underperformance.

While differences of opinion among investors are generally believed to play an important role in asset pricing, the conflicting theoretical predictions of divergence of investor opinion on asset prices remain an unresolved issue. Moreover, there is both very little and contradictory evidence on how difference of opinion influence asset prices. Cragg and Malkiel (1968, 1982), Friend et al. (1978) and Harris (1986) provide some evidence in favour of a positive association between stock returns and dispersion in analysts' earnings forecast. Diamond and Verrecchia (1987) present a rational expectations model in which short constraints do not lead to overvaluation but reduce the speed at which new information, and bad information in particular, is incorporated into prices. Similar results, though in a very different context, are derived in Hong and Stein (2003). Qu et al. (2003) also show that dispersion is priced as an information risk factor especially for small and value firms. Similarly, Doukas et al. (2004) argue that divergence of opinion is more pronounced among

value stocks and this is behaves as a risk factor that can partly explain the value-growth anomaly.

On the contrary, Diether, Molloy, and Schebina (2002) examine the effect of analyst forecast dispersion on non-IPO stock returns. They show that stocks with a higher dispersion in analysts' earnings forecasts earning lower future returns than otherwise similar stocks. They interpret their findings as being consistent with Miller's prediction that divergence of opinion is priced at a premium.

Recent theoretical research has revived the overvaluation hypothesis. Duffie et al. develop a model in which short sale constraint together with divergence of opinion (modeled by assuming different priors about the payoff distribution) may lead to overvaluation. In Johnson (2004), the model argues that dispersion can be viewed as a proxy for unpriced information risk when fundamentals are unobservable. As a result, a rise in dispersion (unpriced / idiosyncratic risk) raises the option value of a levered firm, which lowers its expected return. Hence he claims that the negative association between dispersion and future returns documented in Diether et al. (2002) is not necessarily a manifestation of mispricing as in Miller (1977)[23]. In Scheinkman and Wei (2003) overconfidence creates divergence of opinion and, in the presence of short sale constraints, may lead to overvaluation. A similar result is derived in Jiang (2005).

In January 1994, the Hong Kong Stock Exchange launched a pilot program to establish the so-called short-sale designation list. Initially, there were 17 stocks on the list. Since 1994, the list has been frequently changed. Only stocks on the list can be short sold, and when an individual stock is deleted from the list, it cannot be short sold again. This market practice and the unique database enables us to directly compare stock price effects before and after the stock enters/exits the list, with the other characteristics of the sampled stocks naturally controlled. And since the restrictions for short sales are prohibited and reinstated for different

[23] Doukas, J.A., C. Kim, and C. Pantzalis, 2006, Divergence of Opinion and Equity Returns under Different States of Earnings Expectations, Journal of Financial Markets, Vol. 9, Issue 3 (August), 311.

stocks at different times, a subsequent cross-sectional analysis would suffer less from the potential confounding effects of other concurrent effects.

Researchers have used various avenues in order to empirically test the overvaluation hypothesis. The most common approach is to consider a cross-section of stocks and to test whether stocks that are subject to short selling constraints are overvalued, and whether overvaluation depends on the degree of divergence of opinion. This requires (a) identification of stocks that are short sale constrained, (b) a measure for the degree of divergence of opinion, and (c) a measure of asset value to identify overvaluation.

An ideal measure of divergence of opinion would be dispersion of analyst or manager earnings forecasts because it is an *ex ante* proxy. The standard deviation of returns and the turnover ratio have also been employed (Boehme et al., 2006). Diether et al. (2002) examine the effect of analyst forecast dispersion on non-IPO stock returns. Yet *ex ante* analyst forecasts are not available for IPO firms; even *ex post* analyst coverage (particularly earnings forecasts) right after IPOs is limited[24]. As a result, Houge et al. (2001) examine the effect of three-day variables (opening bid-ask spread, time of the first trade, and flipping ratio) as proxies for divergence of opinion in IPO markets. They find all of them are significantly related to IPO long-term returns.

In this chapter, the proxies for divergence of opinion are the early-market return volatility and first-day turnover. The former is the IPO daily return volatility for the first 25 trading days after issuing. According to Gao, Mao and Zhong (2006), there are several advantages of this measure. First, use of return volatility can be justified by several theoretical and empirical studies. Shalen (1993) argues that greater divergence of opinion leads directly to higher return volatility. Diether et al. (2002) document a positive relationship between divergence of opinion and price volatility in the stock market. Although this chapter agrees that the three opening-day proxies in Houge et al. (2001) are related to uncertainty about an IPO, it is not

[24] Only about 10 percent of IPO sample in this chapter had three or more earnings forecasts available on the Institutional Brokers Estimate System (IBES) within three months after an offering.

clear how they are related to divergence of opinion. Secondly, using return volatility allows an alternative test of Miller's (1977) prediction. Miller's prediction depends on the presence of short-sales constraints, which are more prevalent in the IPO market than in other markets. This chapter expects a negative relationship between the proxy for divergence of opinion and long-term return. This helps to evaluate whether the relationship is relevant to Miller's prediction or merely a spurious correlation resulting from the use of proxy variables. Third, all the measures may not be clean proxies of divergence of opinion as they are correlated with the intrinsic business risk of a particular IPO firm. The uncertainty of intrinsic business would not directly relate to divergence of opinion. This chapter uses the method in Amihud and Mendelson (1987) to decompose the return volatility and extracts a cleaner proxy for the divergence of opinion.

4.3.4 IPO Long-run Underperformance and Methodology Approaches

The long-run performance of IPOs has attracted considerable attention. Ibbotson (1975) finds a negative average return during the three-year holding period after the issuing date in the US market. Ritter (1991) documents significant underperformance of IPOs from 1970 to 1990. The international application is by Levis (1993) and Aggarwal et al. (1993), that report the low long-run returns of IPOs is also applicable to countries such as Great Britain, Chile and Mexico. Brav and Gompers (1997) additionally find that underperformance is concentrated among small and non-venture-backed firms. Gopers and Lerner (2003) find that IPOs issued between 1935 and 1972 display underperformance when event-time buy-and-hold abnormal returns are used.

Leland and Pyle (1977) relate this long-run underperformance to the ownership structure. Consistent with the agency theory, they argue that firms with higher insider selling of shares at the IPO should have worse long-run performance. Hamao, Packer, and Ritter (2000) suggest that conflict of interests would explain the underperformance of venture-backed IPOs.

Shiller (1990) argues that the IPO market is subject to fads, which results in long-run bad performance. In this framework, Levis (1993) and Loughran, Ritter and Rydquist (1994) all report that IPOs with moderate initial returns perform better than those with negative or large initial returns[25]. Consistent with the supply response hypothesis of Ritter (1991), Loughran and Ritter (1995) conclude that underperformance is more severe in high than in low trading-volume periods.

Teoh, Wong, and Rao (1995) find that firms may adopt extensive discretionary accounting accruals to manipulate reported earnings before and soon after the IPO. Naïve investors may be systematically fooled by "window-dressing" operations of earning management and will accept paying a high offer price. Long-run underperformance will result from stock price adjustment to actual earnings following IPOs.

However, recent studies suggest that the long-run performance of IPOs is sensitive to the valuation method. Loughran and Ritter (2000) suggest that adopting the market return as a benchmark causes a test bias towards no abnormal return, as the benchmark includes these IPOs. Espenlaub, Grogry, and Tonks (2000) report a long-run underperformance irrespective of the benchmark used for UK IPOs. Sthele et al. (2000) shows that underperformance is reduced considerably when the abnormal return estimate makes reference to size-adjusted portfolios instead of market portfolios.

Fama (1998) and Loughran and Ritter (2000) have argued that the method of performance measurement influences both the magnitude of the abnormal returns as well as the size and power of the statistical test. In this context, Brav et al. (2000) reveal that there low long-run returns of the IPOs do not exist. Thus, these firms obtain long-run returns that are similar to those obtained by firms that have not gone public if the comparison is made in terms of size and book-to-market ratio of firms. This result reveals that the return patterns of firms that

[25] Krigman, Shaw, and Womack (1999) conclude that while the first-day "winners" have a positive abnormal return over the first-day period, first-day "dogs" have negative abnormal return.

have carried out IPOs are not different to those of firms that have not done so and that the results found in previous works are motivated by the long-run returns measures used.

There are diverse methodological questions that affect the estimation of long-run returns. Using cumulative abnormal returns (CARs) or buy-and-hold abnormal returns (BHAR)[26]. All the methods used for the estimation of abnormal returns are subject to problems arising from the poor specification of the models and no method is able to minimize these problems for all classes of events (Fama, 1998). Even closed models, such as the Fama-French three-factor model and benchmarks matched on size and book-to-market ratio, since they both control for variations in the returns motivated by these two variables. This gives rise to different estimations of the abnormal returns (Fama, 1998). This work has opted to use a wide range of methodologies and variations of these, in order to give the greatest possible robustness to the estimations.

To summarize, this literature review chapter aims to jointly test the above hypotheses for both the short-run and the long-run trading performance with the relationship to forecasting accuracy. The following section will introduce the methodology and testable research question respectively.

[26] This is the return obtained by an investor as a consequence of a strategy consisting in buying stocks at the end of the first day's trading and holding them for a period of time.

4.4 Methodology, Testable Implications and Research Questions

In terms of the methodology, in the short run, *t*-statistics, sign-statistics, and Wilcoxon-statistics are used in this chapter to test the profit forecast accuracy. The accuracy measures include forecast error (AFE), absolute forecast error (AFE), the squared forecast error (SQFE), time-series forecast errors (AFE(RW) and AFE(G)), Superiority proxies (SUP(N) and SUP(G)). Rationality tests are based on De Bondt and Thalor's (1990) methodology. The determinants of forecast accuracy are run by OLS cross-sectional regressions via controlling a number of systematic characteristics, as well as the tests of underpricing. In the long run, IPO performance measures include the cumulative abnormal returns and buy-and-hold abnormal returns, which are adjusted by market indices as well as control firms matched by market value and industry. Detailed explanation of the methodology will be illustrated separately for reading and understanding convenience.

Separated by a number of testable implications, the research questions are listed as follows:

1. Are IPO profit forecasts in prospectuses accurate enough for investors to make an investment decision?

2. To compare with popular time-series forecasting models, i.e. the random model and growth model, does IPO profit forecast have superiority, i.e. whether IPO forecasts have lower errors?

3. Are managers rational in reporting profit forecasts? And will they incorporate all available information and provide unbiased forecasting?

4. Does underpricing vary between forecasting and non-forecasting firms significantly? And can China-related firms with a large forecast error obtain a higher level of abnormal returns in the first trading day?

5. As an extension to the studies in Chapter II, which characteristics are highly associated with underpricing, and is the forecasting error related (including the comparison between optimistic and pessimistic, excessive and non-excessive forecasting)?

6. During the period of the first financial announcement after listing, will the abnormal returns be affected by the accuracy of forecasts (including the comparison between optimistic and pessimistic, excessive and non-excessive forecasting)? And will the sign of forecasting errors and magnitude be systematically related to the abnormal return during the time window?

7. To test various behavioural finance hypotheses, can the theory of divergence of opinion partially explained the aftermarket abnormal returns powerfully in the event study?

8. Whether IPOs underperformance in the long-run? Will profit forecasting in prospectuses and the level of forecast accuracy affect the long-run trading performance? And will China-related companies persistently underperform once compared to local shares?

4.5 Data Selection and Description

The sample comprises 256 IPOs on the Hong Kong Stock Exchange (HKEx) Main Board over the period January 2000 to March 2006, with 173 IPOs forecasting their profits in the prospectus when going public and 84 IPOs no doing so. The sample period depends on the sample availability. The list of issuing firms is received from the Hong Kong Stock Exchange Annual Listing Reports, which is posted on the HKEx official website. Meanwhile, this report includes offering companies' proceed amounts, number of shares offered, accountants, auditors, lead sponsor(s), subscription price (offer price), and H-share flag. The tested sample represents the majority population of IPOs in the HKEx Main Board during the sample period. Table 4.1 reports the comparison between the whole population and tested samples.

Proxies of company and firm-specific variables is handle collection from companies IPO prospectuses and annual reports, including management's profit forecasts and three-year historical profit records from each prospectus, actual profits released in annual reports, financial year end, number of years of operating history, number of risks related to issuing, forecasting horizon, total assets, total number of shares outstanding, gearing ratio, and commission fee charged by underwriters. All collected prospectuses and annual reports are available in the Thomson Research Database. The public subscription level is from the HKEx official website.

Data related to stock trading performance is collected from DataStream Database. To specify, market trading data includes the first day closing price for calculating initial returns, first day turnover and first 25-day daily prices for divergence of opinion proxies, monthly share prices, market values, book-to-market ratios, matching firms' and indices (Hang Seng Index and Hang Seng Composite Index) daily and monthly price (or price index).

Table 4.2 reports a wide distribution of the tested samples across industries. The distribution among industries also depends on the industry structure of Hong Kong. For instance clothing products, computer related products, electronic equipments, and financial services all significantly contribute to the regional economy.

4.6 Empirical Tests and Discussions of Results

4.6.1 Accuracy, Rationality and Superiority of IPO Profit Forecasts

4.6.1.1 Testing of Accuracy

Unlike investing in companies which are already listed, IPO investors are unable to observe a consensus market price. They cannot choose to rely on the general opinion of the market. Thus, accounting figures constitute a fundamental part of the evaluation process by which IPO investors decide whether the subscription price asked by the issuer is warranted. The reliability of profit forecasts will be of important concern to investors. The usefulness of profit forecasts provided by management in the prospectuses has been a cause of regulatory concern in the US and the UK for more than a decade. Reliability (i.e., precision) has been regarded as an essential characteristic of the data provided in prospectuses (including forecasts), and as such is one of the main areas of regulatory concern.

The forecast error (FE) for company (*i*) in the year of the IPO (*t*) is defined as the difference between the actual profit and the forecasted profit divided by the absolute value of the actual profit, shown in Equation (4.1):

$$FE_{it} = \frac{(AP_{it} - FP_{it})}{|AP_{it}|} \qquad (4.1)$$

where in Equation (4.1), AP_{it} is company *i*'s actual profit in the year of the IPO, and FP_{it} is company *i*'s forecasted profit in the IPO prospectuses. A positive value for FE implies that on average IPO companies have a pessimistic bias (under-forecast) while a negative value for FE represents an optimistic bias (over-forecast).

The absolute forecast error (AFE) and the squared forecast error (SQFE) are defined in Equation (4.2) and (4.3):

$$AFE_{it} = | FE_{it} | \qquad (4.2)$$

$$SQFE_{it} = (FE_{it})^2 \times 100 \qquad (4.3)$$

It is noted that, AFE is the major measure used to evaluate forecast accuracy. The mean of the absolute forecast errors represents the overall accuracy of IPO profit forecasts. AFEs vary quite significantly across companies. One reason for these differences will be the inherent difficulty in predicting a specific company's earnings; this inherent difficulty is not, however, directly measurable. One proxy for inherent difficulty is the change in annual profits measured from before the IPO to after it. This chapter argues that the greater the change in profit, the more difficult it will be to forecast the profit. Apart from AFE, SQFE additionally highlights IPOs with degree of forecasting errors. As argued by Bhaskar and Morris (1984) and Jelic, Saadouni and Briston (1998), SQFE is more appropriate for an analysis of investors' losses when the forecast is so inaccurate.

The summary statistics of IPO profit forecast accuracy measures (FE, AFE and SQFE) is shown in Table 4.3. The mean FE for the total sample is 5.37% with a mean of 4.26%. The results are consistent with Chen and Firth (2000) but have a lower level of both forecast error and absolute forecast errors[27]. The mean of AFE appears to be double the level of average FE, at about 10% during the sample period. And the average SQFE is about 5% for all samples.

Table 4.4 additionally presents the summary statistics of IPO profit forecast accuracy measures by cohort years. Except for the forecast error (FE) in 2000, all the means and medians are positive. In 2000, levels of FE and AFE are significantly different from each other. The large difference indicates that prospectus profit forecasts are more pessimistic (i.e. the actual profit for the year is less than the forecast profit) than optimistic (i.e. the actual

[27] As reported by Chen et al. (2000), by using data from the HKEx during the period 1993 – 1996, the mean forecast error is 9.94 percent with a median of 5.79 percent.

profit for the year is higher than the forecast profit). The large difference between FE and AFE in 2003 is mainly due one of company (2628.HK) which over-estimated profits by more than 50% in prospectus.

Since profit forecast is one of the most important factors to value new issuing firms, particularly for investors with very little information, theoretically it has to be accurate. Therefore this chapter expected that once being unbiased, both forecast error and absolute forecast error are equal to zero, as show in Equation (4.4) and (4.5):

$$H_1: \quad FE = 0 \qquad (4.4)$$

$$H_2: \quad AFE = 0 \qquad (4.5)$$

The means (with *t*-test statistics), medians, and standard deviations of errors are disaggregated with reference to China-related IPOs, including Red Chips and H-shares, and local IPOs, as shown in Table 4.5. The means of both FE and AFE for the overall sample are statistically different from zero at a 0.01 level. The significant positive sign indicate that, on average, the forecast profits are less than actual profits and so the forecasts are said to be conservative or pessimistic. The average SQFE is about 5%, being insignificantly different from zero for all samples.

By breaking down the forecast errors by type of issue, both AFE and SQFE are statistically significant for Chinese-related IPOs, suggesting a possibly persistent bias in their IPO forecasts. However, FE and AFE for Red Chips are not significantly different from zero at the 0.01 level, implying that there is no bias in the forecasts for this group of IPOs. Cross-issue type comparisons show that the mean error for H-shares is significantly different from the mean error of local IPOs. The mean forecast errors for local companies are lower than those reported by Jaggi (1997). Mean absolute forecast errors are also lower than the errors reported in Chan et al. (1996, 2000) and Jaggi (1997).

To further illustrate the distribution of forecasting errors, Figure 4.1 provides a prediction realization diagram. An oblique line through origin represents the exact forecast accuracy, the

observations to the left of the oblique line represent optimistic forecasts, while observations to the right of the oblique line represent pessimistic forecasts.

Once the level of forecasting errors is discovered, we need to compare these forecasts with other popular models to investigate whether the management forecasting is more accurate since managers are normally assumed to have better knowledge of the issuing firm than other do. Therefore, the following section will turn to discuss the superiority of IPO management forecasting.

4.6.1.2 Testing of Superiority in Managers' Forecasts to Other Forecasting Models

The AFE is compared against the errors from using simple statistical time series extrapolations of historical profits. Based on the study by Cheng and Firth (2000), two time series models are examined, i.e. the naïve no-change model (N), where the forecasted profit (NAÏVE_F) is the latest profit before listing (AP_{t-1}), and the growth (G) model, where the forecast profit (GF) is AP_{t-1} multiplied by an annual compound growth in profits over the three years prior to listing. The absolute errors from these statistical models, AFE (N) and AFE (G), are calculated as Equation (4.6) and (4.7):

$$AFE(N) = \left|\frac{AP_t - NAÏVE\_F}{AP_t}\right| \qquad (4.6)$$

$$AFE(G) = \left|\frac{AP_t - GF}{AP_t}\right| \qquad (4.7)$$

The growth model may have better predictability than the naïve no-change model because many IPOs have strong profits growth in the three years prior to listing and the growth model captures and extrapolates the growth into the next year (Cheng and Firth, 2000). Cameron (1982) and Jelic, Saadouni, and Briston (1998) also confirm that the relatively simple models for forecasting earnings seem to be less accurate than management forecasts. Also, the growth model captures the impact of recent inflation. To examine whether managements' forecasts of

profits are better than the statistical models this chapter deducts AFE from AFE (N) to yield SUP (N) and deducts AFE from AFE (G) to yield SUP (G), shown in Equation (4.8) and (4.9):

$$SUP\ (N) = AFE\ (N) - AFE \qquad (4.8)$$

$$SUP\ (G) = AFE\ (G) - AFE \qquad (4.9)$$

According to prior literature, it is expected that, the managements' profit forecasts appearing in prospectuses are more accurate. Management should be able to make better forecasts because they can incorporate in their forecasts the actual results for the year up to the date of the prospectus; they can also incorporate the effects of changes in the business environment that have become apparent since the previous fiscal year end; and they can estimate the profits generated and expenses incurred from investing the new issue proceeds. This chapter tests the hypotheses in alternative form as shown in Equation (4.10) and (4.11):

$$H3: \quad SUP(N) = AFE(N) - AFE > 0 \qquad (4.10)$$

$$H4: \quad SUP(G) = AFE(G) - AFE > 0 \qquad (4.11)$$

[AFE(N) – AFE] gives the superiority of the IPO forecast relative to the random walk forecast (the superiority is denoted SUP(N)) and [AFE(G) – AFE] also gives the superiority of the IPO forecast relative to the growth forecast (the superiority is denoted SUP(G)). Superiority means prospectus forecasts are more accurate than the time series models. Descriptive statistics of these superiority measures is reported in Table 4.6.

4.6.1.3 Testing of Rationality

Condition on the voluntary disclosure of profit forecasts in IPO prospectuses, companies, the original shareholders, and the underwriters may have an incentive to convey such information to potential investors. If investors are assumed to have very little information on new shares, such information disclosure will in turn promote market demand and receive an optimal

pricing level. The previous section suggests management forecasts are more accurate than other forecasting models. The following will try to capture the bias and rationality of management forecasts, i.e. whether managers can fully and correctly incorporate the historic information into forecasts.

De Bondt and Thaler (1990) and Capstaff et al. (1995) designed and used tests to capture the bias and rationality of investment analysts' earnings forecasts. These techniques are applied to IPO profit forecasts in this chapter, which is also consistent with Cheng and Firth (2000). Firstly, the actual changes in profits are compared to forecast changes in profits via the following regression model:

$$(AP_t - AP_{t-1}) / AP_{t-1} = \alpha + \beta\,(FP_t - AP_{t-1}) / AP_{t-1} + \varepsilon_i \qquad (4.12)$$

where the variables are as described earlier, and α and β are estimated via the regression.

The left side in Equation (4.12) is the actual profits change of the issuing firms, and the right side is the forecasted profits change. The null hypothesis states that IPO profit forecasts are unbiased, which implies α=0 and β=1 as shown in Equation (4.13). Following the arguments of DeBondt and Thaler (1990), profit forecasts have an optimistic bias (predicted profits exceed actual) if $\alpha<0$ and a pessimistic bias if $\alpha>0$. $\beta<1$ is interpreted as an overreaction to available information (e.g. AP_{t-1}) because the absolute value of the forecast is too high, and $\beta>1$ is interpreted as an underreaction to available information (Capstaff et al., 1995).

$$H_5: \ \alpha = 0 \ \ and \ \ \beta = 1 \qquad (4.13)$$

where, α=0 indicates that there is no forecasted error on average, and β=1 could be interpreted as an excellent forecast at the consensus level. Student's *t*-statistics is used to verify the statistical significance of α and β coefficients and to compare the coefficient of determination.

Following De Bondt and Thaler (1990), the results of tests for bias and rationality, as shown in Equation (4.13), are reported in Table 4.7. The model fit for Equation (4.13) is good. The intercept is positive and significantly different from zero for the whole sample, for China-related companies, as well as for H-shares. According to De Bondt and Thaler (1990) and Capstaff et al. (1995), this implies a pessimistic bias in IPO prospectus earnings forecast. The slope coefficient suggests that forecasts are not rational in the sense that management fully and correctly incorporates the available information (i.e. the historical profit, AP_{t-1}, and the historical growth rate) in its forecasts.

However, it remains a question that whether this under-estimate is conservative or strategic. Many studies argue releasing inside information has wealth transfer consequences for all parties involved in the IPO transaction. Many mechanisms for reducing *ex ante* uncertainty and the asymmetric information challenge are undertaken to mitigate the potential loss associated with IPO valuation in the absence of more credible information about a firm's prospects. It is noted that, historical data may not be feasible predictors of future earnings because of the typically fast growth of the IPO companies and because they are not able to completely anticipate and incorporate the payoffs from the newly raised capital through IPO activities. Along with the tests of forecasting matrix in the previous section, this study is disposed to agree with that managers are more conservative than strategic. Certainly, a conservative forecast will additionally benefit the aftermarket trading more or less. Under this circumstance, the following tests have to find out the determinants of forecasting accuracy magnitude as well as the relationship between forecasting accuracy and the aftermarket trading activities.

4.6.2 Forecasting Errors and Underpricing

4.6.2.1 Determinants of forecasting accuracy magnitude

Based on prior research, including Brown, Foster and Noreen (1985) Collins and Hopwood (1980), Cooper and Taylor (1983) and Firth and Smith (1992), on a priori reasoning Chan et al. (1996) investigates the impact of company size, length of the forecast period, historical variability in profits, age, leverage, auditor, underwriter, ownership, Chinese companies, industry sector, and return on assets, on the absolute forecast error (AFE). The absolute forecast error is defined as the actual profit minus the forecast profit, scaled by forecast profit; the sign of the error is ignored when computing AFE. AFE represents the magnitude of the error while the average forecast error (inclusive of sign) measures the bias in forecasts.

This chapter, again, empirically tests the determinants of forecasting accuracy magnitude. A number of research questions have been raised, (1) which firm- and market-specific characteristics can systematically affect the absolute forecast error; (2) can *ex ante* uncertainties and other asymmetric information models explain the differences in forecast accuracy; and (3)do underwriters and insiders in issuing firms have an incentive to manage the profit forecast. The following testable hypotheses will be examined via cross-sectional regression. Control variables include size, age, industry, leverage, risks, insider benefits, promotion effects, forecasting horizon, companies' Chinese background, underwriters, and market movement, etc.

Ex ante Uncertainty – Size

There is some support in literature (Bhaskar and Morris, 1984; Firth and Smith, 1992; Chan, Firth & Krishnan, 2001) for the contention that larger size companies are 'easier' to forecast than their smaller size counterparts. This may be predicated in part by the idea that larger companies have greater control over their market settings and that they enjoy some

comparative economies of scale which make them less susceptible to economic fluctuations. Also, large companies are likely to have more influence over their market settings and they are more likely to be price-setters; this gives them more control over the level of their profit. To examine this notion the following hypothesis is tested:

H_6: *Forecasting accuracy improves with larger companies.*

This hypothesis implies a negative relationship between forecast error and company size. It should be noted here that new issue companies in general tend to be small in comparison to existing listed firms. In this chapter, the logarithm of proceed amount raised in offerings is assigned as the proxy (***SIZE***).

Ex ante Uncertainty – Corporation History

Profit forecasting is likely to be more difficult for risky companies so this chapter therefore hypothesizes positive relationships exist between absolute forecast errors and the risk variables, indicating a negative relationship with the age of the company. Control variables are well accepted measures of company risk in the literature (Ritter, 1984; Beatty and Ritter, 1986). Older companies may be viewed as being less risky as they have more experience to draw on when making forecasts of their profits.

The profit of companies which have been in existence for a small number of years would appear to be intrinsically more difficult to forecast (Berlinger and Robbins, 1986; Firth and Smith, 1992; Chan and Firth, 2001). At the extreme prediction of earnings for brand new firms seems to be particularly fraught with difficulty. This leads to another hypothesis:

H_7: *Forecasting accuracy improves the longer the company has been in existence.*

This hypothesis is tested via a variable, ***AGE***, defined as the logarithmic value of a company's years operating history.

Ex ante Uncertainty – Industry

Industrial classification may have an association with the level of forecast accuracy; that is, some industries' profit levels may be inherently more difficult to predict than others. Empirical evidence on whether differences exist in forecasting errors across industries has been mixed (Ferris, 1976; Ferris and Hayes, 1977; Richards, 1976; and Bhaskar and Morris, 1984). Dev and Webb (1972) reported some industry differences in forecasts contained in new issue prospectuses in the UK.

H_8: *High-teche companies are expected to have a higher risk as well as a higher level of forecasting error than manufacturing companies.*

This chapter uses a tech-stock dummy (***TECH***), which is defined as those in four-digit SIC codes 3571, 3572, 3575, 3577, 3578 (computer hardware), 3661, 3663, 3669 (communications equipment), 3671, 3672, 3674, 3675, 3677, 3678, 3679 (electronics), 3812 (navigation equipment), 3823, 3825, 3826, 3827, 3829 (measuring and controlling devices), 3841, 3845 (medical instruments), 4812, 4813 (telephone equipment), 4899 (communications services), and 7371, 7372, 7373, 7374, 7375, 7378, and 7379 (software). A positive relationship is predicted between the dummy variable and the forecasting errors.

Ex ante Uncertainty – Leverage Level

The net profits of companies with comparatively high levels of debt are traditionally regarded as being more difficult to forecast. To accommodate for this factor as a determinant of forecast accuracy, the following hypothesis is constructed:

H_9: *Forecasting accuracy improves when the leverage is lower.*

The proxy of leverage level in this chapter is defined as the gearing ratio (***GEAR***). A positive relationship is expected between the forecast error and the leverage ratio.

Ex ante Uncertainty – Risks

Issuing companies normally release the possible risks which can affect the operating performance of the company. The proxy of risk is defined as the number of risk factors (***RISK***) listed the prospectuses. This factor is also adopted by Beatty and Ritter (1986) as one of the measures of *ex ante* uncertainty.

H_{10}: *Firms with more risk factors will be associated with higher forecast errors.*

Ex ante Uncertainty and the Agency Problem – Insider Benefit

This chapter predicts a negative relationship between AFE and the percentage of shares held by outsiders. The argument is that while 'insiders' have other means to predict profits, outsiders have to rely on the prospectus forecast. The following hypothesis is constructed:

H_{11}: *The larger the number of outside shareholders, the greater the chance of litigation if the forecasts are inaccurate.*

Loughran and Ritter (2002) separate the gain from the wealth effect and dilution effect for firm's insiders. In which, the wealth effect is raised by the price jump in secondary market, while the dilution effect is positive if the after-market price is less than the initial offer price. Bradley and Jordan (2002) further simplify Loughran and Ritter's expressions. In additional, knowing as the insider wealth maximizing hypothesis, Ang and Brau (2003) show that many IPO insiders use different concealment strategies to prevent outside investors from knowing how many shares they sell in the secondary market, which is consistent with Cook, Kieschnick, and Ness (2006).

Therefore, this chapter uses a dummy variable, the insider benefit (***INSIDER***), as the control variable in the cross-sectional regression. The insider benefit dummy equals to one if the wealth effect is higher than the dilution effect, and zero otherwise. The wealth effect and dilution effect are defined in Equation (4.14) and (4.15):

$$\textit{Wealth Effect} = (P_1 - P_M) \times (\textit{Shares Outstanding} - \textit{Number of Shares Sold}) \quad (4.14)$$

$$\textit{Dilution Effect} = (P_1 - P_0) \times \textit{Number of Shares Sold in IPO} \quad (4.15)$$

where, P_1 is the closing price on the first trading day, P_M is the midpoint of the preliminary price range[28], and P_0 is the offer price of each observation. 'Total shares outstanding' is the number of outstanding shares after initial public offerings.

Agency Problem – Promotion Effects

The role of marketing, and particularly promotion, in the pricing and trading of securities is limited in most asset pricing models. This partially stems from the frequent treatment of investors possessing the same information and identical likelihood functions, which results in

[28] In the offering method of bookbuilding, issuing companies and their underwriter will initially release a preliminary price range in the prospectus. In the following road show process, more newly received information will be incorporated in finalizing the offer price, which is normally within the price range. The midpoint of the preliminary price range is broadly used as a predictor of the ultimate offer price.

homogeneous expectations about a security's returns. When one or another of these assumptions is dropped (e.g., Harris and Raviv, 1993) and short-selling is allowed (e.eg Lintner, 1969), security market prices reflect an average of heterogeneous investor expectations, producing an unbiased estimate of a security's value. When both of these conditions fail to hold, security prices reflect the valuations of more optimistic investors and thereby represent biased estimates of security values.

Building upon Miller's work, Derrien (2005) and Ljungqvist et al. (2006) argue that issuers and regular (institutional) customers of investment bankers benefit from the presence of sentiment investors or noise traders in the market for an IPO. If correct, then an investment banker's efforts to promote an IPO, particularly to retain investors, should benefit both the issuer and the investment banker's regular customers. Consequently, an investment banker's ability to promote an issue to retail investors should influence the issuer's decision to use the same investment banker in subsequent equity offerings. Therefore investment bankers have an incentive to create demand for an IPO by promoting it. In terms of the profit forecast released in prospectuses, Cook et al. (2006) further argues that, pre-issue publicity attracts retail (noise) investors to an IPO; also, attracting retail investors through publicity is good for the issuer; and attracting retail investors through publicity is good for an investment bank's regular IPO investors; finally, attracting retail investors through publicity is good for investment banks. Although Cook et al. does not focus on analyst coverage as part of the marketing effort, it is clear from Dunbar (2000), Krigman et al. (2001) and Degeorge et al. (2004) that such coverage is important to issuers. For instance, Krigman et al. finds that issuers generally switch underwriters to obtain additional sell-side analyst coverage, which suggests that firms regard this as important to increasing investor awareness of their firms. Similarly, a management profit forecast reported in an IPO prospectus is also able to promote the subscription and result in investors' sentiments.

In terms of the proxy of publicity, Cook (2006) adopted the number of headlines with the company name and the number of news stories with the company name in the text. This chapter alternatively uses the times of public subscription (***SUB***) as the proxy. Although it is

an *ex post* proxy, public subscription is one of the most remarkable and countable variables for the market effort of issuing firms and underwriters, as well as the pre-market measure of opinion dispersion.

H_{12}: *A higher absolute forecast error is expected for IPOs with a higher level of publicity since both the issuers and underwriters have the possibility to benefit from market promotion.*

Ex ante Uncertainty – Forecasting Horizon

Previous studies have shown that the shorter the forecasting period (the time between the prospectus date and the forecasting date) the more accurate the profit prediction becomes; this finding also applied to the new issue forecasts analyzed by Dev and Webb (1972). The following hypothesis is tested:

H_{13}: *Forecasting accuracy improves when the forecast interval is shorter.*

A variable, ***HORIZON***, representing the number of months making up the forecast interval, is calculated and it is hypothesized that it has a positive relationship with the error measure; the longer the interval the greater the error.

Higher Asymmetric Information and Ex ante Uncertainty – China-related Firms

According to the tests in previous sections, the study has discovered the higher biased and less rational forecasts for Chinese firms in Hong Kong. Since being listed overseas, China-related companies may be associated with a higher level of asymmetric information. Theoretically, the regulatory restrictions, disclosure requirements and investors' degree of recognition will increase the indirect costs of cross-border listing. Many prior studies, such as Sun and Tong (2000) and Wang and Jiang (2004), all define the overseas primary listing as

conventional wisdom to the extents of high costs and high uncertainty. In this case, it is reasonable to question the influence of such forecasting.

H_{14}: *China-related companies will have a higher level of profit forecast error than local firms.*

This chapter uses a dummy variable (***CHN***) equal to one for H-shares or Red Chips, and zero otherwise.

Ex ante Uncertainty and the Agency Effect – Sponsor and Underwriters

A number of theoretical studies have examined the role of advisers, principally auditors, bankers, and underwriters, in adding credibility to companies when raising capital. For example, the appointment of a 'high quality' sponsor (lead underwriter) is argued to lower agency costs and lower the risk of a company; this in turn increases the market value of the company. High quality sponsors invest heavily in building and enhancing their reputation capital and they are careful to avoid actions that might jeopardize their hard won reputation. Large forecast errors will damage underwriters' reputations and so they have incentive to closely monitor the profit forecasts. This oversight will lead to more accurate forecasts.

Unlike listed companies, there are fairly limited sources of information on firms before going public. Therefore, outsiders including underwriters and investors have to heavily rely on financial statement information until the trading of shares in the capital market starts. The evidence that underwriters use accounting variables to set an offer price with few other sources of information (e.g. DeAngelo, 1988; Titman and Truman, 1986), on average, creates a strong incentive for IPO issuers to boost reported earnings through discretionary accounting choices in order to extract higher offering prices. Aharony et al. (1993) and Friedlan (1993) investigate whether IPO issuers overstate earnings in the pre-IPO period, without assuming that underwriters detect and adjust accounting choices. Aharony et al. argues that the income manipulation hypothesis merely depends on the perception of entrepreneurs to influence the

offering price, and it is not crucial for participants in the new issue market to detect and adjust for accounting choices. Friedlan assumes that not fully adjusting issuers' financial statements for all the accounting choices may be the most efficient and cost-effective way for underwriters to use the information.

In this chapter, it is assumed that underwriters detect and adjust for the effect of earnings management at least partially since they would benefit from doing so (Nagata and Hachiya, 2006). If underwriters fail to adjust for the effect of earnings management, they may end up overpricing the IPO firm that intentionally increases the reported earnings by making discretionary accounting choices. Overpricing may result in a high probability that the offer is subscribed to by fewer investors causing shares to be unsold, which may substantially damage the underwriters' reputations. As Betty and Ritter (1986) argue, underwriters repeat business with potential purchasers (investors) and can earn a return on their reputation. Therefore, they have an incentive to price issues appropriately. In addition, underwriters are assumed to have a closer relationship with IPO issuers than with others and this possibly enhances the underwriters' capability of detecting earnings management. Therefore, it is also a rational expectation that underwriters adjust for the effect of earnings management, and thus the extent of earnings management consequently has a negative influence on the offering prices.

H_{15}: *Forecasting accuracy improves if the company's lead underwriter is a highly prestigious banker.*

The proxy of highly reputable bankers (***UNDWR***) is a dummy equal to one if the observations are managed or co-managed by the Bank of China International (11 IPOs), China International Capital Corporation (9 IPOs), Citigroup (7 IPOs), Credit Suisse First Boston (14 IPOs), Credit Lyonnais Securities (14 IPOs), DBS (22 IPOs), HSBC (19 IPOs), Goldman Sachs (18 IPOs), JP Morgan (2 IPOs), Merrill Lynch (6 IPOs), and Morgan Stanley

(14 IPOs). It is noted that, potentially for some massive offers, these top investment bankers will cooperate to be joint-lead managers. In the sample, there are 55 out of 127 observations that are underwritten or jointly underwritten by these investment bankers.

Ex ante Uncertainty – Market Risk

The sample period in this chapter covers five years. Since the market changes over time, a higher market return dispersion represents a higher level of *ex ante* uncertainty. This chapter predicts a relationship between the market systematic risk and absolute forecast error.

H_{16}: *Management forecasts tend to be more biased when market risk is higher.*

Two proxies are assigned for systematic risk, including market returns (***MKT-R***) and market volatility (***MKT-V***), where ***MKT-V*** is the volatility of daily returns of the Hang Seng Index one month (20 trading days) prior to the offerings. A positive relationship is expected between the market volatility and absolute forecast errors.

Hypotheses H_6 to H_{16} are tested by multiple regression with the absolute forecast error (AFE) as the dependent variable and size, age, industry, gearing, number of risk factors, insider dummy, forecasting horizon, subscription times, China-related dummy, underwriter, market return and market volatility as the independent variables. The above Table 4.8 reports the descriptive statistics of control variables. To further discover the relationship between dependent and independent variables, the following table alternatively reports the statistics summary with segmenting variables by their mean value.

In Table 4.9, variables are roughly consistent with H_6 to H_{16}. Larger companies with a longer corporation history have a stronger ability to forecast profits. High-tech companies

appear to have a higher level of forecast error than non-tech companies. Gearing ratios, number of risk also representing the *ex ante* uncertainty, and a negative relationship is expected between the forecast error and uncertainty. There is not much difference if the insider dummy is equal to one or zero, but pre-offering marketing efforts, measured as subscription times, will positively affect the accuracy in management forecasting. A longer forecasting horizon increases the possibility of higher inaccuracy, as shown above.

In addition, on average China-related companies have higher levels of forecasting errors than local IPOs, which indicate a higher level of asymmetric information for China-related companies listing overseas will generate higher *ex ante* uncertainty and a higher level of the agency problem, as well as larger forecasting biases.

In terms of underwriters' reputation, higher reputable bankers will prevent large forecasting biases in prospectus so as not to hurt their reputation capital. As far as market conditions are concerned, forecasting errors will be larger in bull markets than in bear markets, and high systematic risk (market volatility) will result in a greater tendency for incorrect management forecasts.

The correlation matrix of explanatory variables is given in Table 4.10. And the results of the cross-sectional regression for absolute forecasting errors are reported in Table 4.11. The overall observations include 173 Hong Kong Main Board operating firms IPOs from 2000 to 2006. All coefficients (Column 1), *t*-statistics (Column 2), and two-tail p-values (Column 3) are shown for individual control variables respectively. The *t*-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent method at a 0.05 level. The *F*-statistics indicate the overall significance of the cross-sectional linear model.

As predicted in H_7, firms with a longer operating history and financial records will have more accurate management profit forecasting. The AGE is significantly negatively related to the level of absolute forecast error. Although the SIZE is also negatively associated with AFE,

it is not statistically significant. While firms that have a higher gearing ratio and longer forecasting horizon are associated with larger forecasting biases.

Consistent with expectations, high-tech companies appear to have more inaccurate forecasting. However, tech- and non-tech firms only have little differences on the level of AFE, which may be due to the market trading platforms offered by HKEx, i.e. smaller and riskier high-tech firms would like to choose the Growth Enterprise Market (GEM) rather than the Main Board. Consequently, the high-tech effect will be weaker.

The number of risks reported in prospectuses, one of the proxies of *ex ante* uncertainty, is positively but insignificantly related to AFE. One of the possible reasons is that, there is no set format for the identifications, reporting, and the type of risk factors in Hong Kong. Examples of some commonly reported risk factors are those relating to supplies of input materials, customers, quota restrictions on exports, technological changes, MFN trade status with the US, foreign exchange rates, and legal and economic uncertainties associated with operating in and trading with China.

When insiders' wealth gain is higher than the loss raised by dilution after offering, insiders have a high incentive to manage profits as for seeking more benefits. Although the result is not statistically significant, the positive sign indicates the possible earning management in issuing firms. Moreover, pre-offering effort of marketing can enhance the public subscription. Therefore when companies have higher publicity in the market before going public, managers in these companies are more likely to inaccurately present their profits. The insignificant and positive sign may suggest an optimistic behavior of management teams.

As far as China-related IPOs are concerned, a statistically significant result suggests a positive relationship between China-related firms and absolute forecast errors. Due to a higher level of asymmetric information, on the one hand, a lack of understanding of prior operating history and accounting standards may generate a relatively large magnitude of forecasting biases; on the other hand, managers in Chinese companies suffer more pressure from

successful overseas offerings and strong market performance. In this case, there will be more agency problems as well as a higher level of forecasting errors. It is noted that, inaccuracy in forecasting errors is also affected by the Chinese government's activities. For instance, once a large- or medium-sized state-owned company successfully applies for listing in Hong Kong, its major shareholder(s) will ensure that a certain amount of capital is raised. H-share companies have state shares and legal-person shares. Where legal-person shares are shares owned by domestic institutions, most of which are themselves partially owned by the central or provincial government. However, after successfully listing, the government will "re-distribute" resources. For instance, China-related companies suffer a serious taxation effect raised by an unstable and discontinuous fiscal policy of the government, as the case of Bank of Communication (BOCMM 3328.HK) mentioned in Chapter II.

In terms of underwriters' behaviour, although there is an insignificantly negative sign, it is still consistent with the hypothesis that higher reputable investment bankers will prevent large profit forecasting biases to protect their reputation. Another explanation for the insignificant result is that, the investment banking industry in Hong Kong has monopolization and the majority of the market power is shared by a few top international flagships and China-related pilots of financial institutions. In particular, as Ljungqvist and Wilhelm (2003) argue, facing a local oligopoly of underwriters, both analyst coverage and "spinning" activity can bring additional compensation to highly reputable bankers, meanwhile, this reputation create an incentive for top underwriters to seek rather than avoid underpricing. Additional evidence includes Hoberg (2004), which presents a rational model of strategic underwriting that is capable of explaining the underwriter persistence phenomenon. Consequently, the underwriter dummy used in this chapter may not be able to fully describe the relationship between bankers' reputation and forecasting magnitude.

Finally, market volatility has a strong and positive effect on management forecasting magnitude. According to finance literature, market portfolio volatility is the proxy of systematic risk which the equities cannot diversify away. Therefore larger volatility indicates a higher total risk of individual firm. Consequently, as market conditions increase in volatility,

the managers have a stronger incentive for 'strategically' reporting profit forecasts in prospectuses.

4.6.2.2 Relationship between forecast errors and short-term underpricing

a. Comparison between forecasting and non-forecasting IPOs

As mentioned in the prior section, management profit forecasting is voluntary in Hong Kong. The question remains that, whether investors in the market can discover biases in forecasts or whether investors can rationally incorporate the level of forecasting accuracy when they make investment decisions. In other words, the following section turns to investigate the relationship between forecast errors and the short-term underpricing phenomenon.

To begin with, theoretically, given the prevalence of underpricing one might assume that the level of underpricing is the same for all companies. Observations show that the level of underpricing does vary between companies. Since some companies will release forecasts when some do not, it is worthy to compare the underpricing level of two portfolios, i.e. forecasting and non-forecasting, to find whether their first-day returns are statistically and significantly different from each other.

This chapter will test the differences of both raw and market-adjusted initial returns for an individual portfolio, by using the conventional method:

$$IR = (P_{i,1} - P_{i,0})/P_{i,0} \quad (4.16)$$

$$MAIR = (P_{i,1} - P_{i,0})/P_{i,0} - (I_{i,1} - I_{i,0})/I_{i,0} \quad (4.17)$$

where, $P_{i,0}$ is the i firm's offer price, $P_{i,1}$ is i firm's first-day closing price, $I_{i,0}$ and $I_{i,1}$ are index values from the date of *i* firm setting the final offer price and first trading day. Therefore, $(I_{i,1} - I_{i,0})/I_{i,0}$ represents the daily market return on each offering date.

Therefore, the hypothesis can be written as follows:

$$H_{17}: \quad IR_f = IR_{nf} \tag{4.18}$$

$$MAIR_f = MAIR_{nf} \tag{4.19}$$

where *f* and *nf* are for forecasting and non-forecasting portfolios respectively. The result of the comparison is reported in Table 4.12.

The mean of IRs, MAIRs and their respective standard deviations are listed in Column (1) and (2) of the table, and Column (3) tests the *t*-statistics for whether the IR and MAIR are different between forecasting and non-forecasting portfolios. Tests are separated into individual year as well as for the whole sample period. Except for year 2005, underpricing and market-adjusted initial returns are not significantly different. It is noted that, the standard deviation of both IR and MAIR for both portfolios is minimal in 2005. Several factors may affect the empirical results. Firstly, recalling Chapter II, underpricing is still a puzzle in financial research, which means neither asymmetric information models nor behavioral finance models can fully explain the level of underpricing. In this case, the management's profit forecasting is only expected to partially influence the initial price jump once assuming investors have the ability to judge biases in either optimistic or pessimistic forecasting errors. In addition, dramatic mispricing of a few IPOs results in a more complicated situation. For the positively significant *t*-statistics of IR and MAIR in year 2005 with lowest standard deviations of 0.014 and 0.015 respectively, it may be interpreted that, once the IPOs' initial returns during a period are all about the same level, releasing a management's profit forecast in a prospectuses will partially enhance aftermarket return since investors can discover the pessimistic error in forecasting and subscribe to 'undervalued' shares.

To further investigate the effect of biased forecasting on the level of underpricing, the following empirical question solely focuses on forecasting IPOs, to discover the relationship between forecasting accuracy and IPO initial returns.

b. Comparison between optimistic and pessimistic forecasting IPOs

The profit forecasting accuracy results in Table 4.13 reveal considerable variability. The distribution of errors especially highlights the dispersion. Of interest is whether investors were able to predict, at the time of the issue, those forecasts which were overly optimistic and those which were overly pessimistic. If it is assumed that the IPO is, on average, correctly priced, given the profits forecast, then the initial listing price would be expected to be the same as the issue price. In practice, however, underpricing of the IPO appears to be the norm and this is rationalized on the basis of risk considerations (Rock, 1986), which has been tested in detail in Chapter II.

It is hypothesized that differences in the levels of underpricing arise, in part, because of investors' expectation that actual profits will depart significantly from those being forecast. If investors believe that the forecasted profits are unduly pessimistic, then they are likely to attach a greater premium to the issue price when companies going public. Conversely, if investors believe forecast profits are unduly optimistic, then the initial listing price could be below the issue price.

To test the effect of forecasting accuracy, this section initially compares the underpricing between pessimistic and optimistic forecasting. The *t*-statistic is -0.722 meaning the null hypothesis cannot be rejected. It indicates that the underpricing level of optimistic forecasting IPOs is not significantly different from the underpricing of pessimistic ones. First, this may only be due to 10 out of 172 IPOs reporting optimistic forecasts rather than pessimistic ones. Second, it cannot presume all managers in IPOs persistently misreport their forecasting, since 25 observations have a pessimistic forecasting of less than 1%, and another 20 observations have a pessimistic forecasting of between 1 to 2%. Finally, the first financial announce is normally in three to six months after trading, if investors do not have preconception to IPO profit forecasts, the level of forecast errors is not strong enough to dramatically affect the underpricing significantly. Therefore, the objective is to investigate excessive forecasting errors, as stated in H_{18}:

H_{18}: *The level of underpricing is closely related to the excessive forecast errors.*

Where, the breakeven of excessive and non-excessive forecast errors is the median of absolute forecast errors, i.e. being excessive when AFE is higher than 0.0467, and non-excessive when AFE is lower than 0.0467. The *t*-test is applied and the results are reported in Table 4.13.

According to Panel A in Table 4.13, conditional upon whether there is excessive forecasting, 172 observations are roughly separated into half and half. As expected, *t*-statistics indicate a significantly negative relationship between effects of excessive and non-excessive forecasts. As predicted, the level of the underpricing is closely related to the excessive forecast errors. One of the possible reasons is dispersions among investors. The difference in the level of underpricing is partially due to investors' expectation on actual profits being significantly different from the managers' forecast at the offerings. Especially, since most IPOs give pessimistic forecasts, in this circumstance investors have discovered this group of new shares is undervalued and thus would like to attach a greater premium in aftermarket trading.

In separate tests for China-related and non-China related forecasting firms (Panel B of Table 4.13), the results of non-CHN observations are consistent with prior results. Since investors are assumed to have a better knowledge of local firms, investors' expectations will be more accurate and rational for local firms than China-related firms. However, the results for China-related firms do not support a significant relationship between underpricing and excessive forecast errors. This may still be reasonable since: (1) A higher level of asymmetric information makes Hong Kong's local investors feel difficulty to judge the accuracy of forecasting; (2) Management groups in Chinese state-owned companies normally represent two levels of the agency problem. The first level is managers themselves, and the second level is major shareholders, who are the government as opposite to a natural person. Therefore profits of companies with the Chinese government shareholding background will be more uncertain and unsteady.

However, when Panel C of Table 4.13 further separates tested observations into different levels and compares the initial return of Chinese and non-Chinese firms, it is interesting that forecasting errors are more convergent than other Hong Kong firms. Although Chinese IPOs were suffering higher underpricing, most of them will properly provide an appropriated management forecasts in offering prospectuses. Apparently, to do so is propitious for further recognition among Hong Kong investors. And investors have ability to adjust over-biased information regarding to the Hong Kong-listed Chinese companies.

4.6.3 Event Study for the Effect of the First Financial Announcement after Official Listing

Based on the theory of the divergence of opinion by Miller (1977), this chapter further relates the profit forecast error with IPO after-market trading performance. Apart from general tests of long-run performance the cross-sectional regressions will be more specific on the forecast errors and divergence of opinion. It is noted that, an ideal measure of divergence of opinion would be the dispersion of analyst forecasts because it is an *ex ante* proxy. However, even *ex post* analyst coverage right after IPOs is limited. For instance, one of the most popular proxies is early market data, including the first day turnover and trading volume. In this chapter, the proxy for divergence of opinion is the early-market return volatility, which is the IPO daily return volatility for the first 25 trading days after issuing.

The cumulative abnormal returns (CARs) of IPOs are differences between the IPO returns and market index returns (Hang Seng Index returns) for the same period.

4.6.3.1 Effects of First Financial Announcements to all IPO Abnormal Returns

Since IPO profit forecasting is voluntary in Hong Kong, once the first financial statement is announced after issuing, the effects of the difference between forecasted profit and real profit will offer investors more information about the issuing firms so they can make investment decisions accordingly. This chapter, following the comparison of the level of underpricing, will turn to discuss the effects of first financial announcements. In particular, forecasting and non-forecasting IPOs are expected to have different levels of returns during a time window of 11 trading days (two weeks) around the announcement date; moreover, public companies who offer pessimistic or optimistic forecasting are expected to be different in raw returns and market-adjusted returns; finally, since a number of companies have excessively and incorrectly presented their forecasting in prospectuses, around the announcement dates, the after-market returns will reflect investors' reaction.

This chapter includes all IPOs with or without forecasting in prospectuses to test this effect empirically. If markets are semi-strong form efficient, on the day of the announcement one would expect an abnormal return but not on other days. However, normally some abnormal return is found on the days surrounding the announcement. An abnormal return after the announcement day is either due to information taking time to be reflected in share prices or the announcement taking place so late in t_0, possibly even after the markets close, that its effect can only be reflected in trades and prices on the day following the announcement. Abnormal returns prior to the announcement day can come from the following sources. First, the fact that an important announcement will take place is often released to the public prior to the announcement, and the news release that an announcement will take place and the way the release is handled may convey information. In addition, if the announcement is at the discretion of the firm, it may be partially caused by prior abnormal returns, and an event study of this announcement will show prior abnormal returns. Finally, abnormal returns prior to the announcement day could reflect leakage of the information by those with access to it.

This chapter, consequently, investigates this effect by setting a time window of 11 trading days. During these 11 days, the announcement dates are defined as time 0 (t_0), then the chapter designates -5, -4, -3, -2, -1 as the 5 days prior to the announcements, and +1, +2, +3,

+4, +5 as the 5 days after the announcements. For each of the firms in the sample, it computes the raw returns on the individual day being studied, then calculates the "abnormal" return for each of the days of each firm. Abnormal return is the actual IPO raw return less the Hang Seng Index daily return of the respective date.

The cross-sectional regressions aim to examine whether management forecasting can systematically affect IPO after-market returns during the announcement period, in other words, it is worthy to know whether forecasting or non-forecasting, pessimistic or optimistic forecasting, and dxcessive or non-excessive forecasting, will result in different equity premiums systematically. The tested independent variables are IPO raw returns (IR) and cumulative abnormal returns (CARs) during the studied period. Control variables cover *ex ante* uncertainty hypothesis (SIZE, AGE), asymmetric information proxies (CHN, IR), forecasting dummies (EXC) market movement (MKT-R), and, more importantly, divergence of opinion (VOL25).

In particular, Cumulative Abnormal Returns (CARs) are calculated as:

$$\mathbf{CAR}_T = \sum_{i=1}^{N} (r_{i,t} - m_{i,t}) \qquad (4.20)$$

where $r_{i,t}$ and $m_{i,t}$ are daily (or monthly for long-run tests) raw and benchmark returns (the index returns).

In terms of independent variables, SIZE and AGE are defined in the previous section. The CHN dummy equals to one if it is a China-related firm, and zero otherwise. IR is the initial return (also called underpricing) of issuing firms. FC, OPT, EXC are dummy variables for forecasting effects, where FC equals to one if firm report forecasted profits and price new share according to this forecasting, OPT equals to one if the firm gives optimistic forecasting, and EXC equals to one if the firm has excessive forecasting bias (absolute forecasting error is no less than 10%), and zero otherwise. MKT is the Hang Seng Index average daily return; and

VOL25 is the early market volatility, which is defined as the standard deviation of the first 25 daily returns right after the offering, excluding the initial return.

4.6.3.2 Comparing Returns between Forecasting and Non-forecasting Firms during the First Financial Announcement Period

According to Table 4.14, both SIZE and AGE are expected to be negatively associated with abnormal returns and raw returns. Since larger and older companies relatively have a relatively lower level of unsystematic risk which lowers the total risk, they therefore have a smaller fluctuation in market price. On the contrary, China-related firms will have a higher return than local firms, since the CHN dummy represents a higher level of asymmetric information and therefore greater risk.

As far as the forecasting effect is concerned, the firms who provide profit forecasts normally have a higher level of abnormal return. The forecasted profit is positive on average, which indicates a pessimistic bias compared to the actual profit reported in the first financial announcement. Consequently, when the newly released profit is higher than originally forecasted, the market price will reflect this new 'positive' information.

In addition, initial underpricing is expected to be positively associated with aftermarket returns. Ritter (1991) argues that there is a negative relationship between initial return and after-market abnormal returns. This section does not contradict the previous result because normally, issuing firms will release their first financial statement in three to six months after the offering, and this section is testing the raw and abnormal returns during a short time window.

Early market return volatility is a proxy of divergence of opinion. This chapter expects a positive relationship between the proxy and abnormal returns. Shalen (1993) argues that greater divergence of opinion leads directly to a higher return volatility. Based on Miller

(1977), higher divergence of opinion results in overvaluation in initial trading but reduces the return in the long run. In the end, the market movement is more likely to promote equities' returns therefore a positive coefficient is predicted. Empirical retests are reported in Table 4.15. This displays the coefficient, *t*-statistics, and p-statistics for both raw returns (Column 1) and cumulative abnormal returns (Column 2).

According to results shown in Table 4.15, *ex ante* uncertainty proxies, SIZE and AGE, are negatively related to both raw returns and abnormal returns as expected, although the *t*-values are not statistically significant. China-related IPOs appear to have positive and significant raw returns and abnormal returns, which reflect investors' confidence on the portfolio. The positive information will influence the trading price with an upward shift if investors are satisfied with the financial positive and performance. It does not necessarily mean that investors have lower confidence in local firms. The more appreciated reason is a remarkable improvement in China-related companies.

Underpricing is positively associated with returns during the event time window. And the 25-day return volatility, a proxy of the divergence of opinion, is positively and significantly related to both raw and abnormal returns with *t*-statistics of 3.95. As predicted in Miller (1977), the divergence of opinion can lead to asset overvalued with short-sell constraint. It will return back when the intrinsic value is discovered by the market. At the firm level, according to prior studies (Ball and Brown, 1968; Bernard and Thomas, 1989), stock prices react positively to earnings news but require several quarters to fully reflect the information in earnings. Consequently, the early market dispersion is more likely to remain during the period of the first earning announcement, and stock prices reflect a high divergence of opinion and overvaluation.

Forecasting firms have better returns than non-forecasting firms, which can be explained by relatively pessimistic profit forecasting before going public. However, an insignificant result is due to a low level of forecasting bias, which is 5.37% on average, and 45 out of 173 forecasting errors are between 0 and 0.02. Alternatively, two proxies are adopted as the

substitutes to the forecasting dummy, including the excessive dummy (**EXC**, equal to one if the absolute forecast error is higher than 4.67%, zero otherwise) and optimistic dummy (**OPTM**, equal to one in the forecast being optimistic, zero otherwise). Two proxies are tested separately in Model 1-2, 1-3 and Model 2-2, 2-3. In particular, since excessive forecasts are more conservative or pessimistic, the surprisingly better financial performance is accepted by investors and significantly promotes the stock prices during the announcement period. Apparently, an optimal forecast does not appear to be powerful enough to influence the trading performance, additionally reflecting the management forecasts are accurate in most cases.

To more specifically test the effect of forecasting error on aftermarket returns, the next part turns to compare raw and abnormal returns among forecasting firms.

4.6.3.3 Comparing Returns among Forecasting Firms during the First Financial Announcement Period

Table 4.16 shows the statistic summary and distribution of the control variables. With the exception of using two new dummy variables, instead forecasting dummy (FC) used in previous tests, other variables are kept.

In Panel A and Panel B, for raw IPO returns between pessimistic and optimistic forecasting, there does not appear to be a significant difference, as is also true of cumulative abnormal returns. Again, only a very small proportion of issuing firms offer optimistic forecasting rather than pessimistic forecasting, which results in insignificant statistics. However, the negative sign of *t*-statistics offers a prediction that pessimistic forecasting firms have a higher level of price rises during the announcement period than optimistic forecasts do. In other words, investors in the market normally give positive feedback and welcome the good news that companies' profitability is better than predicted. Alternatively, in the comparison

between excessive and non-excessive forecasting portfolios, a significant and negative relationship shows that serious bias will affect stock returns to a considerably lower level.

Panel C further provide the distribution of raw returns for all samples, Chinese firms, and non-Chinese firms. Over biased IPO forecasts received higher market dispersion and result in higher daily return, while modest forecasts coincide with investors' anticipation followed by minor price changes. Moreover, to compare Chinese and non-Chinese firms across different level of forecasting errors, Chinese firms consistently outperform than local counterparts. It is noted that, the first financial announcement is normally in one to three months after the initial listings, the primary cause to such performance remain unclear. To further discover the relationship between forecast error magnitude and aftermarket stock returns, this chapter rearranges the previous cross-section regressions by using a dummy of excessive error (EXC) instead of the forecasting dummy to investigate whether a serious forecasting bias will dramatically affect stock price movement. Results are listed in following Table 4.17.

Empirical results are consistent with prior predictions. Larger companies with a longer cooperating history have more stable price movement and hence lower abnormal returns, although this relationship is not statistically significant, which may be attributable to the announcement effect. China-related observations have higher abnormal returns than the local observations, and firms' underpricing is positively related to raw returns and abnormal returns. Market movement promotes IPO trading performance during the announcement period, and reduces the abnormal returns accordingly.

Early return volatility is significantly and positively associated with raw returns and abnormal returns. This is also consistent with previous results of divergence of opinion, which expects an overvaluation for IPOs with larger dispersion among investors.

As far as the dummy variable for excessive forecast errors is concerned, it has positive coefficients and significant *t*-statistics. There are two possible explanations. First, most of the excessive absolute forecast errors are from pessimistic forecasting, thereby a sharp increase in

actual profit would have a positive effect on market trading performance. In addition, this indicates the existence of dispersion among investors. To specify, not all investors have the ability to discover the forecast errors, since this event study starts from 5 trading days before the announcement date, and a high return during this period reflects investors' expectations. Meanwhile, the first financial statements are normally released between three to six months after offering, which is still not long enough for investors to find the intrinsic value. Therefore, even if a company reports a very different actual profit than the forecasted one, investors still need time to adjust their expectations and to discover their true value, especially those investors who are doing more fundamental analysis than technical analysis.

In short, this section investigates the effect of the first financial announcement on the basis of voluntary forecasting and excessive forecast errors. In particular, the empirical test suggests both *ex ante* uncertainty and public information will affect IPO trading performance during a time window of 11 days around the announcement. Moreover, China-related companies have better returns than the local companies. Although whether to report forecasted profit in prospectuses is not a crucial determinant of price movement, excessive forecast biases are strongly and negatively associated with both raw and abnormal returns.

Last but not least, this section starts to discuss the divergence of opinion. The proxy of dispersion and early return volatility show a significantly positive effect on trading performance. This is a signal that, divergence of opinion is possibly one of the systematic characteristics that affects long-term returns. The following section, in turn, will investigate IPO long-run returns and their relationship to forecast errors and divergence of opinion.

4.6.4 Forecast Errors and Long-term Performance –Testing on the Divergence of Opinion

As an extension of Chapter II to test the short-run underpricing phenomenon and "hot issue" market phenomenon, this chapter additionally examines the third anomaly in the long-

run. IPOs appear to have significantly underperformed as documented by Ritter (1991) and Loughran and Ritter (1995). The beginning of this section will test the overall performance of observations, including both forecasting and non-forecasting firms from 2000 to 2005. This section continuously focuses on testing the potential effects of IPOs' forecasting errors on the long-run trading performance. This includes the comparison between optimistic and pessimistic forecasting, the excessive forecast biases, as well as investors' irrational behaviours, etc.

Barber and Lyon (1997), Lyon et al. (1999), and Kothari and Warner (1997) document three main potential biases in the calculation of long-term returns: (1) survivor bias, which may occur if failing firms are excluded from the sample; (2) rebalancing bias, related to the calculation of cumulative returns, and (3) skewness bias, due to the fact that long-term returns are typically skewed. In order to minimize three potential misspecifications, this chapter will calculate long-term buy-and-hold market-adjusted compounded returns (MA-BHARs), and cumulative abnormal returns (CARs) for all IPOs (including forecasting and non-forecasting observations). The abnormal returns are compared with three benchmarks: the value-weighted indices (Hang Seng Index, Hang Seng Composite Index, and a portfolio of matching firms adjusted for industry and market value).

In particular, the Hang Seng Index (HSI) is the most popular benchmark in empirical studies in Hong Kong, however, this index did not include China H shares in the beginning. Only companies with a primary listing on the Main Board of the Stock Exchange of Hong Kong (SEHK) are eligible as constituents. From 2005, mainland enterprises that have a H-share listing in Hong Kong are eligible for inclusion in the HSI when they meet any one of the following conditions: (1) the H-share company has 100% of its ordinary share capital in the form of H-shares which are listed on the Stock Exchange of Hong Kong; (2) the H-share company has completed the process of Share Reform, with the result that there is no unlisted share capital in the company; or (3) for new H-share IPOs, the company has no unlisted share capital. While, the Hang Seng Composite Index Series (HSCI) comprises 18 indexes to gauge the performance of the Hong Kong stock market from different aspects. In addition to the

HSCI, there are six indexes based on the geographical status and market capitalisation of the constituent stocks, and 11 indexes based on industry classification. HSCI aims to cover 90% of the market capitalisation of stocks listed on the Main Board in Hong Kong and there are currently 200 constituent stocks. Therefore, with two indices representing different market risk and returns, there is no reason to only choose one of them as a market index benchmark.

The issuing month is defined as Month 0, which is for excluding the effect of initial underpricing. The long-run returns are calculated from Month 1. Therefore, one-year returns start from Month 1 to 12, two-year returns to Month 24, and three-year returns start from Month 1 to 26. The cumulative abnormal returns (CARs) have been defined in Equation (4.21). The buy-and-hold abnormal returns (BHARs) are defined as follow:

$$\mathrm{BHAR}_i = \prod_{t=1}^{T}(1 + \mathrm{R}_{i,t}) - \prod_{t=1}^{T}(1 + \mathrm{R}_{m,t}) \qquad (4.21)$$

where $\mathrm{R}_{i,t}$ is the company *i* raw return in month *t*, and $\mathrm{R}_{m,t}$ is the return of the benchmark in the respective month.

4.6.4.1 Empirical Evidence for IPOs Long-run Underperformance

According to prior literature, several research questions are raised about the long-run factor: Initially, whether IPOs truly underperform other stocks in one-year, two-year, and three-year time periods after issuing; whether IPOs with higher initial returns will have a lower long-run return due to overoptimistic bias among investors in the beginning of trading (Miller, 1977; Blazenko, 1989); whether management profit forecasts in prospectuses will help promote trading performance; and finally whether forecast errors are systematically associated with long-run returns. This section will jointly test the signalling model, market timing hypothesis, the impresario hypothesis, and divergence of opinion.

Based on Ibbotson (1975), this chapter expects a generally positive performance in the first year, and a negative performance in the next 3 years. To specify, the hypothesis is stated as follows:

H_{19}: *IPOs are expected to have long-run underperformance in the three years after trading.*

Table 4.18 reports the descriptive statistics of cumulative abnormal returns and buy-and-hold returns in years 1, 2 and 3 by comparing with indices and controlled firms. By testing the sample of 227 observations in the first 12 months, both of the market-index-adjusted CAR (14% and 16% on average) and the BHAR (15% and 16% on average) are significantly positive. In the second year after issuing, market-adjusted cumulative returns become higher, but there is a divisional tendency between the two indices. A possible explanation may be due to the components differential, i.e. the worse performance of H-share companies after 24 event months. This chapter will further discuss the differences between China-related and non-China related firm's long-run performance. The reported CAR_{Mtch} (-16.8%) is slightly lower than empirical evidence in McGuiness (1993) and Ljungqvist and Yu (2003), where in the working paper of Ljungqvist and Yu, they report an average underperformance of 17.3% for IPOs between 1997 and 2001.

To discover the tendency of abnormal returns, Table 4.19 and Figure 4.2 show a clear picture by separating long-run cumulative abnormal returns into each month, Month 1 to Month 36, via comparing with HSI, HSCI and control firms matched by industry and market capitalization. Both index-adjusted abnormal returns have an upward trend in the first year, and tend to fluctuate in the second year after trading. Following that, there is a downward movement after the 24^{th} or 25^{th} month, and the abnormal return become insignificantly different from the index returns. That is to say, after the outperformance duration of about two years, the IPO firms suffer from a decrease in stock return. This could be regarded as an evidence for the divergence of opinion. After overvaluation in the initial trading period, firms with a higher dispersion among investors tend to return back to their intrinsic value. In terms of CAR_{MTCH}, in the first trading year, IPO cumulative abnormal returns are significantly

negative in comparison to control firms. This decreasing trend occurs through three years time from Month 10. This is consistent with Ritter (1991) and Loughran and Ritter (1995) in testing IPO underperformance for the US market.

4.6.4.2 Empirical Evidence on Long-run Underperformance for China-related and non-China-related IPOs

Table 4.20 listed the descriptive statistics to compare CARs and BHARs in 1-year, 2-year, and 3-year period between China-related and local IPOs. To begin with, on average Chinese IPOs have lower Hang Seng Index adjusted cumulative abnormal returns than local companies in the first two trading years. This gap is more obvious when choosing the HSCI as a benchmark. This is consistent through all proxies of long-run abnormal returns. As it is mentioned, HSCI includes more China-related companies, especially H shares, than HSI. Therefore, while HSI may represent the general risk in the market, HSCI may be more favourable since which also indicate the potential systematic risks caused by China-related companies' overseas listing. In terms of firm-adjusted abnormal returns, local firms greatly outperform overseas companies, with a differential of around 2% on average. Consequently, apart from testing long-run performance, this research question is also an extension to Chapter II.

As far as the three-year index-adjusted returns are concerned, the China-related IPOs appear to outperform local observations. It provides further evidence to the prior studies. For instance, Huang and Song (2001) conclude that the performance of newly listed private firms declined more than H-share firms, probably because the positive privatization effect somewhat offset the negative IPO effect for H-firms. Sun, Tong and Wu (2006) also argue that H-share companies improve leverage and efficiency after listing, engage less in earning management. The reputational effect of state-owned background and the congenital characteristics (such as firm size and business) are favoured by international investors.

It is noted that, the long-run performance cannot simply be classified by a company's background. There is a group of systematic characteristics closely related to the long-run abnormal returns. The following research question will start to investigate the first effect raised by initial underpricing, and this will be a direct test for investors' over-optimistic bias.

4.6.4.3 The Relationship between IPO Initial Returns and Long-run Performance

The previous section demonstrates that the divergence of opinion has a significant explanatory power of initial returns and the announcement effect. To test for possible market overreaction, this part conducts two portfolios. They are a low IR portfolio and a high IR portfolio (the cut-off point being the median IR in individual time duration).

H_{20}: *It is expected that, in the absence of initial over-optimism, the long-term returns of IPOs with different levels of underpricing should be similar and should not be significantly different from the returns of benchmarks.*

According to Table 4.21, most of the means and medians of low underpricing firms have higher long-term abnormal returns than high underpricing ones, which is consistent with prior literature, for instance Ritter (1991), Shiller (1990), Levis (1993) and Loughran, Ritter and Rydquist (1994). In this framework, they all report that IPOs with moderate initial returns perform better than those with large initial returns. Although abnormal returns in the first two years and the buy-and-hold abnormal returns have lower *t*-statistics, the negative sign also supports the prediction that the overoptimistic bias in initial trading is closely and negatively associated with long-run underperformance.

Meanwhile, this is a direct test of Miller's theory that divergence of opinion can lead to asset overvaluation and subsequent underperformance in markets with restricted short-selling. Higher underpricing is at least partially due to the investors' dispersion on evaluating the new

stocks, with the true value released over time. It is difficult for higher dispersed stock to maintain high trading performance, therefore resulting in long-run underperformance.

In the subsequent study, an OLS cross-sectional test will further emphasize the important role of underpricing and divergence of opinion to the level of long-run underpricing. The dependent variables in the OLS regression use all abnormal returns conducted in this section, i.e. $CAR_{HSI,}$ $CAR_{HSCI,}$ CAR_{MTCH}, $BHAR_{HSI}$, and $BHAR_{HSCI}$ in one- and three-year time periods. The design of the control variables, following the literature, include uncertainty factors (SIZE, B/M), a background factor (CHN), and divergence of opinion factors (VOL25, Ln(T/Over)). Correlation matrix is reported in Table 4.22.

To specify, SIZE and the dummy variable, CHN, have been defined. B/M is the book-to-market ratio of each observation, which is one of the popular proxies in the asset pricing model. Size and book-to-market ratios have been widely discussed in financial literature as the proxy of risk (Fama and French, 1993). Higher risk IPOs are expected to have higher abnormal returns. Consequently, this chapter predicts a negative relationship to firm size and a positive relationship to the book-to-market ratio.

H_{21}: *IPOs with higher risks and undervaluation are expected to have worse performance in the long-run.*

To measure the market sentiment in the early stage of offering, this chapter chooses public subscription times (SUB) as an *ex ante* proxy. A higher level of subscription may represent a higher level of underpricing, as suggested by Chapter II. Also, a high public subscription level causes investors to judge the sentiment or interest of other investors (Welch, 1992; Ljungqvist, Nanda, and Singh, 2006). Thus, a negative relationship between subscription and long-run performance is expected.

H_{22}: *Market sentiment during the initial trading period will lead to underperformance in the long run.*

In addition, the OLS regression also directly tests the divergence of opinion hypothesis via using early market volatility and first-day turnover as proxies. The 25-day volatility has been defined in prior section, which is expected to be negatively related to long-run performance. Meanwhile, adopting the first-day turnover is from Bamber, Barron and Stober (1999) and Chordian and Swaminathan (2000). These researches investigate the relationship between underpricing and the investors' interest prior to and after the IPO day. A higher turnover for underpriced issues than overpriced issues, used as a proxy of divergence of opinion among investors, suggest that the informed investors participate mainly in underpriced issues. Consequently, this section additionally chooses the first-day volatility as a secondary proxy for the divergence of opinion, to calculate a logarithm for decreasing skewness.

H_{23}: *High divergence of opinion can result in worse trading performance in the long-run.*

The results are reported in Table 4.23. To begin with, SIZE appears to have a negative relationship to both cumulative returns and buy-and-hold returns as expected before, however, the coefficient estimates are statistically significant at a 0.05 level. However, the book-to-market ratio (B/M) is significantly and positively associated with long-run performance proxies. Since a high B/M presents the respective security as undervalued, both active and passive investors are more likely to trade or hold this kind of firms. China-related dummy (CHN) is negatively but insignificantly related to long-run performance measures.

Underpricing (IR) and long-run performance measures are significantly and negatively correlated. The results are consistent with Ritter (1991), Shiller (1990), Levis (1993) and Loughran, Ritter and Rydquist (1994) such that, unusual underpricing of an IPO is followed by an underperformance in the long-run.

This section also finds that the coefficient estimate of 25-day abnormal return volatility (VOL25) is negative but statistically significant in three-year tests, however, in the one-year test, only the Hang Seng Composite Index adjusted for cumulative abnormal return has a significant negative coefficient. The magnitude of the coefficient estimate is much smaller

than that reported for three-year tests. This is actually consistent with the hypothesis of the divergence of opinion. However, in three-year time, the true values of issuing firms have been discovered by the market, therefore the effect of initial dispersion become more remarkable. The secondary proxy of divergence of opinion, first-day turnover (T/O), also provides a negative sign, which, again, supports Miller's (1977) theory that greater divergence of opinion about an IPO leads to short-term overreaction and long-term underperformance.

So far, this section has carefully discussed the long-run performance for all observations. This chapter focuses on the effect of management profit forecasts and its effects on the short run and long run. The following research question therefore will turn to investigate the difference of long-run performance between forecasting and non-forecasting IPOs.

4.6.4.4 Empirical Evidence on Long-run Underperformance for Forecasting and Non-forecasting IPOs

This chapter has investigated the differences of abnormal returns during the first financial announcement period. The results show an insignificant *t*-statistic therefore the null hypothesis cannot be rejected. This section will turn to compare the long-term performance between these two portfolios, i.e. forecasting and non-forecasting.

H_{24}: *It is expected that, if investors do not over-rely on the IPO profit forecasts in evaluation of new firms, in the absence of initial over-optimism, the long-term returns of two portfolios should be similar and should not be significantly different from the market return.*

It is noted that, the tests in this part are particularly set for divergence of opinion. Bauman and Miller (1997) use the adaptive expectations hypothesis, where investors and analysts become psychologically attached to certain growth firms and thus attempt to extrapolate recent earning growth rates into the future.

Table 4.24 reports the statistics summary for IPO long-run performance measures by comparing two portfolios in one, two and three-year time periods. According to the summary, the average performance of forecasting IPOs is better than non-forecasting ones, which is consistent with Bauman and Miller's argument. However, *t*-values for most abnormal return measures are not statistically significant at the 0.05 level. Although the buy-and-hold abnormal returns have better power in explaining the gap between two portfolios, the cumulative returns have little difference. Consequently, the empirical results are not powerful enough to reject the null hypothesis.

So far, the impact of forecasting errors is still unknown. To further discover the effect, the following two research questions will separately examine the rationality and forecasting accuracy effect for long-run performance. Therefore, the testable sample reduces from 227 IPOs to 149 IPOs which report management profit forecasting in prospectuses in 2000 to 2005.

4.6.4.5 Testing the rationality for long-run performance

Lim (2000) argues that rational analysts, minimizing the expected squared error of their forecasts, may optimally report biased forecasts. In this framework, he shows that positive bias is positively related to uncertain information environments. Therefore, the rationality tests are assigned to examine the relationship between IPO management's forecasts the long-run performance.

H_{25}: *If investors do not heavily rely on forecasts in their valuation of IPOs, the long-run performance of forecasting and non-forecasting portfolios should be similar and should not be significantly different from the market return.*

According to Table 4.25, a pessimistic forecast has a negative effect on long-run performance. The long-run performance measures of pessimistic forecasting firms are all

lower than IPOs with optimistic management profit forecasts. The *t*-statistics are small, especially for one-year tests. The less of explanatory power is due to: (1) the small proportion of optimistic forecasts in the sample cannot efficiently impact the overall performance; (2) managers do not intentionally mis-present the future profits. However, a positive sign is consistent with Firth (1998) that, the accuracies of the forecasts are positively related to post-listing stock returns, excluding those firms which have excessive forecasting biases.

The rationality analysis is also tested in the long run. According to the above tests, neither the forecasting and non-forecasting, nor optimistic and pessimistic forecasting is the dividing line of underperformance. Therefore, the following tests use companies' shareholding background to investigate whether China-related forecasting IPOs will have worse underperformance than local forecasting ones. Conditional on the asymmetric information, when evaluating overseas companies, investors will rely on the offering documents. Holding the hypothesis of the divergence of opinion, a subsequent long-run underperformance is expected.

H_{26}: *China-related companies with a higher level of forecasting errors are expected to have worse trading performance in the long-run.*

The description statistics and results of *t*-tests are reported in Table 4.26. China-related stocks indeed have worse performance than local firms in the long-run. Both mean and median abnormal return measures for CHN are statistically and significantly lower than measures of local firms. Although index-adjusted first-year buy-and-hold abnormal returns have insignificant *t*-statistics, the negative sign is consistent through measures for any benchmarks and any time windows. According to the divergence of opinion, investors are supposed to adjust their stock price expectations based on the arrival of news about the true value of the firm. China-related companies have a higher underpricing level and worse long-run performance in comparison to local firms.

The following research questions will turn to focus on the impact of forecasting magnitude on the long-run performance. It is known that initial market valuation for an IPO depends, in part, on the earnings forecast published in the prospectus. It follows that if the forecast is inaccurate then revisions to the share price will occur.

4.6.4.6 Magnitude Forecasting Errors and IPO Long-run Underperformance

Prior research has attempted to model post-listing returns in the US and elsewhere, which are usually negative, as a function of various characteristics of the IPO. This section does not solely incorporate variables representing whether actual earnings are above or below expectations, but links the magnitude forecasting errors with IPO long-run performance. The testable hypothesis is listed as follows:

H_{27}: *Where profit forecasts are used by investors in pricing IPOs, if the forecasts prove to be inaccurate, abnormal returns occur, which will affect the investors' expectations as well as long-run returns.*

To test whether there is a positive relationship between long-run returns and forecast accuracy, this section adopts the proxy of magnitude in forecast errors, absolute forecast error (AFE), and the OLS regression follows previous design. In particular, the dependent variables include all abnormal returns measures conducted in this chapter, i.e. CAR_{HSI}, CAR_{HSCI}, CAR_{MTCH}, $BHAR_{HSI}$, and $BHAR_{HSCI}$ in one- and three-year time periods. Control variables include uncertainty factors (SIZE, B/M), a background factor (CHN), investors sentiment factors (SUB), the divergence of opinion factors (VOL25, Ln(T/Over)), and finally, the magnitude of forecasting error (AFE).

Table 4.27 reports the results of OLS regressions for testing one- and three-year abnormal returns measures. Firth (1998) reports a positive relationship between percentage earnings forecast error and the first year performance of Singaporean IPOs. The results in this section

remain robust and are consistent with Firth's argument by using Hong Kong data. The overall model fit is modest with an adjusted R^2 ranging from 0.21 to 0.28. A positive and significant coefficient for the book-to-market ratios suggests that trading performance is driven by the undervaluation level.

Coefficients of IR are negative in all years and are more significant in the third years after listing. Meanwhile, subscription times have a negative impact to the long-run performance, although the explanatory power decreases.

In addition, to further support divergence of opinion, both 25-day volatility and initial-day trading volume are inversely associated with abnormal returns, although 25-day volatility is consistently significant, while initial volume is only statistically significant for three-year Hang Seng Index adjusted CARs.

In terms of forecasting error magnitude, the positive and significant coefficient on AFE supports the argument that profit forecasts are used by investors in pricing new shares; if the forecasts prove to be inaccurate, abnormal returns occur. Since forecast error cannot be determined until the IPO company releases its financial results for the fiscal year ending after the new issues, the magnitude of forecast biases will be strongly related to first year performance, but much weaken the effect to the extent of three-year performance. The positive sign is consistent with prior literature, for instance Firth (1998), which suggests that 'pessimists' outperform 'optimists' during at least the first 15 months following official listing.

4.7 Summary and Conclusions

To jointly test a number of hypotheses, including the agency problem, signalling, investor sentiments, overreaction, the divergence of opinion, and the windows of opportunities, this chapter investigates the IPOs profit forecast effects on short-run and long-run puzzles by using 172 forecasting observations and 84 non-forecasting observations listed on the Hong Kong Stock Exchange Main Board from between 2000 and 2006.

4.7.1 Summary of Main Findings

The average level of IPO profit forecasts error in prospectuses is about 5.4%, representing a pessimistic bias compared to actual profit which is consistent with prior studies in Chen et al. (2000). The magnitude of forecasting errors is higher for China-related companies than for local firms. Although forecast errors exist, management's forecasting has superiority over popular time-series forecasting models. The result shows evidence of a possible agency problem. Issuing firms have better knowledge than others, which gives them opportunity to seek additional benefits when reporting the profit forecasting in initial offerings.

In the further tests for forecasting rationality, according to De Bondt and Thaler's (1990) model, the result demonstrates a pessimistic bias. The significant slope coefficients suggest forecasts are not rational in the sense that management correctly incorporates the available information (i.e. the historical profit) in its forecasts.

Regarding the determinants of the magnitude of forecast accuracy, various systematic characteristics are tested in cross-sectional regressions. Proxies of higher level in *ex ante*

uncertainty, including firm size, age, gearing, industry, number of risks, and underwriter are directly and negatively related to forecast accuracy. Moreover, when the market condition is more volatile, the managers have a stronger incentive to mis-report the profit forecast.

By comparing the initial return and market-adjusted initial returns, forecasting and non-forecasting IPOs have a similar level of underpricing, and the results are consistent with the whole sample in most tested years. There is no statistically significant difference between pessimistic and optimistic forecasting, which may be due to the announcement of first annual reports being three to six months after trading. The evidence suggests that if the forecast is over-biased, i.e. the forecasting error is excessive (higher than the median of absolute forecast error), investors have the ability to adjust investment expectations, which in turn causes a higher level in underpricing.

This chapter also conducts an event study during the first financial announcement period by using the cumulative abnormal returns of IPOs. According to Miller's (1977) theory, the empirical test includes a proxy of the divergence of opinion, known as the early-market volatility. Underpricing, early-market volatility, market volatility, and China-related background are significantly associated with abnormal returns. The result also demonstrates that excessive forecast bias will have a short-term effect on stock prices since investors need time to discover intrinsic value of the firm and adjust their expectation.

In terms of a long-run investigation, it directly tests the investor sentiment hypothesis and divergence of opinion theory. In the first part, the study tests the long-run underperformance, which mainly follows Ritter (1991). Using different abnormal return measures, IPOs significantly underperform compared benchmarks in three years after issuing. The performance decreases month by month, while China-related companies have worse performance than local observations. In addition, consistent with the divergence of opinion theory, firms with higher initial returns actually underperform in the long-run, which is due to the initial overvaluation. Moreover, although only a few long-run performance measures are significant in the testing of performance difference between forecasting and non-forecasting

firms, the magnitude of forecast errors still systematically affects the one-year trading performance. And finally, all variables of divergence of opinion are powerful enough to partially explain the long-run underperformance of IPOs.

4.7.2 Contributions, Implications and Limitations of the Study

The studies in this chapter are important because profit forecasts are the major valuation parameter for IPOs. It highlights the managers' earning forecasts in IPOs. It is expected to benefit investors, especially retail investors, to the extent of understanding management teams' incentives and behaviour in information disclosure. Also, for issuing firms and their managers, the accuracy of information disclosure during the IPO period is not the only strategy to promote public subscription, which is also tightly linked to the market performance in a certain period after going public.

In terms of academic contributions, the chapter adopt new proxies in testing the determination of forecast error magnitude, such as using an insider dummy to control the wealth effect and dilution effect. Also, the research replicates analyst earning forecasting method towards management earning forecasts reporting, and the tests combine IPO the forecast and the stock performance in immediate market to explain the long-run underperformance, which is in line with divergence of opinion hypothesis. However, it is still critical to adopt various proxies in the empirical investigation. Meanwhile, limitation of methodology on long-run performance and specific market features in Hong Kong result in the congenitally weak basis of the research.

Table 4.1 Total Number of IPOs on the Main Board in Hong Kong and Usable Sample (Jan. 2000 – Dec. 2006)

	Total	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Population	**298**	42	31	60	46	49	57	12
Excluding: Offer By Introduction	**22**	2	--	5	7	3	3	2
Excluding: Missing Prospectuses	**4**	2	1	2	--	1	--	--
Excluding: Investment Fund	**15**	--	1	9	2	1	--	--
Final Sample								
With Profit Forecasts	**172**	31	23	24	26	26	36	6
Without Profit Forecasts	**84**	7	6	20	11	18	18	4
Total	**256**	**38**	**29**	**44**	**37**	**44**	**54**	**10**

Table 4.2 Sample Distribution by Industry in Hong Kong (Jan. 2000 – Dec. 2006)

Industry	**Two-digit SIC codes**	**Frequency**	**Percentage**
Oil and Gas, Electric and Gas Service	13, 29, 49	6	3.5%
Food Products	20	9	5.2%
Clothing Products	22, 23	12	7.0%
Chemical Products, Manufacturing, and Paper Products	24-27, 28,30-34	28	16.3%
Computer Hardware & Software	35, 73	12	7.0%
Electronic Equipment	36	13	7.6%
Transportation	37, 39, 40-42, 44, 45	21	12.2%
Retail	53, 54, 56, 57, 59	8	4.7%
Banking and Insurance, Financial Services	60-65	14	8.1%
Investors, Venture Capitals	67	19	11.0%
Entertainment Services and Consulting Services	70, 78, 79, 87	7	4.1%
All Others	1, 10, 12, 15, 16, 38, 46-48, 50-52	23	13.4%
Total		172	100.0%

Table 4.3 Descriptive Statistics of IPO Profit Forecast Accuracy (All Sample)

	FE	AFE	SQFE
Average	0.05	0.10	5.25
Median	0.04	0.05	0.22
SD	0.20	0.18	20.17
Max	0.91	1.17	140.29
Min	-1.17	0.00	0.00
Skew	-1.74	3.72	5.27
Kurt	17.65	15.23	29.35

The metrics are Forecast Error (FE = (AP-FP)/|AP|), Absolute Forecast Error (AFE = |FE|), and Squared Forecast Error (SQFE = $(FE)^2$ ×100).

Table 4.4 Descriptive Statistics of IPO Profit Forecast Accuracy (by Cohort Year)

Year	Number of Forecasting[#]	FE			AFE			SQFE		
		Mean	*Median*	*S.D.*	*Mean*	*Median*	*S.D.*	*Mean*	*Median*	*S.D.*
2000	31 (81.58%)	-0.01	-0.01	-0.01	0.21	0.21	0.21	16.66	0.08	36.53
2001	23 (79.31%)	0.05	0.05	0.05	0.05	0.05	0.05	0.63	0.18	1.75
2002	24 (54.55%)	0.05	0.05	0.05	0.05	0.05	0.05	0.48	0.28	0.82
2003	27 (71.05%)	0.07	0.07	0.07	0.11	0.11	0.11	3.02	0.60	6.85
2004	25 (58.14%)	0.09	0.09	0.09	0.09	0.09	0.09	2.87	0.22	10.42
2005	36 (66.67%)	0.08	0.08	0.08	0.08	0.08	0.08	1.50	0.30	3.91
2006	6 (60.00%)	0.07	0.07	0.07	0.07	0.07	0.07	24.38	0.16	6.82
All	172 (67.19%)	0.05	0.04	0.20	0.10	0.05	0.18	5.25	0.22	20.17

[#] Numbers in bracket are the percentage of IPOs releasing profit forecast in prospectuses in each calendar year.
The metrics are Forecast Error (FE = (AP-FP)/|AP|), Absolute Forecast Error (AFE = |FE|), and Squared Forecast Error (SQFE = $(FE)^2$ ×100).

Table 4.5 Descriptive Statistics of IPO Profit Forecast Accuracy and Comparison Between Chinese and Non-Chinese IPOs

	All	CHN	H-Share	Red Chip	Non-CHN
	(173 IPOs)	(45 IPOs)	(34 IPOs)	(11 IPOs)	(128 IPOs)
Forecast Error (FE)					
Mean	0.054	0.105	0.092	0.145	0.035
t-statistics	(3.48)*	(3.17)*	(2.56)*	(1.81)	(2.08)*
Sign test (p-value)	(0.00)	(0.00)	(0.01)	(0.06)	(0.05)
Median	0.043	0.075	0.077	0.026	0.041
S.D.	0.202	0.223	0.210	0.267	0.192
Absolute Forecast Error (AFE)					
Mean	0.100	0.151	0.153	0.145	0.083
t-statistics	(3.29)*	(5.23)*	(5.28)*	(1.81)	(2.71)*
Sign test (p-value)	(0.00)	(0.00)	(0.00)	(0.06)	(0.04)
Median	0.047	0.077	0.080	0.026	0.042
S.D.	0.183	0.194	0.170	0.267	0.176
Squared Forecast Error (SQFE)					
Mean	0.050	6.117	5.145	8.564	3.756
t-statistics	(1.77)	(2.91)*	(2.85)*	(1.32)	(1.74)
Sign test (p-value)	(0.06)	(0.02)	(0.02)	(0.07)	(0.07)
Median	0.040	0.217	0.637	0.068	0.176
S.D.	20.170	17.061	10.530	21.487	18.082

This table shows profit forecast accuracy using two metrics for all sample, China-related observations (CHN), H-share observations (H-Share), Red Chip observations (Red Chip) and non-China-related observations (Non-CHN). The metrics are Forecast Error (FE = (AP-FP)/|AP|), Absolute Forecast Error (AFE = |FE|), and Squared Forecast Error (SQFE = $(FE)^2$ ×100). *Statistically significantly different from zero at the 0.01 level. T-test and non-parametric sign test is to test the level of significant for the difference in the mean error metrics from zero.

Table 4.6 Descriptive Statistics of Superiority Measures of IPO Profit Forecast (Naïve No-change and Growth Models)

	SUP(N)				
	All	***CHN***	***H-Shares***	***Red Chips***	***Non-CHN***
Mean	0.367	0.4334	0.4495	0.4922	0.3432
***t*-statistics**	(2.94)*	(6.293)*	(5.231)*	(3.494)*	(2.408)†
Median	0.168	0.2784	0.2686	0.5055	0.1421
Minimum	-5.836	-0.378	-0.3778	-0.1449	-5.836
Maximum	17.241	2.0046	2.0046	1.6831	17.241
	SUP(G)				
	All	***CHN***	***H-Shares***	***Red Chips***	***Non-CHN***
Mean	0.141	0.3029	0.2883	0.4420	0.0834
***t*-statistics**	(1.98)†	(5.787)*	(4.619)*	(3.431)*	(0.886)††
Median	0.215	0.2316	0.2230	0.3824	0.2145
Minimum	-7.614	-0.469	-0.4685	-0.0972	-7.614
Maximum	3.124	1.4776	1.4776	1.4776	3.1242

By comparing with the naïve no-change forecasts and growth forecasts, two superiority measures test the whether the management forecast has superiority over popular time-series forecasting models.

SUP (N) = AFE (N) – AFE , and SUP (G) = AFE (G) – AFE ; where:

$$AFE(N) = \left|\frac{AP_t - NAÏVE\_F}{AP_t}\right|; \text{ and } AFE(G) = \left|\frac{AP_t - GF}{AP_t}\right|$$

Note: * statistically significantly different from zero at the 0.01 level; † significantly different from zero at the 0.01 level; and †† insignificantly different from zero at the 0.05 level.

Table 4.7 Regression Results in Testing for Bias and Rationality by Applying De Bont and Talyor Forecasting Rationality Model

t-Test H_0: $\alpha=0$ and $\beta=1$					
Independent Variables	**$(FP_t - AP_{t-1}) / AP_{t-1}$**				
	All (172 IPOs)	**CHN** (45 IPOs)	**H-Shares** (34 IPOs)	**Red Chip** (11 IPOs)	**Non-CHN** (127 IPOs)
Intercept (α)	0.103	0.234	0.168	0.533	0.056
	(3.06)*	(2.63)*	(3.33)*	(1.56)	(1.747)
$(AP_t - AP_{t-1}) / AP_{t-1}$	1.073	1.055	1.127	0.559	1.080
	(36.05)*	(13.16)*	(26.50)*	(1.35)	(37.92)*
	(2.33)†	(0.689)	(2.98)*	--	(2.80) †
Adjusted R^2	0.884	0.797	0.955	0.952	0.919

The reported regression trys to capture the bias and rationality of management forecasts, i.e. whether managers can fully and correctly incorporate the historic information into forecasts.

$$(AP_t - AP_{t-1}) / AP_{t-1} = \alpha + \beta\,(FP_t - AP_{t-1}) / AP_{t-1} + \varepsilon_i$$

$$H_5:\ \alpha = 0 \quad and \quad \beta = 1$$

Notes:

t-statistics (for α=0 and β=1) in parentheses. They are computed using the White (1980) heteroskedasticity-consistent estimate of the standard errors of the coefficients. FP is forecast profit in prospectuses, and AP is actual profit for the forecasted IPO fiscal year.

*Statistically significantly different from zero (0) at the 0.01 level; † significantly different from the hypothesized slope coefficient of one (1) at the 0.01 level.

Table 4.8 Descriptive Statistics of Control Variables in Testing the Determinants of the Magnitude of Forecasting Errors

The Sample in the table includes 173 Hong Kong Main Board operating firm IPOs from 2000 to 2006 where the complete data on all of the variables is available. **SIZE** is the logarithm of proceed amount raised in offerings; **AGE** is the logarithmic value of company's years of operating history; **INDUSTRY** is the dummy variable equal to one if being high-tech company; **GEAR** is the gearing ratio reported in the last annual reported prior to offering; **RISK** is the number of risk factors listed prospectuses; **INSIDER**, the insider benefit dummy equals to one if the wealth effect is higher than dilution effect, and zero otherwise; **SUB** is times of public subscriptions for new shares; **HORIZON** is the forecasting duration, representing the number of months making up the forecast interval; **CHN** is dummy variable equal to one if being H-shares or Red Chips, and zero otherwise; **UNDWR** is a dummy variable equal to one if the firm underwritten by high reputable bankers (including BOCI, CICC, Citigroup, Credit Suisse First Boston, DBS, HSBC, Goldman Sachs, JP Morgan, Merrill Lynch, and Morgan Stanley), and zero otherwise; **MKT-RT**; and **MKT**-V is the proxy of systematic risk equal to the volatility of daily return of Hang Seng Index one month (20 trading days) prior to the offerings.

	SIZE	**AGE**	**GEAR**	**RISK**	**HORIZON**	**SUB**
Mean	19.006	2.588	41.856	25.355	1.622	89.511
Median	18.622	2.553	24.315	23.000	1.033	15.835
Maximum	22.594	4.579	431.37	62.000	13.600	969.00
Minimum	15.730	-1.596	5.000	9.000	-7.933	0.186
S.D.	1.326	0.738	57.022	9.848	3.412	170.77
Skewness	-0.182	5.349	14.557	0.675	1.793	8.513
Kurtness	0.621	-0.705	3.135	0.917	0.033	2.871
	INSIDER	**TECH**	**CHN**	**UNDWR**	**MKT-RTN**	**MKT-V**
Mean	119§	20§	45§	55§	0.014	0.012
Median	69.19%※	11.63%※	26.16%※	31.98%※	0.020	0.011
Maximum	--	--	--	--	0.162	0.026
Minimum	--	--	--	--	-0.117	0.004
S.D.	0.463	0.321	0.441	0.468	0.055	0.005
Skewness	-1.313	3.878	-0.812	-1.409	-0.286	-0.412
Kurtness	-0.838	2.415	1.094	0.780	-0.226	0.728

Note: §the number of dummy variables which equal to one, and ※ the percentage of dummy variables which equal to one.

Table 4.9 Descriptive Statistics of Control Variables in Testing the Determinants of the Magnitude of Forecasting Errors (Segmented by Mean)

The Sample in the table includes 173 Hong Kong Main Board operating firm IPOs from 2000 to 2006 where the complete data on all of the variables is available. **SIZE** is the logarithm of proceed amount raised in offerings; **AGE** is the logarithmic value of company's years of operating history; **INDUSTRY** is the dummy variable equal to one if being high-tech company; **GEAR** is the gearing ratio reported in the last annual reported prior to offering; **RISK** is the number of risk factors listed prospectuses; **INSIDER**, the insider benefit dummy equals to one if the wealth effect is higher than dilution effect, and zero otherwise; **SUB** is times of public subscriptions for new shares; **HORIZON** is the forecasting duration, representing the number of months making up the forecast interval; **CHN** is dummy variable equal to one if being H-shares or Red Chips, and zero otherwise; **UNDWR** is a dummy variable equal to one if the firm underwritten by high reputable bankers (including BOCI, CICC, Citigroup, Credit Suisse First Boston, DBS, HSBC, Goldman Sachs, JP Morgan, Merrill Lynch, and Morgan Stanley), and zero otherwise; **MKT-RT**; and **MKT**-V is the proxy of systematic risk equal to the volatility of daily return of Hang Seng Index one month (20 trading days) prior to the offerings. The ***columns of Mean*** report the average AFE of respective portfolios and the ***columns of No.*** report the number of observations included in respective portfolios.

Mean	**No.**	**Mean**	**No.**	**Mean**	**No.**	**Mean**	**No.**
Segmented by Mean of Ln(SIZE) [19.00]				Segmented by Mean of Subscription [89.51]			
Large		*Small*		*High*		*Low*	
0.084	75	0.123	97	0.102	46	0.098	126
Segmented by Mean of AGE [2.59]				Segmented by Mean of Horizon [1.62]			
Old		*Yong*		*Long*		*Short*	
0.078	80	0.122	92	0.107	75	0.097	97
Segmented by Tech and Non-Tech				Segmented by CHN and Non-CHN			
Tech		*Non-Tech*		*CHN*		*Non-CHN*	
0.145	20	0.096	152	0.151	45	0.083	127
Segmented by Mean of GEAR [41.86]				Segmented by Underwriters' Reputation			
High		*Low*		*High (=1)*		*Low (=0)*	
0.117	56	0.094	116	0.124	55	0.091	117
Segmented by Mean of Risk [25.35]				Segmented by Mean of Market Return [0.014]			
High		*Low*		*High*		*Low*	
0.093	72	0.107	100	0.093	98	0.112	74
Segmented by Insider's Benefits				Segmented by Mean of MKT Volatility [0.012]			
W>D (=1)		*W<D (=0)*		*High*		*Low*	
0.103	119	0.103	53	0.131	79	0.076	93

Table 4.10 Correlation Matrix of Control Variables in OLS Regression to Test Forecasting Error Metrics of Hong Kong IPOs

The Sample in the table includes 173 Hong Kong Main Board operating firm IPOs from 2000 to 2006 where the complete data on all of the variables is available. **SIZE** is the logarithm of proceed amount raised in offerings; **AGE** is the logarithmic value of company's years of operating history; **GEAR** is the gearing ratio reported in the last annual reported prior to offering; **RISK** is the number of risk factors listed prospectuses; **INSIDER**, the insider benefit dummy equals to one if the wealth effect is higher than dilution effect, and zero otherwise; **SUB** is times of public subscriptions for new shares; **HORIZON** is the forecasting duration, representing the number of months making up the forecast interval; **CHN** is dummy variable equal to one if being H-shares or Red Chips, and zero otherwise; **UNDWR** is a dummy variable equal to one if the firm underwritten by high reputable bankers (including BOCI, CICC, Citigroup, Credit Suisse First Boston, DBS, HSBC, Goldman Sachs, JP Morgan, Merrill Lynch, and Morgan Stanley), and zero otherwise; **MKT-R** is the market return of Hang Seng Index one month (20 trading days) prior to the offerings; and **MKT-V** is the proxy of systematic risk equal to the volatility of daily return of Hang Seng Index one month (20 trading days) prior to the offerings. The *t*-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent method.

	SIZE	AGE	GEAR	RISK	INSIDER	SUB	HORIZON	CHN	UNDWR	MKT RTN	MKT V
SIZE	1.00										
AGE	0.18	1.00									
GEAR	0.09	0.10	1.00								
RISK	0.46	0.10	0.10	1.00							
INSIDER	0.15	0.01	-0.03	0.04	1.00						
SUB	0.39	-0.01	0.03	0.28	0.25	1.00					
HOR	0.18	0.05	0.03	0.21	0.00	-0.21	1.00				
CHN	0.42	0.16	0.08	0.38	0.05	0.23	0.12	1.00			
UNDWR	0.44	0.13	0.14	0.40	0.06	0.21	0.20	0.45	1.00		
MKT RTN	0.18	-0.06	0.11	0.10	0.08	0.23	-0.19	0.10	0.18	1.00	
MKT V	-0.24	-0.08	-0.06	-0.36	-0.08	-0.14	-0.26	-0.22	-0.22	-0.23	1.00

Table 4.11 OLS Regressions in Testing Forecasting Error Metrics of Hong Kong IPOs (2000-2006)

The Sample in the table includes 173 Hong Kong Main Board operating firm IPOs from 2000 to 2006 where the complete data on all of the variables is available. The dependent variable in all regressions is the **AFE** (Column 1) and **SUP(G)** (Column 2). **SIZE** is the logarithm of proceed amount raised in offerings; **AGE** is the logarithmic value of company's years of operating history; **INDUSTRY** is the dummy variable equal to one if being high-tech company; **GEAR** is the gearing ratio reported in the last annual reported prior to offering; **RISK** is the number of risk factors listed prospectuses; **INSIDER**, the insider benefit dummy equals to one if the wealth effect is higher than dilution effect, and zero otherwise; **SUB** is times of public subscriptions for new shares; **HORIZON** is the forecasting duration, representing the number of months making up the forecast interval; **CHN** is dummy variable equal to one if being H-shares or Red Chips, and zero otherwise; **UNDWR** is a dummy variable equal to one if the firm underwritten by high reputable bankers (including BOCI, CICC, Citigroup, Credit Suisse First Boston, DBS, HSBC, Goldman Sachs, JP Morgan, Merrill Lynch, and Morgan Stanley), and zero otherwise; **MKT-R** is the market return of Hang Seng Index one month (20 trading days) prior to the offerings; and **MKT-V** is the proxy of systematic risk equal to the volatility of daily return of Hang Seng Index one month (20 trading days) prior to the offerings. The *t*-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent method.

	Coefficient	*t-statistics*	*p-value*
Constant	-0.494	(-1.18)	[0.238]
SIZE	-0.1738	(-1.58)	[0.116]
AGE	-0.0604	(-3.17)*	[0.002]
INDUSTRY	0.0530	(1.49)	[0.138]
GEAR	0.0454	(1.07)	[0.286]
RISK	0.0056	(1.29)	[0.009]
INSIDER	0.139	(0.96)	[0.336]
SUB	0.0004	(1.09)	[0.279]
HORIZON	0.0073	(0.34)	[0.738]
CHN	0.3741	(2.07)*	[0.040]
UNDWR	-0.1906	(-1.07)	[0.288]
MKT RTN	1.4473	(1.20)	[0.232]
MKT V	29.3982	(2.02)*	[0.045]
R^2 = 0.1706			

Table 4.12 Comparison of Portfolios Initial Returns and Market-adjusted Initial Returns for Forecasting and Non-forecasting IPOs

	(1) Forecasting					(2) Non-Forecasting					(3) *t*-statistics	
	No.	***IR***	***S.D.***	***MAIR***	***S.D.***	***No.***	***IR***	***S.D.***	***MAIR***	***S.D.***	***IR***	***MAIR***
2000	31	0.037	0.324	0.041	0.326	7	0.116	0.219	0.128	0.221	-0.783	-0.855
2001	22	0.092	0.149	0.091	0.151	6	0.777	1.781	0.770	1.765	-0.942	-0.941
2002	26	0.227	0.720	0.225	0.720	20	0.039	0.154	0.041	0.151	1.288	1.268
2003	26	0.133	0.225	0.133	0.226	11	0.043	0.154	0.040	0.152	1.402	1.474
2004	25	0.055	0.118	0.052	0.120	18	0.020	0.195	0.022	0.195	0.681	0.577
2005	38	0.081	0.014	0.080	0.015	18	0.009	0.125	0.006	0.125	2.45*	2.48*
2006	4	0.427	0.298	0.426	0.302	4	0.282	0.320	0.280	0.323	0.661	0.661
All	**172**	**0.109**	**0.338**	**0.108**	**0.338**	**84**	**0.100**	**0.507**	**0.100**	**0.503**	**0.144**	**0.137**

*Statistically significantly different at the 0.01 level.

Table 4.13 Tests of Differences in Underpricing for Forecasting IPOs

(Pessimistic v.s Optimistic; Excessive v.s Non-Excessive)

[Panel A]

	No. of	**IR**		**MAIR**	
	IPOs	Mean	*t*-statistics	Mean	*t*-statistics
Pessimistic (FE>0)	162	0.111	-0.722	0.203	-0.692
Optimistic (FE<0)	10	0.206	--	0.108	--
Excessive (AFE>0.0467)	84	0.181	2.318*	0.178	2.197*
Non-Excessive (AFE≤0.0467)	88	0.061	--	0.064	--

[Panel B]

	No .of	**IR**		**MAIR**	
	IPOs	*Mean*	*t-statistics*	*Mean*	*t-statistics*
[CHN]					
Excessive (AFE>0.0467)	29	0.133	1.329	0.130	1.306
Non-Excessive (AFE<0.0467)	16	0.071	--	0.068	--
[Non-CHN]					
Excessive (AFE>0.0467)	56	0.202	2.268*	0.198	2.166*
Non-Excessive (AFE<0.0467)	71	0.033	--	0.037	--

Note: *t*-test for whether two portfolios' initial returns or market-adjusted initial return are statistically different.
*Significantly different from null hypothesis at the 0.01 level.

[Panel C]

	All		**CHN**		**Non-CHN**	
	No. of IPO	*Mean*	*No. of IPO*	*Mean*	*No. of IPO*	*Mean*
$-\infty < FE \leq -1$	6	0.07	0	--	6	0.07
$-1 < FE < 0$	5	0.35	2	0.11	3	0.45
$FE = 0$	14	0.09	3	0.19	11	0.06
$0 < FE \leq 0.05$	74	0.04	9	0.14	62	0.03
$0.05 < FE \leq 0.1$	36	0.11	12	0.08	24	0.12
$0.1 < FE \leq 0.2$	17	0.14	7	0.03	10	0.20
$0.2 < FE \leq 0.5$	6	0.10	6	0.10	0	--
$0.5 < FE$	4	0.05	2	0.09	2	0.01

Table 4.14 Descriptive Statistics of Control Variables in Testing IPO Returns during the First Announcement Period (Segmented by Mean)

The Sample in the table includes 256 Hong Kong Main Board operating firm IPOs from 2000 to 2006 where the complete data on all of the variables is available. The dependent variable in all regressions is the **Cumulative Abnormal Return** (Column 1) and **Row Return** (Column 2) during 11 trading days around the first financial announcement date after going public. **SIZE** is the logarithm of proceed amount raised in offerings; **AGE** is the logarithmic value of company's years of operating history; **CHN** is dummy variable equal to one if being H-shares or Red Chips, and zero otherwise; **FC** is a dummy variable equal to one if the firm reports a profit forecast in prospectus, zero otherwise; **IR** is the IPO initial return, or called underpricing; **MKT-R** is the daily market return of Hang Seng Index during in respective period; and **25-Day Volatility** is the early market volatility, which is defined as the standard deviation of the first 25 daily returns right after the offering, excluding the initial return. The *t*-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent method.

	CAR				IPO Rtn			
	Mean	**No.**	**Mean**	**No.**	**Mean**	**No.**	**Mean**	**No.**
Segmented by Mean of Ln(SIZE) [18.86]								
	Large		***Small***		***Large***		***Small***	
	2.695	98	2.986	158	0.124	98	0.1450	158
Segmented by Mean of AGE [2.62]								
	Old		***Yong***		***Old***		***Yong***	
	2.846	119	2.898	137	0.118	119	0.154	137
Segmented by CHN and Non-CHN								
	CHN		***Non-CHN***		***CHN***		***Non-CHN***	
	3.053	53	2.827	203	0.147	53	0.135	203
Segmented by Forecasting and Non-Forecasting								
	FC=1		***FC=0***		***FC=1***		***FC=0***	
	2.907	172	2.807	84	0.144	172	0.124	84
Segmented by Mean of IR [0.1024]								
	High		***Low***		***High***		***Low***	
	2.926	158	2.842	98	0.142	158	0.130	98
Segmented by Mean of 25-Day Volatility [0.0333]								
	High		***Low***		***High***		***Low***	
	2.964	99	2.732	157	0.175	99	0.113	157
Segmented by Mean of Mkt-Rtn [0.025]								
	High		***Low***		***High***		***Low***	
	2.479	171	2..157	85	0.148	171	0.114	85

Table 4.15 Cross-sectional Tests for IPO Returns during Announcement Period Forecasting v.s Non-Forecasting Firms

The Sample in the table includes 256 Hong Kong Main Board operating firm IPOs from 2000 to 2006 where the complete data on all of the variables is available. The dependent variable in all regressions is the **Row Return** (Column 1) and **Cumulative Abnormal Return** (Column 2) during 11 trading days around the first financial announcement date after going public. **SIZE** is the logarithm of proceed amount raised in offerings; **AGE** is the logarithmic value of company's years of operating history; **CHN** is dummy variable equal to one if being H-shares or Red Chips, and zero otherwise; **FC** is a dummy variable equal to one if the firm reports a profit forecast in prospectus, zero otherwise; **EXC** is a dummy variable equal to one if the absolute forecast error is higher than 4.67 per cent (median of AFE), zero otherwise; **OPTM** is a dummy variable equal to one in the forecast being optimistic, zero otherwise. **IR** is the IPO initial return, or called underpricing; **MKT-RTN** is the daily market return of Hang Seng Index during in respective period; and **25-Day Volatility** is the early market volatility, which is defined as the standard deviation of the first 25 daily returns right after the offering, excluding the initial return. The *t*-statistics and *p*-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent method. * Statistically significant at 0.01 level.

	IPO Raw Rtn			**CAR**		
	Model 1-1	***Model 1-2***	***Model 1-3***	***Model 2-1***	***Model 2-2***	***Model 2-3***
Constant	0.346			0.346		
	(2.42)*			(2.41)*		
SIZE	-0.013			-0.013		
	(-1.74)			(-1.74)		
AGE	-0.011			-0.011		
	(-1.05)			(-1.05)		
CHN	0.050			0.05		
	(2.13)*			(2.13)*		
IR	0.080			0.08		
	(4.03)*			(4.03)*		
FC	0.016			0.016		
	(0.93)			(0.93)		
EXC		0.109			0.109	
		(2.323)*			(2.32)*	
OPTM			0.030			0.030
			(1.05)			(1.05)
VOL25	1.760			1.760		
	(3.95)*			(3.95)*		
MKT-R	0.010			-0.010		
	(2.18)*			(-2.18)*		
R^2	0.165	0.169	0.152	0.194	0.202	0.189

Table 4.16 Test of Differences in Raw Returns and Abnormal Returns for Forecasting IPOs

[Panel A]

	No. of IPOs	Raw IPO Rtn		Rtn during Announcement	
		Mean	*t-statistics*	*Mean*	*t-statistics*
Pessimistic (FE>0)	163	0.138	1.158	2.828	1.850
Optimistic (FE<0)	10	0.130	--	2.179	--
Excessive (AFE>0.0467)	84	0.114	2.723*	2.389	2.252*
Non-Excessive (AFE≤0.0467)	88	0.140	--	2.878	--

Note: *t*-test for whether two portfolios' initial returns or market-adjusted initial return are statistically different.
*Significantly different from null hypothesis at the 0.01 level.

[Panel B]

	No .of IPOs	Raw IPO Rtn		Rtn during Announcement	
		Mean	*t-statistics*	*Mean*	*t-statistics*
[CHN]					
Excessive (AFE>0.0467)	29	0.133	1.329	0.130	1.306
Non-Excessive (AFE<0.0467)	16	0.071	--	0.068	--
[Non-CHN]					
Excessive (AFE>0.0467)	56	0.202	2.268*	0.198	2.166*
Non-Excessive (AFE<0.0467)	71	0.033	--	0.037	--

Note: *t*-test for whether two portfolios' initial returns or market-adjusted initial return are statistically different.
*Significantly different from null hypothesis at the 0.01 level.

[Panel C] Distribution of Raw Returns

	All		CHN		Non-CHN	
	No. of IPO	*Mean*	*No. of IPO*	*Mean*	*No. of IPO*	*Mean*
$-\infty < FE \leq -1$	6	0.06	0	--	6	0.06
$-1 < FE < 0$	5	0.02	2	0.02	3	0.02
$FE = 0$	14	-0.01	3	-0.03	11	0.00
$0 < FE \leq 0.05$	74	0.02	9	0.03	62	0.01
$0.05 < FE \leq 0.1$	36	0.01	12	0.01	24	0.01
$0.1 < FE \leq 0.2$	17	0.00	7	0.02	10	-0.01
$0.2 < FE \leq 0.5$	6	0.03	6	0.03	0	--
$0.5 < FE$	4	0.01	2	0.02	2	0.01

Table 4.17 Cross-sectional Tests for IPO Returns during Announcement Period (Excessive v.s non Excessive Forecasting)

The Sample in the table includes 256 Hong Kong Main Board operating firm IPOs from 2000 to 2006 where the complete data on all of the variables is available. The dependent variable in all regressions is the **Row Return** (Column 1) and **Cumulative Abnormal Return** (Column 2) during 11 trading days around the first financial announcement date after going public. **SIZE** is the logarithm of proceed amount raised in offerings; **AGE** is the logarithmic value of company's years of operating history; **CHN** is dummy variable equal to one if being H-shares or Red Chips, and zero otherwise; **EXC** is a dummy variable equal to one if the absolute forecast error is higher than 4.67 per cent (median of AFE), zero otherwise; **IR** is the IPO initial return, or called underpricing; **MKT-RTN** is the daily market return of Hang Seng Index during in respective period; and **25-Day Volatility** is the early market volatility, which is defined as the standard deviation of the first 25 daily returns right after the offering, excluding the initial return. The *t*-statistics and *p*-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent method. * Statistically significant at 0.01 level.

	Raw IPO Rtn			**CAR**		
	Coefficients	*t-value*	*p-value*	*Coefficients*	*t-value*	*p-value*
Intercept	0.270	(1.544)	[0.125]	0.098	(0.080)	[0.937]
SIZE	-0.007	(-0.805)	[0.422]	-0.076	(-1.186)	[0.238]
AGE	-0.016	(-1.324)	[0.187]	-0.089	(-1.013)	[0.313]
CHN	0.063	(2.223)*	[0.028]	0.357	(2.388)*	[0.007]
25VOL	1.644	(2.953)*	[0.004]	1.419	(2.361)*	[0.008]
IR (%)	0.095	(4.313)*	[0.000]	0.070	(1.448)	[0.155]
EXC	0.035	(1.982)*	[0.049]	0.523	(3.463)*	[0.001]
MKT R	0.010	(1.623)*	[0.107]	-0.563	(-3.346)*	[0.001]

Table 4.18 Statistic Summary of Market-adjusted and Firm-adjusted Cumulative Abnormal Returns, Buy-and-hold Returns

[Year 1]	*No.*	*Mean*	*Median*	*S.D*	*Min*	*Max*	*t-value*
CAR_{HSI-1}	227	0.144	0.091	1.897	-1.089	0.576	(3.76)*
CAR_{HSCI-1}	227	0.166	0.135	2.212	-1.102	0.607	(3.84)*
CAR_{MTCH-1}	227	-0.042	-0.100	1.485	-1.297	0.569	(-2.38)*
$BHAR_{HSI-1}$	227	0.152	0.072	3.077	-1.191	0.663	(3.44)*
$BHAR_{HSCI-1}$	227	0.163	0.040	2.981	-1.141	0.677	(3.63)*
[Year 2]							
CAR_{HSI-2}	179	0.158	0.126	5.132	-1.749	0.884	(2.39)*
CAR_{HSCI-2}	179	0.199	0.146	5.518	-1.799	0.956	(2.66)*
CAR_{MTCH-2}	179	-0.104	-0.161	6.062	-2.324	1.004	(-4.17)*
$BHAR_{HSI-2}$	179	0.126	-0.061	7.190	-1.462	1.094	(2.55)*
$BHAR_{HSCI-2}$	179	0.134	-0.057	7.423	-1.553	1.128	(2.59)*
[Year 3]							
CAR_{HSI-3}	141	0.131	-0.050	5.337	-2.352	1.066	(1.45)
CAR_{HSCI-3}	141	0.195	0.014	5.834	-2.504	1.162	(1.96)
CAR_{MTCH-3}	141	-0.168	-0.164	5.997	-2.459	1.166	(-4.88)*
$BHAR_{HSI-3}$	141	0.064	-0.372	7.457	-1.661	1.442	(1.45)
$BHAR_{HSCI-3}$	141	0.085	-0.226	7.476	-1.958	1.510	(1.96)

Table 4.19 Cumulative Abnormal Returns for IPOs with HSI, HSCI, and Control Firms as Benchmarks (2000-2005)

Cumulative HSI-adjusted, HSCI-adjusted and matching firm-adjusted returns in percentage, with associated s-statistics for the 36 event month after going public, excluding the initial return. No. is the number of IPOs in each event month.

	CAR_{HSI}			CAR_{HSCI}		CAR_{MTCH}	
	No	*Mean*	*t-value*	*Mean*	*t-value*	*Mean*	*t-value*
Month 1	227	1.7%	1.69	2.2%	1.99	3.6%	1.49
Month 2	227	2.6%	2.01	3.6%	2.30	3.0%	1.98
Month 3	227	2.9%	1.66	4.2%	2.33	2.8%	1.06
Month 4	227	4.2%	2.05	5.9%	2.12	1.7%	0.99
Month 5	227	8.9%	3.34	10.9%	3.00	1.9%	1.57
Month 6	227	9.8%	3.24	11.9%	3.61	0.0%	1.91
Month 7	227	11.5%	3.53	14.0%	3.66	-0.1%	-1.88
Month 8	227	11.3%	3.24	13.9%	3.61	-1.7%	-2.01
Month 9	227	10.0%	2.78	12.9%	3.65	-2.2%	-2.13
Month 10	227	13.1%	3.53	15.8%	3.71	-2.8%	-2.31
Month 11	227	13.3%	3.58	15.7%	3.63	-3.3%	-2.57
Month 12	**227**	**14.4%**	**3.75**	**16.6%**	**3.84**	**-4.2%**	**-2.38**
Month 13	218	15.5%	3.66	18.0%	4.00	-4.9%	-2.62
Month 14	216	15.4%	3.49	17.8%	3.53	-5.6%	-2.95
Month 15	214	14.5%	3.21	17.0%	3.61	-5.7%	-3.03
Month 16	210	13.6%	2.92	16.2%	3.20	-6.6%	-3.43
Month 17	201	14.1%	2.94	17.3%	3.20	-6.5%	-3.51
Month 18	197	13.3%	2.73	16.7%	3.11	-7.2%	-3.67
Month 19	196	12.6%	2.55	15.8%	3.07	-8.1%	-3.82
Month 20	195	14.1%	2.42	17.2%	2.97	-8.6%	-3.81
Month 21	192	13.9%	2.32	17.1%	2.83	-9.3%	-4.00
Month 22	191	14.6%	2.35	17.9%	2.84	-9.8%	-4.00
Month 23	181	14.8%	2.25	19.0%	2.72	-10.0%	-4.02
Month 24	**179**	**15.8%**	**2.39**	**19.9%**	**2.66**	**-10.4%**	**-4.17**
Month 25	174	16.7%	2.42	21.4%	2.98	-11.1%	-4.21
Month 26	172	19.0%	2.69	23.8%	2.89	-11.9%	-4.34
Month 27	171	17.3%	2.39	22.2%	2.57	-11.9%	-4.33
Month 28	168	17.9%	2.44	23.1%	2.61	-12.5%	-4.39
Month 29	160	17.1%	2.23	23.4%	2.30	-13.1%	-4.43
Month 30	160	15.9%	2.01	21.6%	2.16	-13.7%	-4.48
Month 31	156	14.8%	1.85	20.7%	2.12	-13.6%	-4.50
Month 32	150	15.8%	1.94	22.4%	2.00	-14.3%	-4.55
Month 33	149	16.2%	1.96	22.8%	2.15	-15.0%	-4.64
Month 34	148	16.5%	1.94	22.9%	2.09	-15.7%	-4.67
Month 35	144	15.2%	1.75	21.8%	1.78	-16.9%	-4.81
Month 36	**141**	**13.1%**	**1.45**	**19.5%**	**1.96**	**-16.8%**	**-4.88**

Table 4.20 Statistic Summary for IPO Long-run Return by Comparing between Chinese and Non-Chinese Samples (One-Year, Two-Year, and Three-Year CARs and BHARs)

	CHN					Non-CHN				
	No	*Mean*	*Max*	*Min*	*S.D*	*No*	*Mean*	*Max*	*Min*	*S.D*
CAR_{HSI-1}	46	0.126	1.483	-0.945	0.454	181	0.148	1.897	-1.089	0.604
CAR_{HSI-2}	32	0.095	1.760	-1.515	0.601	147	0.172	5.132	-1.749	0.935
CAR_{HSI-3}	20	0.163	1.391	-1.035	0.578	121	0.124	5.337	-2.352	1.128
CAR_{HSCI-1}	46	0.110	1.398	-1.102	0.482	181	0.180	2.212	-1.081	0.635
CAR_{HSCI-2}	32	0.081	1.601	-1.674	0.662	147	0.225	5.518	-1.799	1.009
CAR_{HSCI-3}	20	0.199	1.390	-1.272	0.674	121	0.194	5.834	-2.504	1.226
$BHAR_{HSI-1}$	46	0.150	3.077	-1.191	0.663	181	0.156	2.401	-0.960	0.665
$BHAR_{HSI-2}$	32	0.122	4.586	-1.462	0.993	147	0.127	7.190	-1.346	1.118
$BHAR_{HSI-3}$	20	0.066	3.078	-1.650	0.983	121	0.064	7.457	-1.661	1.507
$BHAR_{HSCI-1}$	46	0.133	2.981	-1.141	0.673	181	0.171	2.326	-0.950	0.679
$BHAR_{HSCI-2}$	32	0.071	4.388	-1.553	1.013	147	0.147	7.423	-1.400	1.154
$BHAR_{HSCI-3}$	20	0.043	2.857	-1.872	1.044	121	0.092	7.476	-1.958	1.577
CAR_{MTCH-1}	46	-0.151	1.069	-1.275	0.481	181	-0.009	1.485	-1.297	0.595
CAR_{MTCH-2}	32	-0.320	0.723	-1.559	0.553	147	-0.043	6.062	-2.324	1.093
CAR_{MTCH-3}	20	-0.325	0.892	-1.154	0.521	121	-0.135	5.997	-2.459	1.260

Table 4.21 Statistic Summary for IPO Long-run Return by Comparing Samples between High and Low Initial Returns (One-Year, Two-Year, and Three-Year CARs and BHARs)

	IR High			**IR Low**			*t-*
	Number	*Mean*	*Median*	*Number*	*Mean*	*Median*	*value*
CAR_{HSI-1}	114	0.118	0.099	113	0.169	0.084	(-2.11)*
CAR_{HSI-2}	82	0.116	0.115	97	0.194	0.228	(-1.59)
CAR_{HSI-3}	68	0.015	-0.106	73	0.237	0.005	(-2.24)*
CAR_{HSCI-1}	114	0.140	0.127	113	0.192	0.135	(-1.94)
CAR_{HSCI-2}	82	0.172	0.104	97	0.222	0.165	(-1.35)
CAR_{HSCI-3}	68	0.074	-0.091	73	0.308	0.079	(-2.19)*
$BHAR_{HSI-1}$	114	0.151	0.065	113	0.152	0.072	(-2.01)*
$BHAR_{HSI-2}$	82	0.129	-0.132	97	0.124	-0.005	(1.67)
$BHAR_{HSI-3}$	68	-0.036	-0.393	73	0.158	-0.261	(-1.89)
$BHAR_{HSCI-1}$	114	0.163	0.028	113	0.163	0.084	(-2.00)*
$BHAR_{HSCI-2}$	82	0.158	-0.083	97	0.113	0.031	(0.73)
$BHAR_{HSCI-3}$	68	-0.016	-0.281	73	0.178	-0.168	(-1.99)*
CAR_{MTCH-1}	114	-0.087	-0.100	113	0.003	-0.100	(-1.94)*
CAR_{MTCH-2}	82	-0.118	-0.161	97	-0.088	-0.161	(-1.16)
CAR_{MTCH-3}	68	-0.316	-0.383	73	-0.035	-0.164	(-2.12)*

Table 4.22 Correlation Matrix of Control Variables in OLS Regression to Test Forecasting Error Metrics of Hong Kong IPOs

The Sample in the table includes 227 Hong Kong Main Board operating firm IPOs from 2000 to 2006 where the complete data on all of the variables is available. **SIZE** is the logarithm of proceed amount raised in offerings; **AGE** is the logarithmic value of company's years of operating history; **CHN** is dummy variable equal to one if being H-shares or Red Chips, and zero otherwise; **VOL25** is the early market volatility, which is defined as the standard deviation of the first 25 daily returns right after the offering, excluding the initial return; **IR** is the IPO initial return, or called underpricing; **B/M** is the book-to-market ratio in respective year. **AFE** is the absolute forecast error defined as |Actual Profit – Forecast Profit|/(Actual Profit). The *t*-statistics (in parentheses) and *p*-statistics [in parentheses] are calculated by using White's (1980) heteroskedasticity-consistent method. * Statistically significant at 0.05 level.

	SIZE	AGE	CHN	VOL25	IR	B/M	T/O	AFE
SIZE	1.00							
AGE	0.03	1.00						
CHN	0.46	0.21	1.00					
VOL25	-0.24	0.02	-0.23	1.00				
IR	0.11	0.10	0.01	0.08	1.00			
B/M	0.11	0.04	-0.13	0.04	0.36	1.00		
T/O	0.09	0.04	0.08	0.11	0.17	-0.06	1.00	
AFE	0.08	0.20	-0.04	0.00	0.05	0.05	0.04	1.00

Table 4. 23 OLS Regression For IPO Long-run Abnormal Returns in One- and Three-Year

The Sample in the table includes 227 Hong Kong Main Board operating firm IPOs from 2000 to 2006 where the complete data on all of the variables is available. The dependent variable in all regressions is the **cumulative abnormal returns** and **buy-and-hold returns** in one-year (Panel A) and three-year (Panel B) duration. **SIZE** is the logarithm of proceed amount raised in offerings; **AGE** is the logarithmic value of company's years of operating history; **CHN** is dummy variable equal to one if being H-shares or Red Chips, and zero otherwise; **VOL25** is the early market volatility, which is defined as the standard deviation of the first 25 daily returns right after the offering, excluding the initial return; **IR** is the IPO initial return, or called underpricing; **B/M** is the book-to-market ratio in respective year; **T/O** is the logarithm of first trading-day total turnover. The *t*-statistics (in parentheses) and *p*-statistics [in parentheses] are calculated by using White's (1980) heteroskedasticity-consistent method. * Statistically significant at 0.05 level.

$$LR\ Abnormal\ Rtn_i = \alpha + \beta_1 \text{SIZE} + \beta_3 \text{VOL25} + \beta_3 \text{IR} + \beta_4\ \text{B/M} + \beta_5\ \text{CHNr} + \beta_6\ \text{T/O} + \varepsilon_i$$

Panel A	**Intercept**	**SIZE**	**VOL25**	**IR**	**B/M**	**CHN**	**T/O**	**R^2**
CAR_{HSI-1}	-0.063	-0.028	-3.246	-0.284	0.157	-0.021	-0.044	0.127
	(-0.09)	(-0.75)	(-1.60)	(-3.12)*	(4.37)*	(-1.19)	(-1.39)	
	[0.93]	[0.46]	[0.11]	[0.00]	[0.00]	[0.23]	[0.17]	
CAR_{HSCI-1}	0.005	-0.033	-6.200	-0.258	0.145	-0.028	-0.045	0.145
	(0.01)	(-0.85)	(-2.93)*	(-2.72)*	(3.87)*	(-1.24)	(-1.36)	
	[0.99]	[0.40]	[0.00]	[0.01]	[0.00]	[0.20]	[0.17]	
$BHAR_{HSI-1}$	-0.292	-0.020	-1.560	-0.262	0.194	-0.002	-0.049	0.111
	(-0.37)	(-0.45)	(-1.66)	(-2.48)*	(4.64)*	(-1.02)	(-1.33)	
	[0.71]	[0.65]	[0.01]	[0.01]	[0.00]	[0.32]	[0.19]	
$BHAR_{HSCI-1}$	-0.209	-0.026	-4.069	-0.237	0.185	-0.010	-0.050	0.116
	(-0.26)	(-0.59)	(-1.70)	(-2.20)*	(4.35)*	(-1.08)	(-1.34)	
	[0.79]	[0.56]	[0.09]	[0.03]	[0.00]	[0.44]	[0.18]	
CAR_{MTCH-1}	-0.417	-0.024	-2.432	-0.216	0.104	-0.101	-0.020	0.166
	(-0.47)	(-0.45)	(-0.96)	(-2.47)*	(2.22)*	(-1.77)	(-0.43)	
	[0.64]	[0.66]	[0.34]	[0.02]	[0.03]	[0.08]	[0.67]	
Panel 2								
CAR_{HSI-3}	-1.610	-0.002	-9.156	-0.261	0.197	-0.036	-0.125	0.217
	(-0.98)	(-0.03)	(-2.25)*	(-1.91)*	(4.15)*	(-1.13)	(-1.84)	
	[0.33]	[0.98]	[0.03]	[0.05]	[0.00]	[0.26]	[0.07]	
CAR_{HSCI-3}	-1.764	-0.015	-13.650	-0.258	0.188	-0.069	-0.116	0.225
	(-0.99)	(-0.16)	(-3.09)*	(-2.03)*	(3.65)*	(-1.23)	(-1.57)	
	[0.32]	[0.87]	[0.00]	[0.04]	[0.00]	[0.20]	[0.12]	
$BHAR_{HSI-3}$	-2.560	-0.050	-8.205	-0.396	0.294	-0.095	-0.112	0.182
	(-1.13)	(-0.42)	(-1.46)	(-1.97)*	(4.48)*	(-1.25)	(-1.20)	
	[0.26]	[0.67]	[0.15]	[0.05]	[0.00]	[0.18]	[0.23]	
$BHAR_{HSCI-3}$	-2.734	-0.061	-11.300	-0.373	0.289	-1.099	-0.108	0.183
	(-1.16)	(-0.50)	(-1.99)*	(-2.00)*	(4.21)*	(-1.25)	(-1.10)	
	[0.25]	[0.62]	[0.05]	[0.05]	[0.00]	[1.18]	[0.27]	
CAR_{MTCH-3}	-1.505	-0.064	-13.209	-0.399	0.182	-0.047	-0.044	0.245
	(-0.64)	(-0.47)	(-2.41)*	(-1.99)*	(2.27)*	(-1.12)	(-1.39)	
	[0.52]	[0.64]	[0.02]	[0.05]	[0.03]	[0.23]	[0.17]	

Table 4.24 Statistic Summary for Long-run Return by Comparing between Forecasting and Non-Forecasting IPOs

	All			FC			Non-FC			*t-*
	No	*Mean*	*Median*	*No*	*Mean*	*Median*	*No*	*Mean*	*Median*	*statistics*
CAR_{HSI-1}	227	0.14	0.09	149	0.17	0.11	78	0.08	0.08	(1.08)
CAR_{HSI-2}	179	0.16	0.13	119	0.24	0.14	60	0.00	0.08	(1.51)
CAR_{HSI-3}	141	0.13	-0.05	98	0.24	0.05	43	-0.13	-0.19	(0.16)
CAR_{HSCI-1}	227	0.17	0.14	149	0.21	0.16	78	0.08	0.03	(0.14)
CAR_{HSCI-2}	179	0.20	0.15	119	0.30	0.23	60	-0.01	0.07	(0.98)
CAR_{HSCI-3}	141	0.20	0.01	98	0.34	0.15	43	-0.13	-0.21	(1.78)
$BHAR_{HSI-1}$	227	0.15	0.07	149	0.15	0.07	78	0.16	0.07	(2.21)*
$BHAR_{HSI-2}$	179	0.13	-0.06	119	0.16	-0.06	60	0.06	-0.16	(0.61)
$BHAR_{HSI-3}$	141	0.06	-0.37	98	0.11	-0.28	43	-0.05	-0.55	(0.92)
$BHAR_{HSCI-1}$	227	0.16	0.04	149	0.17	0.08	78	0.15	0.00	(1.98)*
$BHAR_{HSCI-2}$	179	0.13	-0.06	119	0.19	-0.01	60	0.03	-0.17	(2.03)*
$BHAR_{HSCI-3}$	141	0.09	-0.23	98	0.16	-0.14	43	-0.08	-0.55	(2.35)*
CAR_{MTCH-1}	227	-0.04	-0.10	149	-0.05	-0.10	78	-0.07	-0.08	(0.59)
CAR_{MTCH-2}	179	-0.10	-0.16	119	-0.10	-0.13	60	-0.14	-0.17	(0.81)
CAR_{MTCH-3}	141	-0.17	-0.16	98	-0.17	-0.16	43	-0.17	-0.18	(1.95)

Table 4.25 Statistic Summary for Long-run Return by Comparing between Optimistic and Pessimistic Forecasting IPOs

	All			Pessimistic			Optimistic			*t-*
	No	*Mean*	*Median*	*No*	*Mean*	*Median*	*No*	*Mean*	*Median*	*statistics*
CAR_{HSI-1}	149	0.29	0.35	139	0.17	0.08	10	0.17	0.11	0.73
CAR_{HSI-2}	119	0.75	0.30	110	0.20	0.12	9	0.24	0.14	1.38
CAR_{HSI-3}	98	0.48	0.09	90	0.22	0.05	8	0.24	0.05	1.65
CAR_{HSCI-1}	149	0.42	0.54	139	0.20	0.16	10	0.21	0.16	0.82
CAR_{HSCI-2}	119	0.93	0.70	110	0.25	0.21	9	0.30	0.23	2.00
CAR_{HSCI-3}	98	0.71	0.45	90	0.30	0.11	8	0.34	0.15	1.15
$BHAR_{HSI-1}$	149	0.01	0.01	139	0.16	0.07	10	0.15	0.07	0.98
$BHAR_{HSI-2}$	119	0.61	0.22	110	0.12	-0.08	9	0.16	-0.06	1.26
$BHAR_{HSI-3}$	98	0.09	-0.16	90	0.12	-0.28	8	0.11	-0.28	1.04
$BHAR_{HSCI-1}$	149	0.1	0.16	139	0.17	0.08	10	0.17	0.08	0.34
$BHAR_{HSCI-2}$	119	0.73	0.09	110	0.14	-0.05	9	0.19	-0.01	1.46
$BHAR_{HSCI-3}$	98	0.22	0.06	90	0.15	-0.14	8	0.16	-0.14	1.12
CAR_{MTCH-1}	149	-0.04	-0.08	133	-0.05	-0.1	10	-0.05	-0.10	0.87
CAR_{MTCH-2}	119	0.35	0.46	105	-0.14	-0.16	9	-0.10	-0.13	1.43
CAR_{MTCH-3}	98	0.21	0.37	79	-0.21	-0.16	8	-0.17	-0.16	1.91

Table 4.26 Statistic Summary for Long-run Return by Comparing between Chinese and Non-Chinese Forecasting IPOs

	All			CHN			Non-CHN			*t-*
	No	*Mean*	*Median*	*No*	*Mean*	*Median*	*No*	*Mean*	*Median*	*statistics*
CAR_{HSI-1}	149	0.17	0.11	40	0.05	0.08	109	0.22	0.11	(-2.36)*
CAR_{HSI-2}	119	0.24	0.14	28	-0.04	0.09	91	0.32	0.21	(-2.89)*
CAR_{HSI-3}	98	0.24	0.05	18	-0.03	0.04	80	0.31	0.05	(-2.18)*
CAR_{HSCI-1}	149	0.21	0.16	40	0.04	0.07	109	0.27	0.19	(-2.28)*
CAR_{HSCI-2}	119	0.30	0.23	28	-0.03	-0.01	91	0.41	0.28	(-2.59)*
CAR_{HSCI-3}	98	0.34	0.15	18	0.04	-0.04	80	0.40	0.16	(-2.17)*
$BHAR_{HSI-1}$	149	0.15	0.07	40	0.04	0.05	109	0.19	0.08	(-1.71)
$BHAR_{HSI-2}$	119	0.16	-0.06	28	-0.10	-0.20	91	0.24	-0.04	(-1.95)
$BHAR_{HSI-3}$	98	0.11	-0.28	18	-0.17	-0.34	80	0.18	-0.20	(-2.21)*
$BHAR_{HSCI-1}$	149	0.17	0.08	40	0.02	0.03	109	0.22	0.12	(-1.69)
$BHAR_{HSCI-2}$	119	0.19	-0.01	28	-0.13	-0.16	91	0.29	0.03	(-2.00)*
$BHAR_{HSCI-3}$	98	0.16	-0.14	18	-0.17	-0.23	80	0.23	-0.06	(-2.14)*
CAR_{MTCH-1}	149	-0.05	-0.10	40	-0.14	-0.13	109	-0.01	-0.05	(-2.25)*
CAR_{MTCH-2}	119	-0.10	-0.13	28	-0.33	-0.32	91	-0.04	-0.16	(-2.30)*
CAR_{MTCH-3}	98	-0.17	-0.16	18	-0.35	-0.48	80	-0.13	-0.16	(-2.68)*

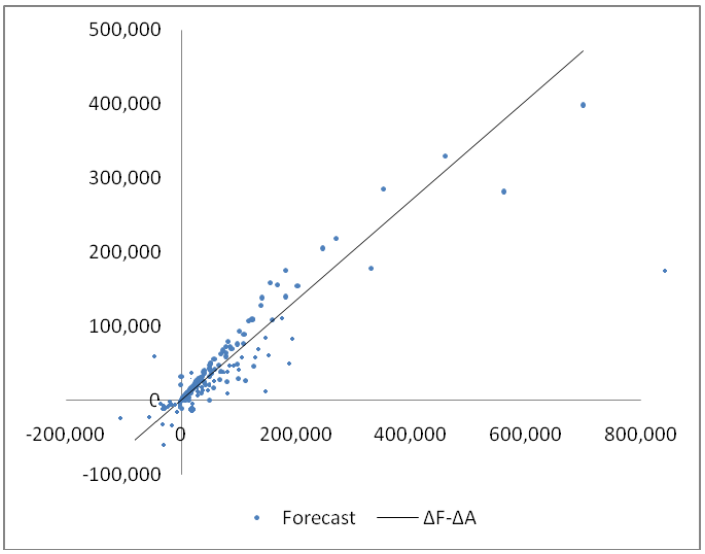
Table 4.27 OLS Regression for IPO Long-run Abnormal Returns in One- and Three-Year

The Sample in the table includes 227 Hong Kong Main Board operating firm IPOs from 2000 to 2006 where the complete data on all of the variables is available. The dependent variable in all regressions is the cumulative abnormal returns and buy-and-hold returns in one-year (Panel A) and three-year (Panel B) duration. **SIZE** is the logarithm of proceed amount raised in offerings; **AGE** is the logarithmic value of company's years of operating history; **CHN** is dummy variable equal to one if being H-shares or Red Chips, and zero otherwise; **VOL25** is the early market volatility, which is defined as the standard deviation of the first 25 daily returns right after the offering, excluding the initial return; **IR** is the IPO initial return, or called underpricing; **B/M** is the book-to-market ratio in respective year; SUB is the times of public subscription; **T/O** is the logarithm of first trading-day total turnover; and **AFE** is the absolute forecast error defined as |Actual Profit – Forecast Profit|/(Actual Profit). The *t*-statistics (in parentheses) and *p*-statistics [in parentheses] are calculated by using White's (1980) heteroskedasticity-consistent method. * Statistically significant at 0.05 level.

$$LR\ Abnormal\ Rtn_i = \alpha + \beta_1 \text{SIZE} + \beta_3 \text{VOL25} + \beta_3 \text{IR} + \beta_4\ \text{B/M} + \beta_5\ \text{CHNr} + \beta_6\ \text{T/O} + \beta_7\ \text{AFE} + \varepsilon_i$$

Panel A	Intercept	SIZE	B/M	IR	VOL25	T/Over	CHN	AFE	R^2
CAR_{HSI-1}	-0.96	-0.01	0.16	-0.40	-3.12	-0.05	-0.19	0.47	0.25
	(-1.39)	(-0.34)	(4.03)*	(-1.97)*	(-2.46)*	(-1.44)	(-1.96)*	(2.23)*	
	[0.17]	[0.73]	[0.16]	[0.05]	[0.02]	[0.15]	[0.05]	[0.03]	
CAR_{HSCI-1}	-0.61	-0.02	0.14	-0.36	-5.95	-0.04	-0.20	0.62	0.28
	(-0.84)	(-0.04)	(3.32)*	(-1.96)*	(-2.63)*	(-1.16)	(-1.67)	(2.74)*	
	[0.40]	[0.97]	[0.00]	[0.05]	[0.01]	[0.17]	[0.10]	[0.01]	
$BHAR_{HSI-1}$	-1.40	-0.03	0.19	-0.41	-3.15	-0.07	-0.22	0.06	0.21
	(-1.76)	(-0.60)	(4.16)*	(-2.05)*	(-2.13)*	(-1.78)	(-1.73)	(2.46)*	
	[0.08]	[0.55]	[0.00]	[0.04]	[0.03]	[0.08]	[0.09]	[0.02]	
$BHAR_{HSCI-1}$	-1.08	-0.01	0.18	-0.38	-2.70	-0.07	-0.22	0.16	0.21
	(-1.31)	(-0.24)	(3.71)*	(-2.02)*	(-2.06)*	(-1.63)	(-1.85)	(2.54)*	
	[0.19]	[0.81]	[0.00]	[0.04]	[0.04]	[0.11]	[0.07]	[0.01]	
CAR_{MTCH-1}	-0.81	-0.05	0.10	-0.2	-2.86	-0.03	-0.12	0.03	0.27
	(-0.96)	(-0.99)	(2.13)*	(-2.19)*	(-2.06)*	(-1.69)	(-1.97)*	(2.50)*	
	[0.34]	[0.32]	[0.04]	[0.03]	[0.04]	[0. 91]	[0.50]	[0.01]	
Panel 2									
CAR_{HSI-3}	-2.28	-0.04	0.18	-0.24	-10.17	-0.19	-0.25	0.31	0.24
	(-1.21)	(-0.39)	(2.70)*	(-3.15)*	(-2.16)*	(-2.05)*	(-2.04)*	(0.84)	
	[0.23]	[0.31]	[0.01]	[0.00]	[0.03]	[0.04]	[0.04]	[0.40]	
CAR_{HSCI-3}	-1.80	-0.02	0.17	-0.24	-14.40	-0.17	-0.20	0.43	0.25
	(-0.88)	(-0.19)	(2.36)*	(-2.66)*	(-2.81)*	(-1.71)	(-2.00)*	(1.05)	
	[0.38]	[0.85]	[0.02]	[0.01]	[0.01]	[0.09]	[0.04]	[0.30]	
$BHAR_{HSI-3}$	-3.65	-0.04	0.25	-0.53	-7.78	-0.23	-0.52	0.37	0.22
	(-1.47)	(-0.34)	(2.92)*	(-2.82)*	(-2.28)*	(-1.94)	(-2.31)*	(1.12)	
	[0.14]	[0.73]	[0.00]	[0.01]	[0.04]	[0.06]	[0.03]	[0.27]	
$BHAR_{HSCI-3}$	-3.28	-0.03	0.24	-0.51	-10.46	-0.23	-0.52	0.36	0.22
	(-1.25)	(-0.19)	(2.68)*	(-2.54)*	(-2.62)*	(-1.80)	(-2.22)*	(1.03)	
	[0.21]	[0.85]	[0.01]	[0.01]	[0.01]	[0.08]	[0.04]	[0.31]	
CAR_{MTCH-3}	-2.74	-0.13	0.18	-0.36	-13.15	-0.06	-0.10	0.38	0.26
	(-1.19)	(-1.09)	(2.17)*	(-1.97)*	(-2.41)*	(-1.51)	(-2.27)*	(0.74)	
	[0.24]	[0.28]	[0.03]	[0.05]	[0.02]	[0.13]	[0.03]	[0.46]	

Figure 4.1 Prediction Realization Diagram
for Forecasting Errors in IPO Prospectuses

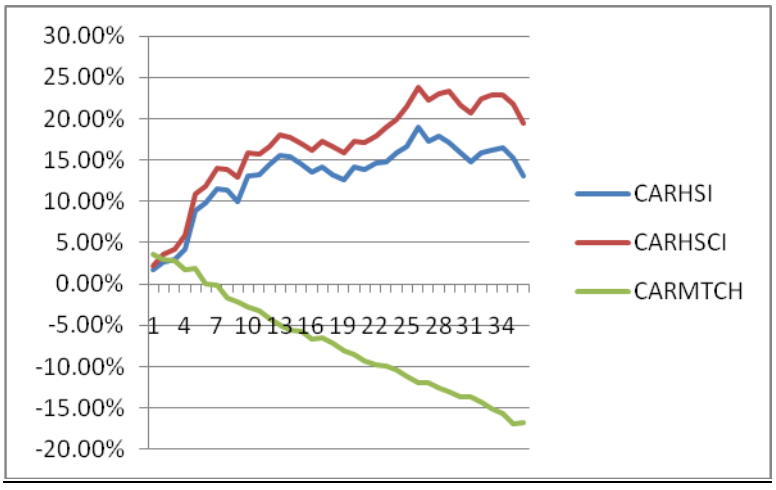


Note:

ΔFt = Ft – At = Forecast change in earnings for period T; ΔAt = At – At-1 = Actual change in earnings for period T. At = Actual earnings for period T, Ft = Forecast earnings for period T.

An oblique line through origin represents the exact forecast accuracy. Then observations to the left of the oblique line represent optimistic forecasts, while observations to the right of the oblique line represent pessimistic forecasts.

Figure 4.2 Comparison between CAR_{HSI} CAR_{BHAR} and CAR_{MTCH}
for IPOs in 2000-2005



CHAPTER V

THE DECISION FOR THE CHINESE GOVERNMENT TO TAKE STATE-OWNED COMPANIES PUBLIC IN HONG KONG – AN EMPIRICAL INVESTIGATION

5.1 Introduction

The term privatization can be traced back to the late 1970s when the Thatcher government of Great Britain first sold state-owned enterprises (SOEs) to private investors. This change in ownership has greatly reduced the role of the state in many national economies. Meanwhile, an interesting phenomenon is rising. There are some governments who even pursue the privatization programmes via overseas listing approaches. Academic studies have identified a host of reasons, including hypotheses related to investor recognition, access to capital, protection of minority shareholders, visibility, and improvement of the information environment.

China's government has practiced the way to develop a domestic financial market to match the large-scale economy since early 1990s. The growth of privatization programmes throughout the world has been phenomenal, and so has the spread from developed countries towards emerging markets during the most recent decade. The topic on Chinese foreign stock listings is timely and warranted. There have been several recent newspaper reports about the interest in foreign-listed Chinese stocks by foreign investors (The Wall Street Journal) and the surge in the number of Chinese firms' foreign listings in world leading stock exchanges (New York Times; Financial Times; Reuters News). The Chinese Securities Regulatory Commission (CSRC) recently simplified the approval process to make it easier for Chinese firms to list on foreign stock exchanges. (Reuters News, May 26, 2003).

This chapter aims to investigate the meaning and political objectives of such overseas listing. Since the Chinese government regards overseas listing as part of the domestic privatization programme and an important step of economic reforms, rather than merely protecting the immature domestic financial market, overseas listing may bring the state authorities more successful experience to take the reform into next level. In particular, by testing the determinant of selection progress and criteria, both market participant and Chinese

SOEs may realize the targets and goals of government to pursue overseas listing, to understand the current stage of economic reform and privatization. In addition, the improvement in accounting and disclosure practices as well as other aspects of corporate governance of H-share companies may have positive influence on domestic listed firms. Also, by testing the relationship between long-run performance and investor protection, Chinese authorities may find a possible direction to further and deeper amend the investment environment in the A-share market.

The chapter jointly tests a number of arguments, including the market order hypothesis, bonding hypothesis, market timing hypothesis related to the decision of overseas listing, the signaling hypothesis and other asymmetric information models related to the improvement in corporate governance, investor protection theory and IPO underperformance argument related to the long-run after-market stock trading.

The tests provide various empirical evidence and conclusions. Since the Chinese government uses primary overseas listings as a mean of forcing SOEs to conform to 'international standards' and to establish 'modern corporate governance', such activities have been attached with more political considerations. The government has carefully selected qualified enterprises and helped with pre-listing restructures to meet high standards in foreign stock exchanges. These strategic activities have lasted for fifteen years since the first launch of an overseas-listed company in Hong Kong in 1993. It is likely to be maintained at the current stage. Such activities do not necessarily represent direct intervention in the market or discrimination to other participants. On the one hand, due to past political and economic burdens attached by the macroeconomic growth and reform, SOEs were not capable enough to process reorganization without any assistance from either state government or local authorities; on the other hand, SOEs could be embarrass for the Chinese government to pursue economic reform more deeply and widely. Partial privatization and capitalization, therefore, must be the unlocking key for subsequent reformatory policies and activities.

Once only considering issuing firms' incentives, large-scale and 'healthy' state-owned companies within the government's supporting industries are more likely to issue their shares on foreign, open, and well-developed stock exchanges when the target market is in good time of pricing and offering, in order to obtain more capital-raising, to operate under international standards, to send positive signal of Chinese economic reform, and to indirectly protect the development of the domestic financial market.

As far as the offering proceeds of proposed H-shares are concerned, they are mainly determined by their financial position and performance, proportion of government-backed shareholding, as well as market conditions and movements. Based upon the bonding hypothesis and signaling hypothesis, the overseas listing is promoted by the government with a relatively rational consideration to develop the domestic financial market.

Since H-share listing is driven by the needs of China's economic reform and SOEs partial privatization, they are offered reorganization priority and have exhibited better governance structure after listing. In other words, overseas listing does improve the corporate governance and has spread its positive effects onto the domestic financial market.

Although still suffering from long-run underperformance, LaP, as the proxy of *ex post* public control to the extent of investors' protection, is statistically significant across tested models, which is consistent with the prediction of a positive relationship with the long-run abnormal returns. Holding the bonding hypothesis, legal origin is an important determinant to accounting practice, corporate governance, disclosure procedures, and investors' protection, which in turn will crucially affect the development of financial markets as well as market participants' investment expectations and activities.

Consequently, the partial privatization through an overseas primary listing approach is indeed a feasible way to facilitate the domestic financial market and to benefit the economic reform, particularly for countries with a large economic scale but a lack of the developed capital market and mature trading platform.

As a result of China's fast-growing economy, the number of publicly listed Chinese firms has increased dramatically. There are more Chinese firms eager to tap into a capital market beyond the Chinese domestic market. This chapter provides propositional guidance to the practice. Also, as a step on from prior studies, this chapter contributes to existing literature in the following ways. In the tests of making decisions towards an overseas listing, the conflicts between theoretical predictions and the Chinese government's activities still remain a question. This chapter has found evidence for the government's incentives to do so. Meanwhile, LaPorta et al. (2006b) measures of *ex post* public control have been introduced into the cross-sectional investigation for the first, which yield significant and valuable outcomes.

The rest of chapter is arranged as follows: Section 5.2 cites a number of related studies as a literature review, while Section 5.3 lists tested research questions. Section 5.4 mainly reports

the data collection and used sources. Section 5.5 introduces recent privatization programmes of Chinese SOEs. Empirical studies will start from Section 5.6 to investigate the choice and size of overseas listing. After the discussion on the improvement in corporate governance in Section 5.7, Section 5.8 turns to illustrate the long-run stock performance by linking to the effects of investor protection. Conclusions will be summarized in the end.

5.2 Literature Review

This chapter examines the impacts of political, legal, and economic aspects that can affect the decision of selling the SOE in the foreign capital markets. Since this topic has aroused great attention in academia, there is abundant empirical evidence, especially to the extent of privatization motives, methods, improvement in corporate governance and operating performance, as well as political effects. The review begins with motives and methods of privatization, which will help to understand Chinese government's political end in pursuing overseas listing. In addition, prior literature has summarized a number of uncertainties and risks associated with privatization programmes, which offers various research questions to this chapter. In terms of the importance and design of Chinese privatization as well as the choice of overseas listing, this chapter argues that both the "market hypothesis" and "bonding hypothesis" work hand in hand, though the latter carries more weight in explaining the ultimate goals of the Chinese government. Moreover, as further evidence for the bonding argument, overseas listing positively influences the development of the domestic market, especially to the extent of the investors' protection.

5.2.1 Share Issue Privatizations (SIPs) – Motives, Methods, Uncertainties, and Risks

5.2.1.1 Motives and Methods of SIPs

Privatization of SOEs through a primary overseas listing approach brings together the IPO, privatization, and overseas listing literatures. The term privatization refers to the process by which a government transfers ownership of assets and control of commercial activities to the private sector[29].

This chapter aims to isolate the overseas primary listing as a particular issue. By reviewing privatization literature, on could possibly ascertain the Chinese government's logic and activities, including why they take large-scale enterprises from selected industries to list in

[29] Comstock, A., R. J. Kish, and G. M. Vasconcellos, 2003, The Post-privatization Financial Performance of Former State-owned Enterprises, International Financial Market, Institute, and Money 13, pp. 20.

Hong Kong, how they choose a prospective company, why overseas listing costs do not upset the increasing tendency of overseas listing, and what are the ultimate goals behind such activities.

In general, for private-owned enterprises, the choice of going public is usually based on whether the seller (or issuing firms) can receive the best outcome of raising funds. The pricing is a function of the characteristics of the firm, activities of the investors, as well as the movement and development of the financial market. However, to pursue SIPs, governments play a dual-role of being issuers and regulators. Therefore, privatization is attached more meaningful motives than private-owned firms' listing. A government may always consider a number of factors, including characteristics of the markets and the potential investors, the institutional environment, the prospective firm, as well as national macro-economic conditions and government's own political objectives (Stulz, 2000; Demirguc-Kunt and Maksimovic, 1999; and Levine, 1997).

First of all, political and economic factors influence the decision and design of SIPs. Much depends on the proposed level of post-privatization direct control. Both private and state-owned firms are all facing an underpricing problem when going public, Perotti (1995) states that, for a market-oriented government, significantly underpricing a relatively large portion of an SOE can signal to investors the absence of interference in the privatized firm in the future. While, a populist government, which is not likely to resist the political pressure to interfere with the privatized firm, prefers to underprice less relatively to raise issue proceeds in the short run. Biais and Perotti (1997) further demonstrate that a privatizing government, which will not give up interfering with the issuing of SOEs, can still reduce the investors' perceived likelihood by strategically allocating newly issued shares to median-class voters. Subsequently, both the number of shares initially issued and the associated underpricing will increase correspondingly.

Jones, Megginson, Nash, and Netter (1999) find that governments always insert control restrictions in the charters of privatized firms, or retain a special class of shares, which are designed to ensure that the privatized firms will not be fully controlled by foreign shareholders or targeted for hostile takeover. They conclude that the underpricing is a concession by governments to overcome the political obstacles in the way of successful privatization. It is also a means to subsequently yield economic benefits.

In terms of the methods of privatization, Slovin, Sushka, and Feraro (1995) analyze the choice between the use of public and private capital markets in restructuring. They compare

carve-outs (IPOs of a subsidiary's equity in the public market), spin-offs (pro rata stock dividends), and asset selloffs (sales of subsidiaries to third parties in the private market). They argue that firms use equity carve-outs "when outside investors are likely to price the equity favorably relative to managers' perceived value" and that they use asset selloffs when it is more difficult to value the unit.

Megginson, Nash, Randenborgh, and Poulsen (2004) examine the impacts of various factors on the choice between selling a SOE in the public capital market through a SIP and selling it privately in an asset sale, including political, institutional, and economic characteristics. SIPs are more common in less developed markets, and for more profitable enterprises. In particular, the choice between using the private or public market in privatizations of SOEs is determined by three aspects, i.e. market consideration, political or legal environment, and firm-specific characteristics.

The above literature answers why the Chinese government pursues partial privatization and chooses to sell state-owned capital to public sectors. To further and deeply reform the domestic market, the Chinese government and its SOEs have been forced to fling themselves into a real and competitive market environment, where privatization is imperative as a precondition. In addition, since the current private sector is not capable enough to entirely accommodate such a massive capital thread, after considering the experience from the past and other countries, a gradual progress is appreciated to avoid stinging and over-spread shocks, which requires a certain level of post-privatization control at the present stage.

5.2.1.2 Risks and Uncertainties surrounding SIPs

Both enterprises and government need risk control management. The early empirical evidence on IPOs of SOEs is highly consistent with that on privately-owned companies to the extent of underpricing, including Jacquillat (1987), Vickers and Yarrow (1988), Jekinson and Mayer (1988), Levis (1993), Perotti and Guney (1993), Jones et al. (1999), and Dewenter and Malatesta (1997). Even the IPOs underpricing itself remains a puzzle in the finance literature, the most recent literature alternatively attempts to find motives behind various and complex SIPs. It is noted that, the similarity in average underpricing between initial SIPS and private-sector IPOs is actually surprising based commonly accepted asymmetric information models. Jones et al. (1999) argues that, in contrast to privately-owned issuing companies, governments

also structure the offers of privatized SOEs to achieve political and economic policy objectives other than proceed maximization.

Dewenter and Malatesta (1997) demonstrate that, each country employs a fairly consistent approach to its privatization transactions. In most cases, the stated goals of privatization include fostering the development of capital market institutions or broadening share ownership, improving the economic performance of privatized enterprises, and raising revenue. Though governments place different weights on these various goals, which can be reflected by the pace, scope and structure of privatization programmes. Government officials may not seek to maximize proceeds but to pursue other political and economic objectives.

Meanwhile, unlike a corporate issuer, a privatizing government pursues multiple objectives that have both political and economic objectives. Furthermore, in private sector offerings, the role of the government is of a regulator, both during and after the offer. However, in SIPs, the government is in a position to be both the issuer and the regulator. This dual role puts private investors in to a circumstance of information asymmetry. It is not only about the value of the individual company but also regarding a government's commitment to privatization (Jones et al., 1999).

According to North (1994), the public ownership of an SOE has the effects on the political and economic ends behind the selection of SIP offering terms. In addition, to build political support for privatization, these terms could help foster a culture of domestic share ownership, as well as establish a national or regional stock market. This compatibility between political and economic objectives is likely to occur when a political system mimics the neoclassical market with zero transaction costs enabling wealth-maximizing political exchanges to occur.

Boubakri, Cosset, and Guedhami (2001) examine 201 cases of privatization in 32 developing countries and find that the relinquishment of control by the government is one key determinant of changes to profitability. However, given the fact that privatization is typically sequential whereby governments sell their shares imperceptibly, it may not be that critical to shift controlling shares to the private sector to obtain improvement in the performance of privatized SOEs.

The governments in countries with relatively primitive capital markets are those most likely to promote broader share ownership by deeply discounting privatization shares in IPOs. In addition, there is probably greater uncertainty in determining the intrinsic value of initial share offerings than in developed markets. For instance, the less-developed capital markets

may have few existing publicly-traded firms that are closely comparable, the "the appraisal of offering firms is more difficult and the production and dissemination of information pertaining to shave values is less extensive under primitive capital market conditions[30]".

As for the attached high costs in SIPs due to the partial sales and political uncertainty, prior literature, including Megginson's series of studies, has illustrated one of the possible reasons. If uncertainty of a government's future policy is high, then private investors are likely to perceive that a small initial sale indicates the government does not intend to relinquish control making the likelihood of a future policy change, or interference, greater.

In terms of market valuation levels, high underpricing has sent a signal that the government desires to promote wider equity ownership by significantly underpricing shares. Also, the great uncertainties regarding the SOE's intrinsic value in lesser-developed markets are factors that influence costs attached to privatization. Consequently, high costs result in SIPs in a less-developed financial market to aspire to maximize sale proceeds. The argument is consistent with Perotti and Oijen (2001) and Subrahmanyam and Titman (1999), to the extent that once new firms go public, the enhanced liquidity and efficiency encourage more public offerings, which in turn boosts the rapid growth of the financial market. Likewise, privatization through SIPs can accelerate stock market development and trigger gains in economic growth and efficiency, as called the 'snowball effect'.

Although most privatization programmes begin with a period of partial privatization, the restriction to sell controlling shares of firms is regarded to have little impact. However, by using data on Indian SOEs, Gupta (2005) indicates this ignores the important role of the stock market to the extent of monitoring and rewarding managerial performance. Even after the partial privatization and government retaining its control, the privatized firms still gain benefit from the profitability, productivity, and investment.

Studies on the effects of share issue privatizations with transfer of management control achieve complex conclusions. For instance, Boubakri and Cosset (1998) find significant improvement in the operating performance following privatization in 21 countries. However, having conducted cross-country investigation, Dewenter and Malatesta (2001) argue that the earnings actually improve prior to privatization but decline subsequently.

[30] See Dewenter, K. L., and P. H. Malatesta, 1997, Public Offerings of State-Owned and Privately-Owned Enterprises: An International Comparison, Journal of Finance, Vol. 52, No. 4 (September), pp.1663

Certainly, the influence of corporate governance and performance by privatization cannot be ignored. Boardman and Vining (1989), Galal, Jones, Tandon and Vogelsang (1992), Megginson et al. (1994), and Eckel et al. (1997) generally document significant improvement in firm output, efficiency, profitability, and/or capital investment spending following privatization, usually without job cuts. Also, Megginson et al. (2000) finds positive long-run returns in privatization.

By using a sample of 634 SOEs in China that went public through SIPs over the period 1994 to 1998, Sun and Tong (2000) find limited success in the privatization programme. Selling too few government shares to private shareholders cannot undergo fundamental changes in the governing control. Also, the improvement of corporate governance in partially privatized SOEs is relatively minor.

Ng, Yuce and Chen (2006) indicate that the performance of some partially privatized companies was inferior to either completely privatized or completely SOEs due to the ambiguity in ownership, property and control rights. Thus SOEs should be carefully evaluated differently by their industrial characteristics and thus require different percentage of share ownership to perform at their optimum level. Government connection and support may add value to some SOEs' performance. Therefore, gradually reducing non-tradable shares is critical for some SOEs in the governments' supporting industries. As mentioned in Wan and Yuce (2007), listed companies have to pay great attention in defining clear board responsibilities, increasing representatives of tradable shareholders on the board, and strengthening the function of collective decision-making. They further suggest that good corporate governance is the determinant factor to help firms to improve their performance, efficiency, and long-term growth.

In short, prior studies can help with the comprehension of the Chinese government's design of overseas listing, especially the associated high costs, the possible dilution effect of state ownership, and the potential influence to the corporate governance. According to empirical results, by taking SOEs public, the Chinese government is facing more political uncertainties than economic risks. In this case, the nation's authorities strategically select certain kinds of companies, carefully restructure them before going public, preventively offer favourable policies, and progressively follow the improvement of companies' corporate governance and operational performance. By doing so, the Chinese government may reduce the potential risks and uncertainties in a more political manner.

5.2.2 The Importance and Design of Partial Privatization in China

The studies mentioned above have drawn a blueprint of China's partial privatization, and the following literature may provide more evidence of this issue. The Chinese government emphasized reforms of SOEs as its priority. At the early stage in the 1990s, the targets were: (a) to restructure the ownership and to create a modern corporate governance system in order to mitigate the non-performing loans problem caused by SOEs; and (b) to improve SOE productivity and efficiency.

SOEs were required to follow the requirements of a market system and to establish a new enterprise system with "clarified property rights, designated authorities and responsibilities, separated government and enterprise function, and established scientific management" (State Economic Reform Commission, 1994).

The Chinese domestic stock market has played a critical role in helping SOEs transform into joint stock companies that allow non-state capital investment. However, the reforms of SOEs were a gradual process. The Chinese government did not intend to privatize or give up the controlling interest in the SOEs at the beginning. This can be shown by the different classes of shares with or without tradable restrictions.

In "Economic Backwardness in Historical Perspective", Gerschenkron (1962) suggests that there were two approaches regarding government regulation. One is the 'helping-hand' approach, which means that the government's involvement is to correct market failures and thus to improve social welfare. The second one is the 'grabbing-hand' approach where the intention of the regulators is to support political constituencies. The transition of SOEs in China from fully state-owned to partially privatized is also a transition of the government's regulatory practices from a grabbing-hand approach to a helping-hand approach.

As claimed in Megginson and Netter (2001), "the evidence from China suggests that enterprise restructuring, concentrating on improving the allocation of property rights and incentive, can yield large benefits even without privatization. Naturally, this raises the question whether economic reform coupled with privatization could lead to even greater performance improvement. Unfortunately, there is little evidence on this question and it would be very difficult to develop such evidence.[31]"

[31] See Megginson and Netter, 2001, pp. 338.

Jones et al. (1999) compares share issue privatizations between developed, developing and transitional countries during the period between 1977 and 1997, to conclude a persistent underpricing phenomenon when governments issue new privatized shares. By using Chinese data, other related studies, including Su and Fleisher (1999), Chi and Padgett (2005), and Chen (2005), all suggest that Chinese IPO underpricing is mainly driven by two key reasons, (1) the inequality of supply and demand due to the China's unique quota system, and (2) the high proportion of uninformed individual investors. Repeated mention of these reasons goes further in explaining the immaturity of the domestic capital market. Since Chinese SOEs crucially and tightly affect the national macroeconomic position, a primitive stock trading platform is far from being capable enough to allow large SOEs to realize the successful reform of privatization. In particular, Chen (2005) studies listed companies on both the SHSE and the SZSE during the period of 1995-1999 and finds that state ownership leads to poor market performance both during the IPO and after-market stages.

Guo and Yao (2004) investigate various hypotheses regarding the causes of privatization in China. Among the efficiency hypothesis, the market liberalization hypothesis, the soft-budget hypothesis, the financial liability hypothesis and the constraint hypothesis, they find efficiency and financial liability did not contribute to privatization decisions in China, but the budget constraint and market liberalization hypothesis played an important role on the motives and progress of privatization.

By using more updated data from 1996 to 2003, Ng et al. (2006) concludes a relationship between state ownership and market performance. They also suggest that state control brings benefits to SOEs to the extent of government support, political advantage, protection from bankruptcy, and monopolies. Their findings are consistent with Wei and Varelas (2003) and Qi, Wu, and Zhang (2000) such that market performance is positively related to the proportion of legal shares but negatively related to the proportion of state-owned shares.

Alternatively, since Chinese SOEs are highly controlled by state authorities, Yang and Wu (2006) examine the impact of government regulations on China's share issue privatization. In the study, they illustrate an existing conflict. This is that the Chinese government tightly controls the IPO process with regulations while poor and incomplete regulations with ineffective monitoring provide opportunities for managers to manipulate earnings to maximize the proceeds from IPOs. This results in the long-run poor performance of newly privatized firms as documented in prior literature.

Sun and Tong (2003) study the partial privatization of 53 Chinese SOEs listing in HKEx during 1993 and 2002. They find that listing has led to a median increase in real new profits, total sales, capital spending, and a mild but insignificant improvement in coverage ratios. Moreover, they further point out that firm performance is negatively related to state ownership, but positively related to legal-person ownership and foreign ownership.

Furthermore, Sun, Tong and Wu (2006) argue that, if the domestic market is not well developed and bears rapid and large SIP activities, conducting SIPs abroad to maintain the domestic market order may be an optimal alternative. Listing shares on more developed overseas markets enables domestic SOEs to attain better accounting practices, governance, and legal standards. However, the benefit to facilitate stock market development is probably limited, which is inconsistent with the arguments of Megginson et al. (2004). If the SIP progresses more rapidly than the development of the domestic market and if the SIP scale is larger than the domestic market can absorb, large-scale SIPs may hinder rather than facilitate market development. In this case, to sell shares in a foreign and well-developed market with rigorous regulations and abundant capability can be an alternative choice for the government to purse privatization.

By June 2005, just before the most significant reform in the Chinese domestic stock markets, there were a total of 1350 A-share companies which raised capital of up to RMB 735.6 billion. In particular, the 12 largest listed SOEs account for more than 84 percent of total A-share market capitalization. However, the value of the non-tradable shares was RMB 469.4 billion, accounting for roughly 64 percent of the total market capital[32]. Li Rongrong, the Minister of the State-Owned Assets Supervision and Administration Commission of the State Council (SASAC) made a speech on the 15th Session of the 10th National People's Congress Standing Committee in 2005. He summarized that there were 1828 large- and medium-sized SOEs which operated poorly and needed to declare bankruptcy. The net losses of these SOEs were RMB 15 billion and the cumulative new losses reached RMB 122.1 billion during the years of 2004-2005. These loss-suffering SOEs borrowed RMB 173 billion of loans from state-owned financial organizations. As stated in Wan and Yuce (2007), "concentrated ownership and non-tradable shares … combined with a lack of protection for minority shareholders' rights and the poor disclosure of information, have caused an inefficiency of the stock markets and unsatisfactory performance of SOEs[33]".

[32] See Securities Market, No. 43, 12 November 2005.
[33] See Wan, J., and A. Yuce, Listing Regulations in China and Their Effect on the Performance of IPOs and SOEs, Research in International Business and Finance 21, pp. 375.

Consequently, they only rely on the less-developed home market to fully incorporate Chinese SOEs' privatization can become an impossible mission at the current stage. The overseas listing must be an additional or even vital channel to China's privatization. Meanwhile, over-border listing is a global trend, becoming more important over time as the government acquires experience and the integration of financial market advances.

5.2.3 The Choice of Overseas Listing and Selling SOEs Abroad

It is not unusual for governments to sell SOEs abroad like the Chinese government does. To help in answering why privatization through overseas listing tends to occur in countries with less developed markets, academics have identified a host of reasons to explain the motive of privatization via an overseas primary listing approach, which include hypotheses relating to investor recognition, access to capital, protection of minority shareholders, visibility, and improvement in the information environment. As summarized in Megginson et al (2004), two popular arguments, the "Market Order Hypothesis" and the "Bonding Hypothesis", are able to explain Chinese SOEs' overseas primary listings. The former focuses on protection of the domestic immature financial environment, while the latter pays more attention to the further development of the home market.

5.2.3.1 The Market Order Hypothesis

As demonstrated in Fuerst (1998), Pagano, Panetta and Zingales (1998), and Leuz and Verrecchia (1999), overseas listed firms may be not satisfied with the reputation of their domestic market and wish to borrow the host country's reputation, as the foreign market acts as a 'certification'. "Managers of firms with high expected profitability may credibly convey their private information on future prospects of the firm by listing on a market where disclosure is higher and investor protection stricter (Bortolotti et al., 2002)[34]".

Bortolotti et al. (2002) argues that, governments in developing countries normally prefer to sell privatized SOEs in overseas markets since, economically, limited bank financing and

[34] See Bortolotti, B., M. Fantini, and C. Scarpa, 2000, Why Do Governments Sell Privatized Companies Abroad, FEEN, *Working Paper*, pp. 6.

small debt markets could drive them to seek external financing. Politically, selling SOEs to foreign investors could be regarded as a signal that a government is committed to supporting market-oriented policies. Moreover, Biais and Perotti (1997) also state that right-wing governments tend to sell shares to domestic investors because the offering can increase domestic political support for market-oriented policies.

It is known that, private-cross-listing may reduce the cost of capital. Lewis (1999) confirms that a strong home country bias exists, therefore investors tend to keep a larger than optimal amount of funds in the domestic financial market. In this case, overseas listing is a way for issuing firms to diversify the sources of external finance and reduce the cost of capital. Also, according to Griffin and Karolyi (1998), cross-border listing can also be an effective way to increase the liquidity of the stock, though the concept of such liquidity is "intrinsically ambiguous[35]", and factors like market fragmentation could have an offsetting impact (Domowitz, Glen and Madhavan, 1998).

Recent studies go further. Apart from examining the general beneficial effects of overseas listing, they turn to state that the choice of listing location is also important. Froot and Dabora (1999) document that location of trade matters for the pricing of stocks. They compare twin companies whose charter fixes the division of cash flows to each twin, and find that a twin's relative price is more likely correlated with the market index of the country where it is traded most actively.

Foerster and Karolyi (1999) investigate foreign companies listing in the US and find favourable abnormal returns due to the improvement in investor recognition and greater liquidity. Other studies regard overseas listing as a means to raise funds without giving up some private benefits of control for majority shareholders. Reese and Weisbach (2002) examine the relationship between cross-listing, investor protection, and SEOs. According to their results, firms from countries with a lower level of shareholder protection are willing to cross-list and give up some private benefits of control as a means to raise capital. Lins, Strickland and Zenner (2005) find that following an overseas listing in the US, the sensitivity of investment to cash flow decreases significantly for firms from emerging markets, but does not change for ones from a developed market. This is consistent with the argument that access to external capital markets is an important benefit of overseas listing for firms from developing countries.

[35] See Baker (1996) for a series of definitions of liquidity and of ways of measuring the liquidity of a market or of a stock.

Moreover, Yang and Lau (2006) identify two traditional benefits of a Hong Kong listing by examining both geographical proximity and other obvious explanations. Their studies find that Chinese firms listed in Hong Kong have a better information environment and less financial constraints than those solely listed in the US.

Similarly, Chan, Hameed, and Lau (2003) find that Jardine stocks, which switch from Hong Kong to Singapore, correlated less with the original trading market, although their main business location remained in Hong Kong. Lau and McInish (2003) find that individual firm trading volume is most closely associated with the market where the stocks are traded. Firms that switch their primary listing locations can expect the trading characteristics of their shares to become similar to those of the new market. These studies suggest that different stock markets offer different advantages as a listing venue and the benefits of overseas listing may depend on the choice of listing location. As far as Chinese enterprises are concerned, although the main business of H-share companies is in China's mainland, initial pricing level and share trading performance are expected to be affected by the Hong Kong market rather than domestic markets, except for "A+H" method of offering.

The "A+H" offering method refers to the issued IPO is open to be subscribed by investors form both domestic and HKEx on the same day. However, domestic investors are only allowed to buy A-share stocks in the offering, while H-share stocks are restricted for global subscription. Traditionally Chinese enterprises always issued H-shares prior to A-shares since the two markets have entirely disparate pricing levels and market conditions. The "A+H" method cannot benefit to risk diversification. The first "A+H" was the Industrial and Commercial Bank of China Ltd. (1398.HK) which went public on 16 October 2006, with vary closed offering prices in the two markets. Even the average market P/E ratios in the A-share market significantly exceed the level of HKEx at that time. It directly leads to another problem on valuations of A- and H-shares. Since these two segmented markets do not have comparable pricing measures and investors demand, it becomes a dilemma to either overprice H-shares or underprice A-shares. In the case of 1398.HK, A-share stocks were actually underpriced by 15 percent if compared to other domestic firms. However, the "A+H" method lead to more complicated arguments on the pricing, offering, and marketing issues. To simplify the study, the chapter omits this particular topic.

The previous chapters in the thesis have provided empirical evidence that is consistent with the "market order hypothesis", which truly describes the listing activities and performance. However, it seems weak in explaining the increasing tendency of Chinese SOEs' overseas listing across industries over time. Naturally, more studies need to turn to

seek the ultimate goal, i.e. the government's consideration and destination, which brings the attention to the "bonding hypothesis".

5.2.3.2 The Bonding Hypothesis

The bonding hypothesis builds upon the framework of accounting and disclosure practices, agency problems, signaling effects, as well as corporate governance. If we define the "market order hypothesis" as an alternative to pursue privatization, the "bonding hypothesis" may greater clarify what the Chinese government can obtain from SOEs' primary overseas listing and why high associated costs do not bother them too much.

Being different from private firms which seek external financing channels through going public, a government must pay close attention to the amount of uncertainty regarding the value of the SOEs, i.e. the firm-specific characteristics and the level of asymmetric information. Particularly, with early privatizations, governments stake a great deal of reputational capital on the economic success of the newly privatized firms, as supported by Dewenter and Malatesta (1997), and Alexandrowicz (1994). The public's perception of the newly privatized firm's performance is important to the success or failure of the privatization programme.

In the early stages of privatization, listed SOEs must be financially successful to build credibility for the government and encourage investors to subscribe subsequent equity offerings (SEOs) for further and deeper privatizations. As stated in Pagano et al. (1998), the development of the domestic financial market is often an explicit objective of privatization programmes. In this respect, the decision of overseas listing appears puzzling since a fraction of equity will be held by foreign investors and traded abroad. However, privatized firms appear to be particularly eager to seek an overseas listing, submitting to the discipline of international capital markets. Simultaneously, SIPs involve the greatest amount of risk, for instance the sales are frequently preceded by extensive promotional campaigns and there often creates thousands of small, first-time shareholders (Megginson et al., 2004).

There will be a significant change once the government is the seller. To the extent of public finance, Bortolotti et al. (2002) demonstrates that, given the decision of privatization, selling a firm abroad allows one to reach a large number of potential investors, therefore increasing the expected revenue from the deal, which in turn facilitates the channel of the

government's budget. Being a strategy to earn credibility of stabilization and structural adjustment policies, financially distressed countries are more likely to pursue overseas listing to signal their effort to the international community. As far as the country's openness to trade is concerned, the decision of foreign listing is naturally linked to the national economic body's relationship with the world-wide economy, which can be relevant to many factors, such as import, export, trade deficit and capital flows. In terms of information provided to the public, since the disclosure requirements vary across different exchanges, it automatically offers domestic investors at least the same protection offered to foreign shareholders. Turning to effects on domestic financial markets, foreign listing could be an important tool in the transitional phase, fostering stock market development and integration.

As mentioned in Chapter 2 of the thesis, although the Chinese domestic stock market experienced high growth of market capability in recent years, it is still far behind any matured international financial markets, to the extent that there is a thin and weak investor structure, few investment diversifications, an unstable policy environment, as well as an uncompleted legal system. Thus the bonding argument may answer more questions to a greater depth.

However, the market order hypothesis and bonding hypothesis cannot be isolated from each other as they actually work hand in hand and are balanced over time. Therefore, this chapter adopts a number of variables as implications of both hypotheses and, according to empirical investigation, proxies of the bonding argument carry more weight in the selection of prospective listing companies, the improvement in corporate governance, and their significantly positive influence to domestic listed firms. Certainly, Chinese SOEs may have engaged a majority of the state's resources and capital, serving in most important industries, and receiving political priorities from authorities. Their better performance cannot only rely on overseas listings. Thus, to further discover the benefits from foreign listings, this chapter also breaks through, by linking the after-listing performance with investor protection, to provide evidence of the "bonding hypothesis" on how overseas listings amend the domestic investment environment and how H-share companies bring successful experience to help with the A-share market development.

5.2.4 LaPorta et al. System of Investors Protection

The globalization of financial market and the capital liberalization has occured in many of the worlds' economies. Besides the segmented research on pure economics and finance areas, this

trend has also motivated a large body of research, often referred to as the law and finance literature, examining country-level governance characteristics and their effects on capital markets. A common concern is the relationship between investor protection and the breadth and depth of a country's capital markets (LaPorta, Lopez-de-Silanes, Shleifer, and Vishny, 1997, 1998, 1999, 2000, 2002, 2006a, and 2006b). The series of studies by LaPorta et al. examines the association between country-level governance characteristics, including investor protections, accounting standards, creditor rights, property rights, anti-self-dealing, public/private enforcement mechanism, and the development of the capital market. They generate a number of related indices and provide evidence that a country's characteristics, such as legal origin, have a strong influence on its governance, which in turn has a profound impact on the development of the country's capital market.

La Porta et al. (1998) examines the legal rules on protection of investors by comparing the origin and quality of 49 countries. Existing commercial laws have their roots in two broad traditions: common law (English origin) and civil law (Roman origin). According to their results, common-law countries generally have the strongest legal protection of investors. In addition, concentration of ownership of shares in the large companies is negatively related to investor protections, while small and diversified shareholders are unlikely to be important in countries that fail to protect their rights.

Representing the traditional finance, Modigliani and Miller (1958) suggest securities are recognized by their cash flows, while Hart (1995) defines features of various securities as the rights to owners, rather than the value itself. These include the voting rights of shareholders, and meeting financial obligations to bondholders. However, La Porta et al. (1998) alternatively indicates that securities are inherently characterized by some intrinsic rights. This is still incomplete since it ignores the fact that rights actually depend on the legal rules of the jurisdictions of the issuing markets. Law and quality of its enforcement are potentially important determinants of what rights security holders have and how well these rights are protected. As suggested by La Porta et al., since what protection investors receive determines their readiness to finance firms, corporations may critically turn on these legal rules and their enforcement.

To make further efforts, La Porta et al. (2002) narrowed down the view to the relationship between investor protection and corporate valuation in particular. This time they focus on the legal protection of minority shareholders and of cash-flow ownership by a controlling shareholder. The empirical results suggest a higher valuation of firms always occurs in

countries with better protection and in firms with higher cash-flow ownership by the controlling shareholder.

Moreover, La Porta et al. (2006a) continues to discuss the question of what works in securities laws, especially how laws regulate the issuance of new equity to the public. Under an asymmetric information assumption, there is a risk that an issuer may sell bad securities to the public, known as the "promoter's problem" (Mahoney, 1995), thus this chapter also focuses on the information asymmetry problem between prospective investors in an initial public offering and the "promoter" who offers shares for sale.

According to Coase (1960) and Stigler (1964), the optimal government policy does not really have the power to solve the promoter problem. Issuers, alternatively called insiders, have incentive to disclose all the information for higher offering prices and better immediate-after-market trading performance, otherwise, a failure to disclose would result in investors' pessimistic reaction (Grossman, 1981; Grossman and Hart, 1980; Milgrom and Roberts, 1986). The information is reliable for investors once the disclosures are reputational, legal and contractual penalties for misreporting, verification of accuracy is costless, or reporting accuracy is backed by warranties. As suggested by Ross (1979), when verification if costly, outperformed securities can resort to additional mechanisms to signal their quality. Such legal conditions can promote the prosperity of security markets.

As far as the self-dealing and *ex post* public control are concerned, LaPorta et al. (2006b) focus as on private enforcement mechanisms, including disclosure, approval, and litigation, which govern a specific self-dealing transaction. For existing investor expropriation, managers or controlling shareholders can use their power to divert corporate wealth to themselves, without sharing it with the other investors, especially minority shareholders. According to Shleifer and Vishny (1997), it can be represented through various forms, such as executive perquisites to excessive compensation, transfer pricing, taking of corporate opportunities, self-serving financial transaction, and outright theft of corporate assets. LaPorta et al. (2006b) suggests facilitating private enforcement of good behaviour by emphasizing extensive disclosure, approval procedures for transactions, and facilitation of private litigation when self-dealing is suspected. They also expect all of these rely more on public enforcement than governance activities.

Beside the principal development by LaPorta et al., there are also a large number of empirical studies on the investor protection. Bhattacharya and Daouk (2002) examine the association between country-level governance and financial market development. Their

research finds that the mere presence of insider trading laws is not reflected in the cost of equity in a country. Instead, the initial enforcement of insider trading laws is the event that triggers a decrease in the cost of equity. In an extension of their earlier study, Bhattacharya, Daouk, and Welker (2003) find that trading in a country's stock markets declines when the earnings capacity increases. Finally, Bhattacharya and Daouk (2005) hypothesize that it can be the case that the absence of law is better than an unenforced law. Together, the work of LaPorta et al. and Bhattacharya et al. illustrate the importance of investor protection to the development and continued effectiveness of a country's capital markets.

The argument above will be carefully tested and interpreted in this chapter on H-share firms' post-listing performance, aiming to test the relationship among investor protection, improvement of companies' corporate governance, as well as the development due to the bonding mechanism.

China's corporate governance has made great progress in the past few decades by increasing awareness of investor protection on significant policy issues. Recent research, such as Xin (2007), has proved that such legal provisions can contribute to the performance of companies and welfare of shareholders.

Since Hong Kong used to be a British colony, the law system is built upon English-origin, while the law system in mainland China more likely belongs to the civil law system. Such intrinsic distinction offers a broad testing platform. Therefore, this chapter will not miss the chance to investigate the motivation, selection, and performance of overseas listing under two different law systems with regards to investor protection.

The first Company Law of the People's Republic of China was adopted by the Fifth Session of the Standing Committee of the Eighth National People's Congress on 29 December 1993, and became effective on 1st July 1994. Before this law, the modern theories of corporate governance were not introduced to China. A general view about corporate governance in China always highlights a number of aspects, including high-profile elements of shareholders' issues, transparency and disclosure, as well as monitoring of controlling shareholders and management (Feinerman, 2007). As far as the newly revised China's Company Law (2005) is concerned, Feinerman gives appraisal of legal reforms in the following areas: the fiduciary duties of controlling shareholders, shareholders' rights to challenge the resolution of a general or board meeting, a shareholder's right to information, constraints on related-party transactions, *ex post* remedies to aggrieved minority shareholders,

the appraisal rights of dissenting shareholders; and the reinforcement of powers for boards of supervisors[36].

Further comments regarding Feinerman's argument are given by Xin (2007) who states that, the revision will help to raise China's scores in the "shareholder protection" index developed by LaPorta et al. (1998) therefore increasing the welfare of the minority shareholders of listed companies. Following the methodology introduced by LaPorta et al. (1998), after the revision, the law provision applying to listed companies China's shareholder rights scored 4 out of 6. With the old score, China was below the English-origin average (4) but above the German-origin average (2.33) and French-origin average (2.33), and is ranked "average" among all selected countries. With the new score, China is now doing as well as the average of English-origin jurisdictions. He also deeply investigates to what extent the "law on the paper" will improve China's corporate governance in the real world.

In particular, "enforcement problems neutralize corporate governance and shareholder protection efforts in transition economics, where weaknesses in legal and market constraints are prevalent"[37]. To eliminate this negative factor, a number of provisions were applied to the Company Law and the Securities Law in 2005. It authorizes shareholders with lawful rights and interest-receiving protection from infringement and damage. Such efforts can be regarded as enforcement on private rights of action.

Meanwhile, CSRC always regards improving corporate governance of listed companies as one of its core missions. However, the law does not officially provide CSRC with specific powers to regulate the internal control or governance of listed companies. While, as a government agency, CSRC is limited to enforcing rules regarding disclosure and regulate merits of investment quality. At the same time, domestic exchanges are also doubtful of having enough effective and appropriate authority to achieve the status of a self-regulatory entity.

The government has discovered a range of partial alternative solutions to formal domestic regimes, for instance, the role of overseas listing. Coffee (2002) has emphasized the primary listing on foreign stock exchanges as a mechanism by which firms in weak enforcement regimes can bond themselves to "good" corporate law. Listing on a developed financial market imposes higher disclosure requirements and a more stringent regulatory environment.

[36] Tang Xin, 2007, Commentary on "New Hope for Corporate Governance in China", The China Quarterly 191, page 613.
[37] Tang Xin, 2007, Commentary on "New Hope for Corporate Governance in China", The China Quarterly 191, page 614.

The efforts of seeking alternative solutions are always simultaneously hand-in-hand with the regulation revisions. From 1993 some of the local well-known companies listed in the American, British, Hong Kong and Singapore markets have faced class action lawsuits. Certain officers and directors were even sentenced to prison for misappropriating funds and fraud in connection with share option grants, the Bank of China would be a good case. A series of occurrences questioned whether the corporate governance in mainland China can achieve global convergence through encouraging domestic state-owned companies to seek listing on developed markets.

Various reasons are concerned. Firstly, the selective range of listing companies was quite limited untill recently, and most of them chose Hong Kong as their preferred target trading platform. The influence of those companies' governance practices on their local counterparts may be still limited at the current stage. Secondly, since there are very limited channels for domestic citizens to invest in foreign capital, real competition among local and foreign stock exchanges have not been in full swing. However, the Chinese authorities progressively ease capital account controls to allow more capital outflows, helping alleviate the domestic liquidity problem. The Qualified Domestic Institutional Investors (QDII) Scheme is such an attempt. Finally, cross-border supervision of cross-listed companies needs efficient co-operation, which could bring about a failure of enforcement.

When the regulation of related-party transactions is concerned, China's legislators have based the Company Law on the self-enforcing model. In 1997, 2000, and 2001, CSRC announced a series of important rules to strengthen the law governing shareholders meetings and introduced the independent director system.[38] Meanwhile, CSRC also tries to seek help from the financial intermediaries, especially sponsors and financial consultants, to act as custodians of the market.

However, whether the self-enforcing model of corporate law or corporate governance can play a major role in overcoming China's enforcement problem remains to be seen. Both cannot cover all the legal provisions needed to address liabilities and their formal enforcement (Black and Kraakman, 1996; Black, 2001). According to Xin (2007), the key point is, since company laws and securities regulations are inherently imperfect, ambiguous provisions and gaps will have to be filled in by a regulator. Otherwise, corporate governance failures may occur. Due to "collective action problem", general meetings of shareholders may be weak in

[38] See the Guidelines for the Articles of Association of Listed Companies (issued on 16 December 1997, revised on 16 March 2006), Regulatory Opinions for General Meetings of Listed Companies (issued on 18 May 2000, revised on 16 March 2006, and Guidance Opinion on the Establishment of an Independent Director System in Listed Companies (issued on 16 August 2001).

providing real protection, as well as the supporters of a self-enforcing model may simply overrate the effectiveness of such laws in an emerging market with very weak judicial enforcement, market constraints and soft reputation institutions.

In short, plagued by enforcement problems, some good legal provisions still fall short of fulfilling the demand for better governance. The functional substitutes for good local lawsuit and enforcement regimes, including self-enforcing corporate law models and overseas listing, will help to further develop the domestic securities market.

5.3 Tested Implications and Research Questions

By reviewing most recent domestic financial reforms in China since 1999, it can be found that overseas primary listing is part of this reform. Therefore, how does Chinese government pursue the financial reform to develop the A-share market? Why is listing large SOEs in Hong Kong a necessary alternative? How does overseas listing, reform of SOEs, and A-share market development interact with each other? And what will be the subsequent effects and possible outcomes of this interaction?

Empirical investigation will begin with the tests of the "market order hypothesis", "bonding hypothesis", and other asymmetric information models, to answer the following questions:

1. How does the Chinese government choose prospective issuing companies to go public in an overseas market? What are the systematic characteristics related to this approach? And what is expected by the government?

2. In terms of issuing firms, what kind of companies are more likely to issue new shares in Hong Kong?

3. What are the systematic characteristics related to the size of overseas listing?

4. Of the "Market order hypothesis" and the "Bonding hypothesis", which is more powerful to explain the tendency of Chinese SOEs' foreign primary listing? i.e., is it for protecting or developing the domestic financial market?

5. Does overseas listing help to improve listed companies' corporate governance? Do better accounting and disclosure practices as well as more restricted market regulations have significant influence to prevent their latent earning management and other violations?

6. How do H-share companies perform after listing? Do they perform worse than domestic listed firms?

7. In the long run, can the bonding hypothesis variables systematically affect the performance of overseas listed shares?

8. To what extent can the investor protection factor influence listed companies' activities and performance?

9. After pursuing a number of SOEs to access the international capital market, what can the Chinese government do to take domestic financial reform into the next level?

5.4 Data Selection and Sample Distributions

The sample comprises 539 IPOs listed over the period January 2000 to May 2007, in which 448 IPOs went public on domestic stock exchanges (Shanghai and Shenzhen), and 91 IPOs listed on the Hong Kong Stock Exchange (HKEx), including both of the Main Board and the Growth Enterprises Market (GEM). The tested observations cover the population by 86 percent of issued IPOs during the sample period. The most missing observations are short in primary issuing or financial information, especially during years from 2000 to 2002 for domestic listed IPOs. The decision of sample period choosing is due to the data availability, and the comparison between population and the tested sample is reported in Table 5.1.

The list of overseas listing H-share firms is received from HKEx Annual Listing Reports, which are published on the HKEx official website, while, the list of domestic A-share stocks is obtained from Thomson One Banker database within the same sample period.

Proxies of corporate governance and ownership, i.e. the size of the board, number of non-executive directors, proportion of state-owned shares, proportion of legal person shares, first large shareholding, and second large shareholding, are handily collected from initial offering prospectuses from CSRC and HKEx official websites. Accounting data is collected from Datastream, complemented by companies' initial offering prospectuses and annual reports. The specific descriptive statistics will be reported in each section.

Table 5.2 shows the sample distributions over issue size, industry, and proportion of ownership. To begin with the issuing size (the issue proceeds), most of the observations are located within the range of RMB 100 million and RMB 400 million, while about 28 percent of the sample is between the range of RMB 400 million to RMB 1,000 million. To further investigate the relationship between the overseas listing decision and the size of issuing firms, Panel A reports the distributions for both A- and H-share observations separately. Although the CSRC has set the quantitative criteria that only firms with issuing proceeds more than RMB 400 million (about US$ 50 million) are allowed to apply for overseas listings, a few H-share firms did not meet these criteria. Within 46 out of 91 H-share companies that had issued less than US$ 50 million in their IPOs. Excluding 37 firms listed on the GEM with low listing requirements, there are still 9 firms that did not fully meet the enforced criteria. It is probably

due to other latent selection measures, such as industry, authority's shareholding, etc. Another interesting phenomenon is that, 36 percent of listed A-share firms had already qualified to apply for overseas listing with issuing proceeds exceeding US$ 50 million, which indicates that size of the firms may not be the only standards for the state authorities to pursue the privatization via a foreign primary listing approach.

In this circumstance, it is worth discovering the sample distribution over other control variables. Panel B of Table 5.2 lists the result of industry distributions, for the government's supporting industries, i.e. energy, basic materials, transportation, and commercial banking[39]. 35 percent of H-share companies are included within the range, while nearly 84 percent of A-shares are included in other industries. However, although the difference between the two sub-samples is significant, ownership structure may also contribute to the selection criteria and have notable influence to the subsequent performance after primary listings.

Panel C reports the distribution over the proportion of authority shareholding. Among 539 observations, about a quarter has no state-owned or legal person shares[40]. It is noted that, most of these 25 H-share firms were listed on GEM, or with more indirect authority shareholdings which are difficult to be clearly defined. Also, the distinguishing feature between A- and H-share companies is visible. For one thing, H-share firms own higher level in authority shareholdings; meanwhile, H-share firms appear to have higher proportion of state-owned shares. The following empirical sections will investigate the relationship between authority shareholding and overseas privatization in more details.

[39] See "The Outline of the Tenth (and Eleventh) Five-year Plan for National Economic and Social Development of the People's Republic of China" on the website of the National Development and Reform Commission of China, www.ndrc.gov.cn.

[40] Legal person shares are shares owned by domestic institutions, most of which are themselves partially owned by the central or provincial government. Legal persons are typically business agencies or local-government enterprises that have helped to start up the public companies.

5.5 Reforms of China's SOEs and Their Overseas Listings

According to Subrahmanyam and Titman (1999), SIPs can facilitate the development of the capital market. Megginson et al. (2004) further provides the empirical evidence that, SIPs tend to occur in countries with a less developed market, even though from a number of developed nations. However, if the domestic financial market does not have enough capability and depth to continuously support large scale IPOs, such as the Shanghai and Shenzhen stock exchanges in mainland China, it may not be able to successfully process ongoing SIPs and this may cause the unanticipated uncertainty to the market. Specifically, the immature market conditions often result in mispricing and a smaller proportion of privatization.

As reported in Sun et al. (2006), when the CSRC[41] planned to sell state shares and make them tradable around 1999, it met with fierce resistance from various interest groups which caused panic and brought about a strong negative reaction from the market. It had to be cancelled after two failed attempts in 1999 and 2001.

The first temptation by Chinese government to reduce the state-owned share of listed SOEs is from 1999. On the 22nd September 1999, the "Decision Regarding Some Issues of the Reforms and Development on SOEs" was approved at the 4th Plenum of the 15th Chinese Communist Party Congress. As argued by Copper (2003), this intention and plan of partially selling off state-owned shares would theoretically obtain the efficiency benefits of allowing diverse shareholders to supervise listed SOEs, while allowing the state to maintain an absolute majority holding, and simultaneously raising capital. However, due to the failure in pricing, the plan significantly dampened investors' enthusiasm and confidence on SOEs' reform at the very beginning of the offering.

The second temptation is from 2001 when the State Council released the "Provisional Measure on Management over the Reduction of State Shares to Raise Social Security Fund", which initially aimed to convert all non-tradable state or legal-person shares into tradable shares. This document allows listed companies to sell state-owned shares equalling 10 percent of the tradable shares at the market pricing level, and the money raised would contribute to

[41] China Securities Regulatory Commission.

the Social Security Fund[42]. Unfortunately, because of the unreasonable share structures and pricing, the CSRC announced a halt to the reduction of state-owned shares (Zheng, 2002). In June 2002, the Chinese government gave up the plan and the State Council formally cancelled the provisional regulation issued in June 2001 (Copper, 2003).

The unsuccessful approaches of selling off state-owned shares resulted in the Chinese domestic stock market to suffer a bear market from 2001 to 2005. Meanwhile, the government identified the non-tradable shares were the biggest issue in the stock markets and they announced that creating a full circulation market was the top priority.

As the third temptation, on 29th April 2005, the CSRC issued the "Notice concerning Issues in relation to Experimental Reforms for the Redesignation of Shares in Listed Companies" (the "Share Redesignation Notice"). Meanwhile, to avoid having this specific problem on the newly issued shares, the CSRC suspended IPO issuing in the Chinese stock market to solve the non-tradable shares problem thoroughly. This reform aimed to keep a steady development of the capital market, to establish fair and uniform rules, to give floating shareholders the right of voting and negotiating, and to protect the rights of public investors was also critical to the success of the reform.

The Share Redesignation Notice sets out a procedure by which certain PRC listed companies may apply for a percentage of the non-tradable shares held by their controlling shareholders to be reclassified as stock exchange tradable shares. The procedure would require the approval of all shareholders and would be decided thereafter by the CSRC. For a period of 12 months from the date such shares become tradable, the holders of non-tradable shares may notdeal in any reclassified shares on the stock exchange. After the expiry of the 12-month period, holders of non-tradable shares may not list and deal in shares representing more than 5.0 percent of the total issued share capital of the relevant company in the following 12-month period and not more than 10.0 percent in aggregate in the 24-month period after such initial trading date. The Share Redesignation Notice does not state whether it applies to H Share companies.[43]

On 8th May, 2005, four companies, including Sany Heavy Industries, Tsinghua Tongfang, Zijiang Enterprises, and Jinjiu Energy were chosen as the first pilot companies. By 19th June,

[42] China Online, 15th June, 2001.
[43] See requirements on CSRC official website.

there were 42 companies, including both central- and local-government owned SOEs and some collective-owned enterprises, involved in the second round of reform[44].

By the end of April 2006, among 924 publicly listed SOEs, 441 had completed the reform and 164 were in the process of the reform, accounting for 68.36 percent of the trading value of the domestic stock market. On the 17th May, the CSRC released the "Administrative Measures on IPO issuing" and reopened the launch of IPOs. Under the newly revised Securities Law and Corporate Law, there will be no non-tradable shares in the new IPO firms.

This reform had deep and significant affects on the domestic market both during and after the reform period. The temporary suspension of new and subsequent equity offerings created a number of problems, such as low turnover and illiquidity. These problems were exacerbated due to a lack of derivative trading platforms. Both the Shanghai and Shenzhen stock exchange A-share indices reached the bottom during this year. Moreover, the bear market further influenced linking markets, especially the Hong Kong market which had similar trends within this period. However, immediately after the offering process was resumed from June 2006, as shown in Figure 5.1, markets experienced an unparalleled growth.

Under this reform plan the government, as the major shareholder, gave out shares to the tradable A-share shareholders as a means of compensation by various valuation methods to close the pricing gap between tradable and non-tradable shares. Such compensation is based on the anticipation that once the non-tradable shares become tradable, the stock market will suffer wild fluctuation. Hence, maintaining market order is a key concern of the government. In this view, the chapter proposes the "market order hypothesis" as the motive behind overseas listing: diverting large IPOs to foreign markets releases the issuing pressure in the domestic market. Meanwhile, the "Bonding Hypothesis" cannot be ignored since to reform Chinese SOEs, enhance profitability, improve corporate governance, change the role of government, and develop the domestic capital market, have always been the main targets and the core agenda of China's privatization programmes.

[44] China Security Journal, 25th April, 2006

5.6 The Choice of Overseas Primary Listing – An Empirical Investigation

This Section will begin with the systematic characteristics related to the overseas primary offerings, from both the government's angle and Chinese SOEs' views. The regression models are expected to answer about which aspects can determine this decision, political-oriented, capital-driven, or both of them.

Control variables adopted in the cross-sectional regressions can be categorized into three groups by their corresponding tested hypotheses: (1) Market Order Hypothesis, including issue size, market-related PE ratio, industry, firm's leverage, and liquidity; (2) Bonding Hypothesis, including the proportion of tradable shares, proportion of state-owned shares, proportion of legal person shares, first large shareholding, and the size of the board; and (3) Signaling Hypothesis, including a number of financial position and performance measures.

5.6.1 Testable Implications for the "Market Order Hypothesis"

The size of the firm always plays an important role on its financial decisions, which is expected to be positively related to the overseas listing decision since a large firm usually issues more equity capital and thus exerts more downward pricing pressure on the domestic market. This is also consistent with other explanations such as economies of scale and availability of information (Pagano et al., 2002; Das and Saudagaran, 1998). Pagano et al. showed that firm size is one of only two common factors that can explain a firm's decision to cross-list in the US and European markets. However, this explanation may be secondary to the case of Chinese foreign listing firms (Yang and Lau, 2006). As mentioned earlier, most H-shares are issued at a lower PE ratio than domestic listed shares and are persistently traded at a heavy discount relative to the domestic market price. There must be compelling reasons for Chinese SOEs to take a more costly route to raise capital. By using the natural logarithm of inflation-adjusted total assets (***TA***) as a proxy for firm size, it is expected that TA would significantly and positively contribute to the overseas listing decision.

The market pricing and valuation level should also be closely related to the listing decision. This is a direct test of the hypothesis relieving the issuing pressure from the domestic market through foreign listing. This chapter constructs a proxy, the relative market PE ratio (***RLT-MKT-PE***), measuring the market depth of two markets. RLT-MKT-PE is defined as the monthly average PE ratios of the Hong Seng Index during the same time in A-share market, either Shanghai Stock Exchange A-share Index or Shenzhen Stock Exchange A-share Index, depending on which trading platform the firms are listed on. The positive relationship between relative market PE ratio and decision of overseas listing is anticipated based on the market order hypothesis.

The empirical test cannot ignore the effects of industry factors. As already mentioned, government supporting industries have priority to list on overseas markets for the economic and financial reform. The industry variable (***IND***) used in this chapter is a dummy, which equals to one if the company is within one of the government supported industries, including energy, basic materials, transportation, and commercial banking, and zero otherwise. The decision of foreign listing is expected to be positively and significantly related to the industry dummy as evidence of the government's macro-control of the state economy.

Domestic listing normally faces costs of a long IPO waiting queue while overseas listing entails different costs of a low initial pricing level. Firms with more urgent needs for equity capital would have more incentive to jump the long queue and list overseas. Since there is a lack of a straightforward proxy to measure the degree of hunger for equity capital across firms, this chapter alternatively adopts a number of accounting variables, with the expectation that firms with lower pre-listing liquidity but a higher leverage and growth rate should need more equity capital. Using the debt-to-equity ratio (***D/E***) as the proxy for leverage, and the quick ratio (***QUICK***) as the proxy for liquidity, it is expected that the H-share listing decision should be positively related to D/E, but negatively related to QUICK. Since these accounting variables are also expected to be proxies in the signaling and earnings management hypotheses, they will be introduced in more details in the following section.

5.6.2 Testable Implications for the "Bonding Hypothesis"

Other than relieving the pressure on domestic issues, the Chinese government may also use overseas listings as a means to force SOEs to conform to 'international standards' and establish 'modern corporate governance', which is in line with the bonding hypothesis in the

cross-listing literature. Since the bonding hypothesis builds upon the framework of accounting and disclosure practices, agency problems, signaling effects, and corporate governance, if the H-share listing is driven by the motive of reforming the SOEs, then H-share firms should exhibit a better governance structure and accounting practices than their domestic counterparts when they finish pre-listing restructuration and initial issuing overseas. It is noted that, since for most SOEs the state is the single or majority owner of the SOEs before listing, it seems safe to assume that all listed SOEs had poor corporate governance and accounting practices prior to reorganization. Consequently, during the preparation for overseas listing, the corporate governance is expected to improve dramatically to meet the listing standards.

As far as the corporate governance factors are concerned, this chapter adopts two sets of control variables, including the ownership concentration and the board structure. For the ownership concentration, four proxies are constructed, i.e. the percentage of tradable shares (A- or H-shares) (***TRD***), the percentage of state ownership (***SO***), the percentage of legal person ownership (***LP***), and first large shareholding (***FIRST***). For the board structure, the size of board (***BOARD***) is assigned to the regression functions.

In particular, ***TRD***, the percentage of tradable shares (A- or H-shares), is a direct proxy, providing the information of whether the government will sell more shares in initial offerings. It is predicted that, this variable will be sensitively related to a number of characteristics of the listing firms, such as industry sectors, sizes and scales of the business, the percentage of government ownership, as well as the adjustments in government policy and listing rules over time. In the testable sample, the proportion of tradable shares is about 30 percent on average, without significant difference between A- and H-share companies. However, it is still worth including such a proxy and this section expects a positive relationship between the tradable shareholding and the decision of overseas listing.

Moreover, SO and LP are defined as the percentage of state-owned shares and legal person shares respectively. According to all observations in this chapter, there are about 14 percent state-owned shares and 24 percent legal-person shares on average. In which, H-share companies have a significantly higher state-owned shareholding of 28 percent on average (with standard deviation of 0.25), while A-share firms only have 10 percent (with s.d. of 0.21). On the contrary, A-share companies have a larger proportion of legal-person shares (about 27 percent with s.d. of 0.29) when compared to H-share ones (about 12 percent with s.d. of 0.22). As mentioned in the previous section, legal-person shares are shares owned by domestic institutions, most of which are themselves partially owned by the central or provincial

government. Legal persons are those who typically engaged in helping to start up the public companies by either giving the companies the permission to operate or by allowing resources under their control to be used for the start-up. Once considering their nature of being non-tradable (at least within a few years after public offering), some economists argue that legal persons are similar to state shareholders. Consequently, although the different characteristics have already been discovered from the descriptive statistics of observations, to aggregately underline the effects of concentration of government shareholding, this chapter consistently adopts two control variables into the selection regression functions to control for ownership concentration of the government, i.e. ***SO*** and ***LP***, to control for the government's preference.

Another proxy of concentration is the percentage of first large shareholding, ***FIRST***, which mainly focuses on the absolute control. It is noted that, FIRST is not a simple repeat of SO or LP, since a large number of SOEs are not solely controlled by only one of the state's departments or provincial institutions, but are jointly held by many related government divisions. In such a case, it is not redundant to include a proxy of the absolute control into the regression functions.

As far as the board structure is concerned, this chapter constructs the following proxies: the board size (***BOARD***) and the proportion of non-executive directors (***NON***) on the board, where in the tests of the overseas listing decision, the size of the board has been highlighted. Jensen (1993) argues that, based upon the agency problem, a large-sized board is less effective in controlling governance. Also, Yermack (1996) and Eisenberg, Sundgren and Wells (1998) find an inverse association between the board size and firm value. However, other studies, including Pfeffer (1973), and Perce and Zahra (1992), are consistent with the argument that a larger board size may yield benefits by creating a network with the external environment and securing a boarder resource base. It is noted that, the board size may be more crucial for Chinese firms cross-listed in Hong Kong. Xu and Wang (1999) have pointed out that Chinese firms have the characteristics of over-representation by the state on the board. Yet, the listing requirement of HKEx demands that Chinese firms have Hong Kong investors sitting on the board, which tends to increase the size of the board. Once assuming the aim of restructuring SOEs is to meet the overseas listing criteria, it is reasonable to expect a positive relationship between the board and foreign listing decision. However, it is noted that, the efforts of enlarging the board size is still questionable, since the effects to the improvement in corporate governance are unknown at the current stage. Certainly, the subsequent tests on corporate governance will investigate this in further details.

As for non-executive directors, according to Higgs Report (2003), it is preferable to have more independent, outside directors to the board. However, to meet listing standards in different stock exchanges, NON is expected to be distinct across markets but convergent within the same trading platform. The data of tested samples used to construct the above proxies of corporate governance variables are collected from IPO prospectuses in the year of going public.

5.6.3 Testable Implications for Financial Performance, Signaling Hypothesis and Earnings Management

According to the literature review, based on asymmetric information, if the issuer is more informed than outside investors, rational investors fear a 'lemons problem', i.e., only issuers with worse-than-average quality are willing to sell their shares at the average price. To distinguish themselves from the pool of low-quality issuers, high-quality issuers may attempt to signal their quality. Although the signaling hypothesis focuses more on the underpricing puzzle of new shares, it is still worth investigating the relationship between financial performance and the choice of overseas listing for Chinese SOEs.

On the one hand, linking with the 'bonding hypothesis', the primary overseas listing aims to build 'modern corporate governance' and sending positive signal about Chinese economic reform. The pre-listing reorganization and optimization of firms' financial position and performance must distinguish listing candidates apart from their domestic counterparts. On the other hand, once considering their state-owned background, this is also an indirect test of the operating efficiency and managing ability of government ownership.

Furthermore, according to prior studies, Chinese IPO firms, both domestic and overseas listed, engage in earnings management and the patterns of earnings management depends on each firm's relationship with the government and on where its shares are listed (Aharony, Lee and Wang, 2000; Chen and Xiong, 2001; Qi et al., 2000; Xu and Wang, 1999; Chan, Firth and Kim, 2000; and Huang and Song, 2005). In particular, Aharony et al. (2000) examines the earning pattern and finds that the H-share firms exhibit a smaller post-IPO ROA decline than B-share firms[45]. The possible reason is that H-share companies normally have a restructure

[45] The B-shares, traded in US dollars on the Shanghai Stock Exchange and in Hong Kong dollars on the Shenzhen Stock Exchanges, are exclusively for foreign investors and allocated primarily by private placement until February 2001, the CSRC allowed domestic individual investors to open B-share

before their initial public offering in the foreign stock exchange, including both financial restructuring and operational restructuring. However, as far as domestic shares are concerned, especially domestic A-share stocks, Wang, Xu and Zhu (2001) document that A-share companies' performance decreased significantly after listing, but they could not determine whether the privatization effect in these Chinese companies is positive or negative. Therefore, another reason to include proxies of financial performance at the time of offering is to link with the earnings management tests in the long run studies in next section. It is noted that, in the short-run tests, this chapter does not include earnings management proxies due to the data limitation in domestically listed SOEs.

The control variables adopted in this section are well-documented proxies within accounting and auditing, including the operating profit margin (***OPM***), return on equity (***ROE***), debt-to-equity ratio (***D/E***), and quick ratio (***QUICK***).

In particular, the operating profit margin is, by definition, not only an accounting ratio of profitability, but also a measure of operating performance for management. To compare with other accounting ratios of profitability, for example the gross profit margin and net profit margin, operating margin is more preferred in this case. Although the gross profit margin measures the net revenue from core business, it has also included the considerable administrative costs in SOEs; meanwhile, since the net profit margin has completely omitted the tax effect raised by government supporting activities, it is not appreciated. To be more specific, restructuring a state-owned company to meet the listing criteria in foreign stock exchanges, government or state authorities always offer tax-deduction or other alternative financially favourable policies. However, having completing the restructuring and being ready to go public, the abolishment of underlying privilege will be intensively, rapidly and negatively reflected in the financial performance in the year of the IPO. The government's economic policies, such as taxation, are potential risks for China-related companies which have already been beyond the profitability or operating performance. Therefore, this chapter alternatively uses OPM[46] as a proxy for profitability instead.

Meanwhile, as far as the efficiency accounting ratio is concerned, the choice between the current ratio and quick ratio (acid test ratios) is also for the consideration of excluding

accounts and trade B shares in foreign currency. One company can issue both A- and B-shares on Chinese domestic stock exchanges. A- and B-shares have equal voting power and dividend rights. In recent years, B-share market is declining and lack of after-market liquidity.

[46] OPM is defined as the annual operating profit one year prior to initial listing over the total revenue in the corresponding period, while ROE is the net profits over total common shareholders' equity one year before the offering. OPM and ROE provide information on firms' profitability.

disturbed factors. To be more specific, the definition of the current ratio accounts for the inventories, which actually tends to be various across industries and lack of converting ability into other forms of current assets. In addition, as a cost measurement, the actual amount of inventories heavily depends on the calculation methods, which will further result in the misrepresenting to individual observation. Hence, in order to more accurately investigate the liquidity of the listed companies, this chapter uses quick ratios instead to avoid the possible bias due to accounting method and any other potentially indirect influences.

Following the efficient measurement, the tested function also includes the debt-to-equity ratio (D/E) as a proxy of leverage level and return on common equity (ROE) as measure of profitability. It is noted that, ROE is one of the key issues that investors are concerned with for investment decision-making, especially in well-developed overseas markets, by linking between profitability and efficiency which has been widely discussed in both academia and practice. D/E represents the financial position and capital structure, while QUICK points out the operating efficiency of tested observations.

5.6.4 Regression Functions, Predictions, and Descriptive Statistics

Following Bortolotti et al. (2003) and Yang and Lau (2006), to investigate the choice of Chinese companies' overseas listing, this chapter employs a generalized Type II Tobit model which allows simultaneously examination of two questions: the decision of overseas listing and the offering scale of H-share issues. A decision (selection) equation and an OLS regression equation are included in the model, as shown in Equation (5.1) and (5.2).

Decision Equation

$$\begin{aligned} H_i = {} & \beta_0 + \beta_1 \text{RLT-MKT-PE}_i + \beta_2 \text{IND}_i \\ & + \beta_3 \text{TRD}_i + \beta_4 \text{SO}_i + \beta_5 \text{LP}_i + \beta_6 \text{FIRST}_i + \beta_7 \text{BOARD}_i \\ & + \beta_8 \text{OPM}_i + \beta_9 \text{ROE}_i + \beta_{10} \text{TA}_i + \beta_{11} \text{D/E}_i + \beta_{12} \text{QUICK}_i + \varepsilon_i \end{aligned} \quad (5.1)$$

OLS Regression Equation

$$\begin{aligned} E[Y_i \mid H_i=1] = {} & \beta_0 + \beta_1 \text{RLT-MKT-PE}_i + \beta_2 \text{IND}_i \\ & + \beta_3 \text{TRD}_i + \beta_4 \text{SO}_i + \beta_5 \text{LP}_i + \beta_6 \text{FIRST}_i + \beta_7 \text{BOARD}_i \\ & + \beta_8 \text{OPM}_i + \beta_9 \text{ROE}_i + \beta_{10} \text{TA}_i + \beta_{11} \text{D/E}_i + \beta_{12} \text{QUICK}_i + \varepsilon_i \end{aligned} \quad (5.2)$$

In particular, the decision equation is a Logit model, where the independent variable, choice of listing in HK (H_i), is a binary variable taking the value of one if the observation included in the regression is a H-share firm, and zero otherwise. In the OLS regression equation, Y_i is the natural logarithm of inflation-adjusted H-share IPO proceeds of firms in RMB. All control variables are defined before.

Bortololotti et al. (2003) believe there is no need to distinguish these two logical steps as *ex ante*. Therefore, the two equations include the same independent variables. Moreover, according to Yang and Lau (2006), the error terms are assumed to be jointly normally distributed. The main advantage of applying such a model is that the selection equation can use the information from the OLS regression to improve the estimation accuracy of the coefficients, and allow the same independent variable to have a different impact on the selection and OLS regression equations, for instance carrying different signs.

Table 5.3 reports the summary statistics of control variables in the tests on the choice of Chinese companies' overseas listing, including all observations, sub-sample of A-share companies, and sub-sample of H-share firms.

Table 5.4 presents the correlation matrix of regressors. The correlation coefficients among the control variables are mostly low, the highest correlation is between TA and IND. Moreover, a number of regressors are likely to hold a relatively high correlation to each other, including the IND, SO, and TA, which is due to the intrinsically specific characteristics of Chinese SOEs.

RLT-MKT-PE

In Table 5.3, being one of the variables in the market order hypothesis, the average market related PE ratio of 0.43 distinguishes pricing levels between the two markets. In other words, the composite market portfolio is roughly half the price in Hong Kong than in China A-share market. This looks like H-share firms are subject to lower listing PE multiples and a higher cost of capital than in the domestic market. A compelling explanation is the market order hypothesis, which demonstrates that, since the Chinese stock market is in an early stage of development, and speculative bubbles, to force the economic reform as well as maintain the market order, firms may have chosen to list at a large price discount as a shortcut. Also, it is worth pointing out that, large IPO activities in the A-share market exert downward pricing pressures to the market (Yang and Lau, 2006). In this case, it is hard to imagine the actual

pricing level and potential shock to the market if these H-share firms initially listed on the domestic stock exchange instead.

In addition, there is another possibility that the domestic market negatively responds to the large IPO issues, whatever the target market is. This prediction is consistent with the market order hypothesis, since H-share companies are significantly larger than domestic listing firms, if the scale of the SIP is larger than the market can afford, this may lead to market disorder, and foreign primary listing would be an efficient alternative. This chapter will provide further support that, a lower cost is not a necessary motivation, at least not the most important motivation, for firms in a less-integrated market to seek primary overseas listing. However, this tendency is expected to reduce as the time elapses and the market becomes more integrated.

Meanwhile, the RLT-MKT-PE for H-share firms is significantly higher than the one of A-share companies, which probably accounts for a market timing motive. A tendency is detected that, although Chinese SOEs are looking forward overseas listings, they still need to choose a "good" time. Their foreign primary listing will be put into practice when the target market is relatively hot, with a higher market pricing level, to receive more funds and better trading performance in both primary and secondary markets. Meanwhile, it is reasonable to predict that SOEs tend to issue more shares in the hot market than others. Therefore, the relative market PE ratio is expected to be positively related to the choice of overseas listing, and negatively related to the H-share offering proceeds. This prediction is consistent with the major literature on the motivation of going public, with further evidence for the behavioural hypotheses.

IND

20 percent of listed companies are within the government supporting industries, where H-share firms carry significantly larger weight than A-shares. In particular, there are roughly one third of H shares from supporting industries, compared to A shares which only have about one sixth out of 448 observations. It is natural to assume that the government has an incentive to strategically and selectively pursue overseas listing for the concern about the development of the domestic market and the success of their privatization efforts, which is, again, consistent with two principal hypotheses mentioned in this section. Consequently, a positive relationship is predicted between government supporting industries and the decision of foreign primary listing.

TRD and BOARD

As a convention, all listing companies in both markets have the same level of tradable shares at 30 percent on average. Also, as far as the board size is concerned, there is no significant difference between HK and the China's domestic markets. Legal corporate structure is apparent and the HKEx does not have more restricted requirements on the level of tradable shares with the prospective listing issues. Meanwhile, to some extent, the Hong Kong listing framework is a vivid example of the Chinese domestic capital market, therefore the similarity on corporate structure and operational systems is reasonably understandable.

SO and LP

According to the tested sample, the state-owned share is 13.5 percent on average among all observations, while the legal-person ownership has a mean of 24.1 percent, nearly two times of the state-owned. This situation coincides with the Chinese economic reform tendency of reducing the state's direct control of each company, even though, at the current stage, the legal person shares essentially cannot be distinguished from government control.

However, the difference of priority between these two classes of shares can still be discovered from the sample. In particular, within H-share observations, the government directly controls 28.3 percent of shares in listed H-share companies, which is dramatically higher than A-share companies with less than 10 percent of state ownership. Meanwhile, the percentage of legal person shares in A-share companies is two times that of H-share observations. There are two possible explanations: (1) government ownership is closely related to both large scale and supporting industries; and (2) the A-share companies have a greater variety of backgrounds than H-share firms do, representing dispersive distribution in ownership structures. According to the sample, the difference between two sub-samples is statistically significant. Therefore, although the two classes of ownership are quite similar, it seems that companies with a higher level of government direct control will have priority to seek listing on overseas markets. This expectation is consistent with the bonding hypothesis to send positive signals of economic reform efforts and achievements. Meanwhile, the market order hypothesis is tested to the extent that, under the control of government, large-scale state-owned companies prefer to primarily list on foreign exchanges so as to avoid unexpected risks on the domestic market.

FIRST

As the proxy of the shareholding structure, FIRST is about 46.1 percent on average for all observations, which means the first large shareholder holds almost half of the company, representing a relatively high level of ownership concentration. Comparably, H-share firms appear to be slightly more intensive in ownership control than A-share companies. Since this proxy does not separate classes of shares, it cannot be an explicit sign that the government still remains its immediate influence in companies' daily operating. However, once being associated with other variables, for instance, the size of listed companies, it is reasonable to assume government-backed issues have a higher concentration level in ownership structure, as well as the motive of overseas listing.

Operating Profit Margins (OPM), ROEs, D/E Ratios, and QUICK Ratios

H-share companies represent a significantly higher earnings level than domestic-listed shares. Although the profitability level cannot be a crucial standard of overseas listing, it can still be anticipated that, the government will carefully choose better performing state-owned companies to issue IPOs overseas to send a positive signal of China's economic reform. Besides, the comprehension of stronger financial ability can be interpreted as pre-listing restructuring as well. Consequently, foreign listed firms are expected to have a higher level of efficiency, better profitability, and a more reasonable leverage level within the firm.

5.6.5 Empirical Results and Discussions

Table 5.5 reports the regression results for both the decision equation (Panel A) and the OLS equation (Panel B), to answer the question of the selection method used by the Chinese government for overseas listing. The examinations have been divided into three models: Column 1 focuses on corporate governance variables, Column 2 lays particular stress on the accounting factors, while Column 3 adopts all variables for both Panel A and Panel B in Table 5.5.

5.6.3.1 Decision Equation

To begin with the Decision Equation (Equation 1), largely consistent with previous expectations, most control variables are systematically associated with the decision of overseas listing, or, more critically, with the government's selection standards of overseas listing.

In particular, the corporate governance model provides sufficient information on selection standards. RLT-MKT-PE is significantly and positively related to the listing decision, which is consistent with the prediction of market timing. Meanwhile, the positive relationship supports the market order hypothesis to the extent of a contradictive market reaction to new primary listing. In other words, once a large SOE goes public in Hong Kong, the domestic market will more pessimistically reflect the negative responses to this event and react inversely in comparison to overseas market movements.

In addition, IND shows a significantly positive relationship to the selection, which, again, provides empirical evidence of the Chinese government's privatization efforts, i.e. firms within the government supporting industries have priority of foreign primary listing.

As far as the series of firm-specific ownership structure proxies are concerned, the test actually lays particular stress to the selection criteria set by the government. SO and LP classes of shares represent inverse influence on the selection of overseas listing: a larger percentage of state ownership conduces to the qualification of overseas listing, while legal-person shareholding has a lack of priority to pass the selection standards.

Correspondingly, as further evidence, the significant and positive relationship between FIRST and the overseas listing decision reflects a vital selection preference of the government, in terms of the foreign primary listing being one of the key approaches towards the target of privatization and achievement of economic reform. In other words, once combining the empirical results of the series of ownership structure variables, it is obvious that a selection of underlying overseas-listed firms is for more political interests. Doing so is to exchange future development than to solely maximize government-backed owners' economic wealth.

Moreover, TRD also appears to have a certain relationship with overseas listing. There are two possible explanations: the public interest and market capability. In terms of market conventions, the HKEx requires a higher level of public holding. For instance, according to the Listing Rules 8.08(1.a)[47], to ensure an adequate market for, the exchange must be satisfied with sufficient public interest, which means at least 25 percent of the issuer's total issued share capital must at all times be held by the public. For securities having an expected market capitalization at the time of listing of more than HKD50 millions, the public holding is required to be no less than 15 percent. Comparatively, although the Shanghai Stock Exchange

[47] The shortened form, of 'HKEx Listing Rules', is used in the following to refer to the *Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Ltd.*, Update No. 84 (Update No.85: 25 June 2007).

also requires a 25 percent as the bottom level of public interest, for primary listing candidates with new offered shares of more than 4,000 billion shares (no matter how much is the capitalization once higher than RMB500 billion), the required public holding level reduces to 10 percent. It is noted that, according to observations in the this chapter, only 4 out of 54 main-board-listed firms in Hong Kong have market capitalization of less than HKD50 million, indicating the minimum public interests of most overseas listing SOEs is 15 percent and significantly higher than the 10 percent level of domestic trading platforms. Since the domestic market capability is still limited at the current stage, more spread in the shareholding structure means larger offering proceeds, which could possibly bring more uncertain risks and unexpected concussions to the domestic financial market. As the former explanation further highlights the difference across trading platforms, the latter, again, proves the "market order hypothesis". However, although BOARD also closely depends on the market conventions, it is insignificant, indicating the similarity in this case.

To further investigate the systematic relationship to accounting variables, Model 2 mainly highlights three aspects. These are size, profitability, and efficiency. The relationship between SIZE and the decision of overseas listing is significant, indicating a priority of large SOEs to raise capital on an international basis. Moreover, both OPM and ROE are significantly and positively related to a foreign primary listing, which is consistent with the facts that The Chinese government intentionally reorganizes and modifies prospective issuing firms to meet listing criteria in foreign stock exchanges. However, proxies of financial leverage (D/E) and liquidity (QUICK) are not statistically significant in this case, with comparably low *t*-values. It is noted that, Model 2 does not exclude RLT-MKT-PE as a control variable since market movement influences an individual security's decision and performance. The significantly positive coefficient is consistent with Model 1 to a certain degree.

In Model 3, the consistence of empirical results is held in principle. Large, reorganized and recovered state-owned companies within the government supporting industries will prefer an overseas listing when the market is hot, to obtain more capital-raising, to operate under international standards, to send a positive signal of Chinese economic reform, and to indirectly protect the development of the domestic financial market.

5.6.3.2 OLS Regression and Discussions

Panel B in Table 5.5 reports the empirical results of the OLS Regression Equation (Equation 5.2), i.e. the systematic determinants of the size of overseas listing. The basic idea of this function is likely to be the same as the decision equation. It only replaces the dependent variable from a decision-making dummy into the natural logarithm of inflation-adjusted H-share IPO proceeds of firms. This alternative examination aims to identify the systematic characteristics associated with the scale of primary overseas listing, even if the effects of included *ex ante* factors cannot be distinguished to the extent of both dependent variables.

In Model 1 of corporate governance factors, the market-specific proxy of RLT-MKT-PE becomes statistically insignificant, which is consistent with the prediction of the "slap-up" sentiments of the Chinese government to push through the privatization by foreign listings. As mentioned before, at the current stage of market development, a low cost is not necessarily the crucial concern. Having decided an overseas primary listing, the issuing SOE and related government department will achieve a successful offering by all means. It is noted that, the insignificance of such a variable does not held across all three model. A possible explanation would rely on the level of market effect. That is to say, although overseas initial offerings are not mainly driven by the comparably low costs, H-shares do not completely abandon the opportunities of timing the market.

The concentration of ownership in determining proceed amounts is relatively not as important as it is in the decision-making process. The negative sign also indicates a latent protection from the subsequent dilution effect.

As far as the percentage of tradable H-shares are concerned, TRD is inversely related to the offering proceed, representing an apparent motivation of raising capital. However, according to the empirical tests in prior chapters, the high pricing level does not consequently account for a mispricing of China-backed issuing firms in Hong Kong. Both H shares and Red Chips are actually suffering a higher level of underpricing (dramatic initial returns) than local shares and any other cross boarder listings. H-share issuing firms are likely to alienate partial benefits for investors' interest in order to ensure a successful overseas listing and to achieve the target of privatization. Also, the correlation between the percentage of new issued shares and the size of the firms should be aware. Since even a small proportion of tradable shares is massive for larger-than-average scales, the subsequent proceeds are reasonably and remarkable higher than the average.

Meanwhile, SO, LP and IND show strong and positive relationships with the issuing proceed, which can also be intercepted as the size effect. In other words, state or legal person

shareholdings and industry categories are more likely to be the criteria of decision-making. The significant associations with the issuing amount are more driven by their correlations to the size of SOEs. Such a certain size effect can also be applied to the BOARD though the influence is much lower than SO, LP and IND correspondingly.

To sum up Model 1 in Panel B, offering proceeds are mainly determined by the intrinsic characteristics of SOEs' large scale and the stock exchange's conventions, rather than other exogenous aspects.

Firm-specific accounting characteristics also appear to have systematic impacts on the offering proceeds. As shown in Model 2 of Panel B, apart from the substitute proxy of size, TA, the offering proceed are more closely associated with both profitability and leverage ratios. In particular, ROE, with a coefficient of 0.74 and a *t*-statistics of 2.83, suggests that more profitable SOEs will issue more equity in the overseas market to maximize the amount of funds raised. Meanwhile, D/E is determined by the comparison in cost of capital between equity and debt. To be more specific, being a government-backed enterprise, it is much easier to access financing resources, from either government departments or commercial banking institutes. In the past two decades, especially in the 1980s and the 1990s, the government and local authorities acted as immediate lenders. Although recently the state has avoided this direct assistance as much as possible, they still feel having duty to get involved as sponsors. For instance, there is a common perception amongst commercial bankers that, once balancing two comparable applications of business loans, a SOE will have a higher probability to receive the agreement duo to government's creditability and administrative means. For many years, Chinese bankers suffer from both high subprime and low provision. However, such a negative relationship impliedly reflects the government seeking lower financing costs to process cross-border listings.

Model 3 in Panel B further incorporates all the independent variables to control the determinants of H-share offering proceeds. Accounting factors are persistently consistent with the obtained results, the corporate factors. However, they tend to vary from the prior model, especially the statistical significance of IND and SO. The change has actually coincided with the conclusion in Model 1 that, IND, SO as well as LP are only selection standards for overseas listing set by the government, therefore the underlying insignificance has more economic meaning than statistical sense. Meanwhile, the change in LP also supports the prediction of the relationship between the state's shareholding and offering size, since the increase in LP accounts for the rise in total government-backed ownership.

In short, from the Chinese government's point of view, to process H-share offerings, the issuing proceeds are mainly determined by their financial position and performance, the proportion of government-backed shareholding, as well as market movements. Although the market order hypothesis does not hold at any circumstance to the extent of high associated costs, the overseas listing is still promoted by the government based on the bonding hypothesis and signaling models with a relatively rational consideration to develop the domestic financial market. In other words, since the market hypothesis focuses on the protection of the domestic market while the bonding hypothesis emphasizes more on the development, the empirical results in this section coincide with the predictions that, strategically selecting SOEs to go public in Hong Kong is not merely due to the current immaturity of the A-share market, but is a means to gain successful experience on domestic financial reform for the future.

5.7 Improvement in Corporate Governance via an Overseas Listing

Overseas listing is based upon the framework of accounting criterion, disclosure practices, agency problems, as well as corporate governance. Since asymmetric information models have been stressed in Chapter III, while accounting and disclosing practices have been discussed in Chapter IV, this section, alternatively, turns to focus on the omitted part related to corporate governance. If H-share listing is principally driven by the needs of China's economic reform and SOEs placid privatization, the H-share companies should be assigned with the reorganization priority and exhibit better governance structure after listing, i.e. better accounting and disclosure practices, less earning management, as well as improved financial position and performance. This is also a subsequent test of the "Bonding Hypothesis".

5.7.1 Regression Equations and Predictions

The idea of empirical investigation in this section is, once overseas listing is considered for the further development of the domestic financial market, H-share companies listed in Hong Kong should behave under more restricted international standards. Tested models maintain control variables of the bonding hypothesis and earning management, to test whether accounting and disclosure practice as well as corporate governance have to be improved by overseas listing experience.

The test follows simple Logit model to investigate whether improved corporate governance and accounting practices can help to distinguish H-share firms from their domestic counterparts. The tested regression function is listed in Equation (5.3):

$$\text{Prob}\,(H_i=1) = \beta_0 + \beta_1\,SO_i + \beta_2\,FIRST_i + \beta_3\,TRD_i + \beta_4\,BOARD_i + \beta_5\,NON_i + \beta_6\,INC\text{-}SMTH_i + \beta_7\,PRF\text{-}C_i + \text{Accounting Control Variables} + \varepsilon_i \qquad (5.3)$$

where, the dependent variable, H*i*, is equal to 1 for H-share firms, and zero otherwise. SO, FIRST, TRD, BOARD and accounting control variables have been defined in the previous section. The adoption is for the consideration of the panoramic view in corporate governance aspects. Moreover, the percentage of non-executive directors within the board, **NON**, is included to capture the structure and monitoring power of the board. According to Beekes,

Pope, and Young (2004), a higher proportion of outside the board members are more likely to recognize negative news related to earnings on a timely basis and act conservatively in reporting and disclosing. Although it has mentioned that the proportion of non-executive directors on the board more rests with the exchange ordinance conventions, the restructuring inside SOEs prior to overseas listing, including invitation of non-executive directors, is an effort to enhance the corporate governance more or less. Apart from that, accounting control variables are mainly maintained as previous regression functions, including TA, D/E, and QUICK.

Moreover, the two proxies of the earning management are introduced in this section to measure the quality of accounting and governance, i.e. the income smoothing (***INC-SMTH***) and the inconsistency between profits and cash flows (***E-CASH***). Prior studies have provided empirical evidence, for instance, Lobo and Zhou (2001). They report that corporate disclosure is negatively related to the earnings management. Furthermore, Leuz, Nanda, and Wysocki (2003) observe the existence of an endogenous link between corporate governance and the quality of reported earnings. They conclude that earnings management is partially driven by increasing benefits from private control. Once they discover the decline in such benefits, insiders will have less incentive to manage earnings. Consequently, it is presumable to anticipate that better governance and accounting practices tend to abstain from earning management.

Meanwhile, there is an additional reason to account for the earnings management effect. Along with the hot topic on China, there has been much empirical evidence on Chinese listed firms recently. By examining the earnings patterns of B- and H-shares in China, Aharony et al. (2000) finds that Chinese IPOs do engage in earnings management. The underlying pattern heavily relies on the firm's relationship with the government and the market listed on. Wang et al. (2001) addresses the empirical tests on A-share firms and documents that the company performance significantly decreases after listing. However, they still barely isolate the impacts owing to privatization, while Huang and Song (2005) complement the investigation and conclude that, the privatization effect in China's overseas listed companies is still positive. More literature includes Xu and Wang (1999), Chen et al. (2000), Qi et al. (2000), and Chen and Xiong (2001). Therefore, it is indispensable to consider the possible earnings management when judging the improvement in corporate governance of Chinese overseas-listed firms.

INC-SMTH is defined as a ratio of the firm-level standard deviation of annual operating profits and net cash flow from operating activities, aiming to capture the degree of income

smoothing[48]. The less volatile the operating earnings are relative to cash flow, the larger the amount of earnings management is expected. Meanwhile, E-CASH is conducted as a ratio of the absolute value of the firms' accruals[49] and the absolute value of the firm's cash flow from operations. The accrual and cash flow from operating activities are predicted to move together if the earning management is controlled at a relatively low level. In other words, the value of E-CASH tends to be fairly small under constraints in earnings management.

In addition, most of the accounting variables remain the same as in previous equations, except for adding a profit growth rate (***GROWTH***). It is defined as the average growth rate of net profits in the three years after listing, as an *ex post* proxy of listed firms' potentials in profitability.

Descriptive statistics and correlation matrix cross control variables are reported in Panel A and Panel B in Table 5.6 respectively. Most variables have been demonstrated in the previous section.

NON, as one of the proxies of corporate governance, appears to differ across sub-samples. On average, there are 48 percent of the board members acting as non-executive directors in H-share companies, while A-share observations hold an average proportion of 25 percent. As mentioned before, to the extent of improvement in monitoring power within the board, H-share firms are expected to be more advanced with stronger administrative strength and lawsuit obligation. In other words, NON is expected to be positively related to overseas listing to reflect the improvement in corporate governance.

The mean of INC-SMTH for H-share observations is 3.23 with a standard deviation of 11.31, while the average INC-SMTH of A-share observations is much smaller at 0.86 with a standard deviation of 3.24. Therefore, it is reasonable to expect a positive relationship between INC-SMTH and overseas listing, which means H-share firms with less earnings management will have higher volatility in operating earnings related to the cash flow. The INC-SMTH of H-shares, as a proxy of income smoothing, should tend to be larger than domestic listed firms.

[48] Income smoothing is one form of earnings management in which the company "smoothes" reported operating earnings by altering the accounting component of earnings, namely accruals, to reduce its variability (Sun, Tong and Wu, 2006, pp. 18).
[49] According to Leuz, Nanda and Wysocki (2003), Accruals are calculated as: (ΔTotal Current Assets - ΔCash) – (ΔTotal Current Liabilities - ΔShort-term Debt - ΔTaxes Payable) – Depreciation Expenses.

The other proxy of earnings management, average E-CASH of H-shares is -0.075 when compared to 0.29 of A-shares. Hence it is expected to be negatively associated with foreign primary listings. However, the *t*-test of the mean is not statistically significant. We have to leave the question open.

Moreover, the accounting proxy of GROWTH shows the operational gap between foreign and domestic listed shares. The mean of profit growth rate of H-share companies is positive and nearly reaches at a level of 10 percent level; on the contrary, A-share firms appear to suffer a minor decline in net profit growth on average. There are a number of reasons to be addressed on this issue. Since business profitability should reflect the economic fundamentals and other macro factors, the difference in operating performance may be driven by their intrinsic characteristics, for instance, being export-oriented or domestic-market-oriented. Also, once considering their government shareholding proportions, the attached abilities of accessing resources and chances of obtaining administrative supports have a lack of comparability. However, one cannot negate the efforts of overseas listed H-shares to improve their operating performance and corporate governance. Consequently, GROWTH has been included in the following tested models, even if the difference in means is not statistically significant.

5.7.2 Empirical Results and Discussions on the Improvement of Corporate Governance

Regression results are reported in Table 5.7, in which Panel A shows the corporate governance and earnings management across A- and H-firms without accounting control variables, and Panel B are models with accounting control variables.

5.7.2.1 Regressions without Accounting Control Variables

Model A(1) only includes two earnings management control variables in the equation, which can be regarded as a start point for subsequent models by adding various variables in turn. As predicted, INC-SMTH appears to be significantly and positively related to the H-shares, indicating a comparably lower level in earnings management than their domestic counterpart. In particular, although the underlying effect of income smoothing is minor, at approximately 1 percent, the economic meaning is prominent. Such well-behaved activities may be mastered by the accounting and disclosure practices in Hong Kong and for the avoiding of violation purposes. In other words, the costs of breaking rules may be more negative than turning away

from earnings management. In addition, this indeed illustrates the original intention of overseas listing and provides empirical evidence to the bonding argument. To list on a well established and internationally formulated trading platform, Chinese SOEs themselves have to improve their corporate governance and operating management to realize continuous and successful trading as well as spill-over onto the domestic market.

Meanwhile, the coefficient of E-CASH is not statistically significant in the model. Once considering two earnings management control variables together, it is known that, although H-share firms abstain from earnings management, they still cannot be distinguished remarkably from domestic-listed companies at the current stage.

Model A(2) turns to examine the systematic influences of administrative power within corporate governance, including SO, BOARD, and NON. SO is statistically and positively associated with H-shares. Based on the assumption that overseas listings help with formatting modern corporate structure and improving corporate governance, H-share companies take advantages from their state-owned background.

Foreign listed firms are likely to enroll more non-executive directors in the board. This coincides with the argument the, the pre-listing reorganization of Chinese enterprises, including both A- and H-shares, are more likely to follow the framework of previous succeeded examples in international markets. Further, this is also consistent with a number of prior studies, for instance, Beekes et al. (2004) and Yang and Lau (2006). The latter suggests that larger proportion of non-executive directors enhance the corporate governance in H-share firms. To combine with the results in Model 2, it can be concluded that, at least partially, NON positively influences the accounting and disclosure practices, which in turn improves the accuracy in operating management as well as efficiency in corporate governance.

In terms of BOARD, it is not statistically significant. However, even the board size cannot be distinguished between A- and H-share firms, the insignificance can still be reasonably explained by the following likelihoods: (1) the correlation matrix in Panel B of Table 5.5 has dropped a hint that, the board is more closely related to industry and size of firms; (2) as far as overseas listed companies are always the flagships within the corresponding industries and regional markets. Their restructures prior to listing must have been the model for other subsequent offerings to follow, which can easily result in indifference across firms no matter what market they list on. In other words, the indifference may imply an ongoing broadcasting effect for the domestic market participants to track flagships' restructuring experiences, even merely for an *ad hoc* or incentive-driven purpose.

Model A(3), by combining the prior two models, examines the impacts of two groups of control variables, i.e. the earnings management and administrative power. All results are completely and systematically consistent across the models, as well as their statistical significance.

Model A(4) solely focuses on corporate governance variables with an additional proxy of first-large shareholding (FIRST) to control the concentration of ownership. Once other aspects are equal, more concentrative shareholding is significantly associated with H-shares to distinguish from domestic listing firms. The result suggests that H-share firms are more likely to have a controlling shareholder than pure A-share firms, which is inconsistent with the general argument that the controlling shareholder is linked to poor corporate governance. However, again, once investigating the correlation between FIRST and SO, such a conflict is actually an intrinsic conjunction and mostly driven by its state-owned shareholding.

Model A(5) further adopts earnings management control variables based on Model 4 for the speculative motive. The maintenance in coefficients and statistics significance of all variables is kept, proving the consistency and stability of the series of models.

By substituting FIRST for TRD, **Model A(6)** focuses on the affects generated from spread in ownership, especially public shareholding. The insignificance is not critical in economic meaning, since the percentage of tradable classes of shares depends on legal clauses and administrative prescripts rather than an individual firm's preference or decisions. Such convention is consequently not expected to be one of the most crucial characteristics in this issue.

Finally to sum up, **Model A(7)** comprises all control variables from all of the models above, aiming to provide a clear and entire view of corporate governance and earnings management. The high and reliable likelihood in the empirical results comes to a conclusion that improvement in corporate governance of H-share firms is significantly attributed by their overseas listing. The state-owned ownership, concentrative shareholding, engagement of more non-executive directors, and abstaining from earnings management positively impel such improvement.

5.7.2.2 Regressions with Accounting Control Variables

Model B(1) to Model B(4) in Panel B of Table 5.7 pushes the Logit regressions by including the accounting control variables, with the interests of whether improved corporate governance

and accounting practices can help to distinguish H-share firms from their domestic counterparts. In particular, the subsequent models are essentially generated for one of previous models, by persistently adopting TA, D/E, GROWTH, and QUICK as the control variables to capture the effects of the firm's size, leverage, potential, and efficiency. Moreover, IND and FIRST will be selectively engaged in. However, NON has been excluded. The rearrangement in control variables is expected to tell more stories of other potential influences.

Based on Model A (6), **Model B(1)** excludes both FIRST and IND as a simplified origin. SO maintains persistent significance and is positively associated with H-share firms. However, being different from the prior models, TRD is significantly and positively related to overseas listing. It is noted that, the positive sign of the coefficients is consistent across models. Also, this result indicates the relationship between the proportion of tradable shares and the guarantee in accountability, improvement in economic efficiency, and enhancement in shareholders' wealth. As suggested by the majority of relevant studies, the higher the percentage in public shareholdings, the better the corporate governance.

In addition, as for the earnings management, a positive coefficient of INC-SMTH provides further evidence to the relationship between overseas listing and resistance from income smoothing activities.

Moreover, within four accounting control variables, only TA represents an outstanding positive relationship to overseas listing and the improvement in corporate governance. In the prior literature, firm size is often used as a proxy for information availability. Since market participants are assumed to have better knowledge and information than large firms, they should have less incentive to smooth earnings (Albrecth and Richardson, 1990). Therefore, such positive connection to better corporate governance is accorded with predictions.

Model B(2) further introduces the control variable of FIRST into the regression function. It can be ascertained that more absolute control in ownership produces better managing efficiency and corporate governance.

Model B(3) turns the view to the industry aspect. Based on Model B(1), a dummy variable of government supporting industries, IND, is to discover the possible link between industry and corporate governance. Although the result is not statistically significant, the positive sign is still consistent with the expectation that overseas listing helps with the improvement of corporate governance for H-share companies. The insignificance can be explained by the

concentrated distribution of industries among H-shares. In other words, since government supporting industries have already owned the priority to pursue primary foreign listing, all the listed H-share firms represent convergence and derive advantages from same jurisprudence and market conditions. Thus a positive relationship may generate more economic sense than statistical meaning.

Lastly, Model **B(4)** integrates all control variables used in the previous three models to provide a panoramic view. All variables as well as their corresponding statistical significance are maintained steadily and systematically.

To sum up, all tested models come to one conclusion, H-share companies, representatives of partially privatized Chinese SOEs, have already substantially revised and reformed the corporate governance through a primary overseas listing channel. They have spilled over positive effects back to the domestic financial market and become models to guide other domestic counterpart to follow.

5.8 Investor Protection and Long-term Performance

5.8.1 Methodology - Do H-share Firms Have Better Post-listing Performance?

The World Development Report (1996), "From Plan to Market", acknowledges that, "each approach to privatization creates trade-offs among various goals, among which, initial public offerings generate revenues, create control of shareholders over managers, access to capital and skill, and provide efficiency"[50]. During 2006 alone, Chinese SOEs executed share issue privatizations worth over US$ 35 billion, including the US$ 21.9 billion IPO of the Industrial and Commercial Bank of China (1398.HK), the largest initial offering in history.

Such tendency raises a question that, in the long run, is it worthy while for the Chinese government to pursue SOEs' primary overseas listing? What have they learned from other international markets? And how can A-share market apply these experiences?

Therefore, this section aims to compare the after-market trading performance between A- and H-share firms. In particular, according to literature, holding the bonding hypothesis, the legal origin is an important determinant to the accounting practices, corporate governance, disclosure procedures, and investors' protection. It will in turn affect the development of the financial markets as well as market participants' investment expectations and activities. By adopting a variable of LaPorta et al. index, this section will particularly investigate the legal effects on the performance of overseas listing, i.e. *ex post* public control. This also distinguishes the research from the traditional tests of IPO long-term performance.

5.8.1.1 Long-term Stock Trading Performance

Prior literature has already discovered the significant privatization activities, especially on the issue of whether privatization improves the operating and financial performance of "divested" firms. Although the conclusions are mixed, most studies agree to the remarkable improvement in both developed and emerging markets (Galal et al. 1994; Megginson et al., 1994; Boubakri and Cosset, 1998; LaPorta and Lopez-de-Silanes, 1999; D'Souza and Megginson, 1999; and Dewenter and Malatesta, 2001). Megginson (2006) suggests that privatization IPOs have

[50] World Development Report, 1996, From Plan to Market, *World Bank*, page 241.

significantly outperformed their domestic stock market in the long run, because, in contrast to private firms, the privatization IPOs seem to have less asymmetric bias after trading.

As far as China's privatization is concerned, there are still some studies, such as Chan, Wang, and Wei (2004) document the negative long-run trading performance of Chinese privatized IPOs. While some others, including Jain and Kini (1994), and Mikkelson, Partch, and Shah (1997), also report poor subsequent operating performance. However, the most recent studies on China privatized IPOs support the significant achievements of both financial and trading performance through overseas listing approach.

In the existing literature, Megginson, Nash, Netter, and Schwartz (2002) report significant and positive long-run abnormal returns. This outstanding trading performance in turn reflects the improvement of the operating performance and managerial efficiency of private firms.

As a further and closer support, Jia, Sun and Tong (2005) find the partial privatization of Chinese SOEs through overseas listing approach leads to a median increase in financial performance but significant underperformance of returns against several market index benchmarks. Also, the study shows that firm's performance is negatively related to the state ownership, but is positively related to legal-person ownership and foreign ownership.

However, in terms of the debate regarding the methodology of measuring long-run performance, the empirical results are critically challenged. So far, there has no single long-term performance methodology that is widely supported by both theory and empirical evidence. Also, the use of appropriate benchmarks remains critical. In the event-study, benchmarks' returns are normally calculated by using the CAPM. However, CAPM does not work well in testing the long-run performance. Although the Fama-French three-factor model has been introduced for decades, there has not generally accepted theoretical explanation for the size and book-to-market ratio to be the determining variables. As mentioned in the second empirical chapter, Barber and Lyon (1997) recommend using BHARs in a size-and-BM approach to eliminate the biases, however, Fama (1998) points out that, buy-and-hold abnormal returns (BHARs) tend to yield statistically artifacts because a distribution of long-horizon returns is positively skewed and has very fat tails. Alternatively, Mitchell and Stafford (2000) suggest using the cumulative abnormal returns (CARs) and a calendar time regression approach by Fama-French (1993). However, Loughran and Ritter (2000) state that such approach is the uniformly lease powerful test of market efficiency.

Previous studies offer indeterminacy in methods of testing the long-run performance, this chapter, for a neutral consideration, uses market-adjusted abnormal returns to test the long-run stock performance for observations. Table 5.8 and Figure 5.2 report the market-adjusted CARs by each month after the firm going public in segmented marketplaces. It includes both A- and H-share firms and the benchmarks include three stock market indices respectively, i.e. the Hong Kong Hang Seng Index, the Shanghai Stock Exchange Composite Index, and the Shenzhen Stock Exchange Composite Index, depending upon which trading platform the underlying observation is listed on.

The market-adjusted CARs are negative on average for all three samples, indicating a possible underperformance to benchmark portfolios. Moreover, in comparison in the means of CARs across markets, overseas listed shares were actually suffering from a greater downside pressure than domestic listed firms. However, it is noted that, the corresponding margins are not statistically significant between two markets (*t*-statistics of 1.79 for zero difference between means, not reported in the Table 5.8).

In addition, Figure 5.2 shows a clear view of the market-adjusted CARs of all samples, A-share firms, and Main Board listed H-shares. To list on the two segmented stock exchanges, A- and H-share stocks were moving along a similar trend and were following the same pattern over time. The results are consistent with the relevant literature on information spillover across market. In a FIVECM-BEKK GARCH approach, Qiao, Chiang, and Wong (2008) provide empirical evidence that the China's domestic market and the Hong Kong market are fractionally co-integrated.

Some recent literature explores the distinct price movement of stocks that are simultaneously traded in the China's segmented markets. One of these contentious issues is the price differentials among different classes of shares. By using a two factor model, Li, Yan and Greco (2006) successfully explain the risk premiums associated with A and H shares. Relative discounts of H-shares to A-shares are reflecting the contemporaneous movements of the H-share local market index to the A-share local market index, as well as the spread of saving rates between Hong Kong and mainland China. In other words, the change in individual security is always with the relative movement of trading platforms and macroeconomics factors. The results suggest that the risk premiums associated with the segmented A- and H-share markets exert crucial impacts on the price differentials between the two types of shares.

5.8.1.2 *Ex post* Public Control, Investor Protection, and Long-term Operating and Trading Performance

The systematic characteristics associated with the IPO long-run performance have been discussed in previous chapters, including the size, initial underpricing level, market movements. Therefore, this chapter turns to focus on a number of other possible explanations. To be connected with the tests in the previous section on the decision of overseas listing and the improvement in corporate governance via such approach, the following examinations will focus on the relationship between improved corporate governance, better investor protections, and Chinese partially privatized IPO long-run trading performance. The dependent variable in tested OLS regressions is cumulative abnormal returns (CARs) in one and three years after initial listing. CARs are calculated as:

$$\mathbf{CAR}_T = \sum_{i=1}^{N} (r_{i,t} - m_{i,t}) \qquad (5.4)$$

where $r_{i,t}$ and $m_{i,t}$, representing monthly raw and benchmark returns (index returns), are statistics computed from the event time-series of portfolio-average monthly abnormal returns.

To isolate from other studies, apart from maintaining control variables introduced in the previous section, this section includes a new control variable, LaPorta Index (**LaP**), to control the effects of investor protection The existing series studies by LaPorta et al. have not covered the data of China for all issues, which brings difficulties to full investigation based on authorized indexing value. Moreover, the following tests are on the after-market trading performance, the investors' protection will be narrowed down to *ex post* public controls. Although the legal system and investor protection could be one of the reasons to conduct a foreign primary listing, Hong Kong initially was not the first choice for the Chinese government to pursue partial privatization. The intended target markets have more capital capability, such as LSE, NYSE, and Nasdaq, especially LSE since its law system is also English-origin. Hong Kong eventually became the preferred choice of the Chinese government and the state authorities to process primary offering, warrants, and other derivatives in the rest of the stock exchanges. The core consideration will be much more than the law system and investor protection.

However, as far as the bonding hypothesis is concerned, to encourage Chinese SOEs towards foreign initial offerings is to seek alternatives to complement the domestic lawsuit and enforcement regimes, once establishing the power of government administrative influences, the following tests can change the view to the post-listing effects of *ex post* public

control. CSRC always regards improving corporate governance of listed companies as one of the core missions. However, the law does not officially provide CSRC with specific powers to regulate the internal control or governance of listed companies. At the same time, domestic exchanges are also doubtful of having enough effective and appropriate authority to achieve self-regulatory entity. Consequently, based on LaPorta et al. (2006b), the corresponding examinations determine the structure of the regulation of public control as well as *ex post* public control and apply different values of underlying measure into the regression functions as one of the control variables.

To determine whether the public control measures are related to the development of financial markets, LaPorta et al. (2006b) evaluates various strategies of public control regulations from both scientific and policy perspectives. They start with a fixed self-dealing transaction, and then measure the controlling shareholder rights if he must jump in order to get away from this transaction. The higher bundles, the higher the public control index is.

The value assigned to the control variable, LaP, is to simulate the level of *ex post* public control. In particular, LaP equals to 7.99 if firms are listed in Hong Kong, and 3.59 if listed in one of the domestic stock exchanges. The specific calculation is reported in Table 5.9.

There are two reasons why each aspect in ex post public control has not been tested individually. First, any one of these aspects is too minor to solely affect the overseas listing decision and the development of domestic governance. Even to compare the ex post private control of self-dealing, based on the investor structure in the domestic financial market that over 90 percent are retail investors, a dramatic increase in this factor can change the investment psychology entirely. Second, although most of the measures have different values, to omit any factors with the same value will possibly bias the index on the whole.

Tested function is shown as follows. Table 5.10 reports the regression results of the relationship between the systematic governance, financial as well as legal variables and the long-run stock trading performance.

$$\mathbf{CAR}_i = \beta_0 + \beta_1 \mathbf{IND}_i + \beta_2 \mathbf{LaP}_i + \beta_3 \mathbf{TRD}_i + \beta_4 \mathbf{SO}_i + \beta_5 \mathbf{LP}_i + \beta_6 \mathbf{FIRST}_i + \beta_7 \mathbf{BOARD}_i + \beta_8 \mathbf{INC\text{-}SMTH}_i + \beta_9 \mathbf{TA}_i + \beta_{10} \mathbf{D/E}_i + \beta_{11} \mathbf{GROWTH}_i + \beta_{12} \mathbf{QUICK}_i + \varepsilon_i \quad (5.5)$$

5.8.2 Empirical Results on Investor Protection and Long-run Stock Performance

Empirical results reported in Table 5.10 are separated into one-year (Panel A) and three-year (Panel B). To compare the effects of an individual variable over time, the results will be interpreted following both control variables and the time shaft.

To begin with, being included in all models, IND does not hold an extraordinary significant relationship to either CAR-1 or CAR-3. However, it cannot be neglected that government supporting industries tend to have a better long-run performance in a three-year time horizon.

LaP, as the proxy of *ex post* public control to the extent of investor protection, is statistically significant across models and time shaft, which is consistent with the prediction of a positive relationship. In other words, based on the bonding hypothesis, the legal origin is an important determinant to accounting practice, corporate governance, disclosure procedures, and investors' protection, which in turn will crucially affect the development of financial markets as well as market participants' investment expectations and activities. Consequently, the partial privatization through an overseas primary listing approach, as what the Chinese government is pursuing, is indeed a feasible way to facilitate the domestic financial market and to benefit economic reform.

However, it has to be aware of potentially hiding information which is omitted duo to the limitation of tested sample. This chapter only includes H-share companies as representatives of overseas listed firms, and the Hong Kong market is always regarded as a connected economic body to mainland China. In this circumstance, the Hong Kong market is expected to value China-backed companies without extraordinary informative bias, while market participants, including both institutional and retail investors, are expected to have better knowledge of companies and the economic fundamentals of China. After Hong Kong became the Special Administrative Region of China in 1997, the economic and political links tend to be increasingly tightening. The tested sample period is exactly allocated during this period. Consequently, the significance in the LaPorta measure of *ex post* public control is wholly anticipated but crucially accepted.

As far as the proxies of ownership are concerned, in models of testing CAR-1, none of them shows a significant association to abnormal returns, however, in models of testing CAR-3, LP is likely to have a significantly positive relationship to long-run abnormal returns. In addition, BOARD is negatively related to one-year CARs. Such a negative relationship

becomes weaker in three-year CARs. If the board size is positively related to the issuing firm's size and China background, it can be explained as an improvement in disclosure practices as well as corporate governance. To the extent of accounting proxies, the coefficients TA and GROWTH are positive and significant in all tested models, indicating that larger companies with a higher growth rate in profits perform better in the long run, which is consistent with Chapter IV of this thesis.

In short, by investigating the long-run trading performance and the influence of investor protection, this section provides further evidence to the bonding hypothesis. As expected by the Chinese government, H-share companies have performed "properly" under the more restricted trading rules and accounting standards. In particular, apart from corporate governance tested in the previous section, investor protection, as one of the aspects of legal origin characteristics, appears to have strong influence on the companies' performance. For the Chinese government, the financial reform cannot only rest on enlarging the market capability, enrolling more institutional investors, or taking more SOEs from various industries to access the capital market. The subsequent development of the domestic market should step further towards the adjustment in the legislation sector, which will in turn take the domestic financial market into the next level.

5.9 Summary and Conclusions

5.9.1 Summary of Main Findings

China's government and Chinese SOEs have practiced for decades to pursue the overseas primary listing. The growth of such privatization programmes and national economic reform are in parallel all the while since 1990s. However, since Chinese enterprises' cross-border listings spear to be quite different from other countries to the extent of bearing higher costs and higher risks, to fill the gap in current literature, this chapter investigates the meaning and political objectives of the ongoing overseas listings.

The study jointly tests a number of hypotheses related to privatization and primary overseas listing, including the market order hypothesis, the bonding hypothesis, and the market timing hypothesis related to the choice of overseas listing, the signalling hypothesis and other asymmetric information models related to the improvement in corporate governance, as well as investors' protection theory and IPO underperformance hypothesis.

To draw a conclusion, for a state like China with a large scale of economy but without a developed financial market, the partial privatization through an overseas primary listing approach is a feasible way to facilitate the domestic financial market and to benefit the economic reform. In particular, the determinant of selection progress and criteria of prospective H-share companies indicates the targets and goals of government to pursue overseas listing. Besides to protect home market, an ultimate aim is more likely to further develop domestic financial market and benefit to economic growth. The improvement in accounting and disclosure practices as well as other aspects of corporate governance of H-share companies may have positive influence on domestic listed firms. Also, by testing the relationship between long-run performance and investor protection, Chinese government may find a possible direction to amend the investment environment in the domestic A-share market.

Main findings are listed as follow.

(1) Chinese government uses primary overseas listings as a mean of forcing SOEs to conform to 'international standards' and to establish 'modern corporate governance'. To this end, the decision to pursue primary overseas listings is actually determined by the government

needs. The government has carefully selected qualified enterprises and helped with pre-listing restructures to meet high standards in foreign stock exchanges. Based upon the bonding hypothesis and signaling hypothesis, the overseas listing is promoted by the government with a relatively rational consideration to develop the domestic financial market.

(2) Once purely considering issuing firms' incentives, large and 'healthy' state-owned companies within the government supporting industries will prefer an overseas listing when the market is hot. This kind of new share offering is in order to obtain more capital-raising, to operate under international standards, to send a positive signal of Chinese economic reform, and to indirectly protect the development of the domestic financial market.

(3) Such privatization approach assigns H-share companies the reorganization priority. They in fact exhibit better governance structure after listing as the evidence that the overseas listing improves the corporate governance and has spread its positive effects onto the domestic financial market.

And (4), it is clear that legal origin is an important determinant to accounting practices, corporate governance, disclosure procedures, and investors' protection, which will in turn affect the development of the financial markets as well as the investment expectations and activities. Therefore, overseas listings not only contribute to the economic reform, but also help with the steady improvement of domestic investment environment.

5.9.2 Implications and Contributions

In terms of implications of the chapter, with more Chinese firms eager to tap into a capital market beyond the Chinese domestic market, the study provides propositional guidance to the practice. Also, this chapter contributes to existing literature to explain why Chinese government will bear such high cost and how overseas listing yield valuable outcomes to benefit domestic market. However, the aims and performance of China-related firms listed in Hong Kong actually varies over time, doing long-term investigation results in conclusions being lagged behind real business. In other word, standing on the original story of Chinese SOEs' overseas listing, related studies are always on the way.

Table 5.1 Comparison between Whole Population and Tested Sample (by Cohort Year)

	All				A Share			H Share		
	Population	*Missing*	*Sample*	*Sample (%)**	*Population*	*Missing*	*Sample*	*Population*	*Missing*	*Sample*
2000	132	23	109	82.58%	126	19	107	6	4	2
2001	60	7	53	88.33%	53	3	50	7	4	3
2002	81	20	61	75.31%	65	18	47	16	2	14
2003	83	12	71	85.54%	65	12	53	18	0	18
2004	115	12	103	89.57%	99	12	87	16	0	16
2005	27	3	24	88.89%	15	3	12	12	0	12
2006	83	8	75	90.36%	60	7	53	23	1	22
2007[†]	46	3	43	93.48%	42	3	39	4	0	4
Total	***627***	***88***	***539***	***85.96%***	***525***	***77***	***448***	***102***	***11***	***91***

Note:

** It is the ratio of tested sample to the whole population in percentage.*

[†] The sample period in the year 2007 covers till end of May.

Table 5.2 Sample Distributions over Issuing Size, Industry, and Proportion of Ownership

Panel A Sample Distribution by Net Proceed Amount

(RMB in Million)	***0-100***	***100-400***	***400-1,000***	***>1,000***
All				
No.	31	298	150	60
Mean	61.96	254.38	587.65	3,352.98
*Percentage**	**5.75%**	**55.29%**	**27.83%**	**11.13%**
A Share				
No.	3	280	129	36
*Percentage**	**0.67%**	**62.50%**	**28.79%**	**8.04%**
H Share				
No.	28	18	21	24
*Percentage**	**30.77%**	**19.78%**	**23.08%**	**26.37%**

Panel B. By Government Supporting Industries (Energy, Basic Materials, Transportation, and Commercial Banking)

	Supporting	**Non-Supporting**
All		
No.	104	435
*Percentage**	**19.29%**	**80.71%**
A Share		
No.	72	376
*Percentage**	**16.07%**	**83.93%**
H Share		
No.	32	59
*Percentage**	**35.16%**	**64.84%**

Panel C. By Proportions of State-owned and Legal Person Shareholding

	State-owned Shares				Legal Person Shares				All Authority-owned Shares†			
	0%	*0 - 20%*	*20 - 50%*	*>50%*	*0%*	*0 - 20%*	*20 - 50%*	*>50%*	*0%*	*0 - 20%*	*20 - 50%*	*>50%*
All												
No.	390	26	44	79	229	82	74	154	140	57	94	248
Mean	0.00%	10.24%	31.64%	65.43%	0.00%	6.37%	35.73%	63.04%	0.00%	7.48%	34.94%	64.78%
Percentage	**72.36%**	**4.82%**	**8.16%**	**14.66%**	**42.49%**	**15.21%**	**13.73%**	**28.57%**	**25.97%**	**10.58%**	**17.44%**	**46.01%**
A Shares												
No.	341	23	40	44	158	75	65	150	115	42	83	208
Percentage	**76.12%**	**5.13%**	**8.93%**	**9.82%**	**35.27%**	**16.74%**	**14.51%**	**33.48%**	**25.67%**	**9.38%**	**18.53%**	**46.43%**
H Shares												
No.	49	3	4	35	71	7	9	4	25	15	11	40
Percentage	**53.85%**	**3.30%**	**4.40%**	**38.46%**	**78.02%**	**7.69%**	**9.89%**	**4.40%**	**27.47%**	**16.48%**	**12.09%**	**43.96%**

Note:

** It is the proportion of observations within individual sub-samples, i.e. all samples, A shares, and H shares.*

† Authority-owned shares are defined as the sum of state-owned shares and legal person shares.

Table 5.3 Descriptive Statistics of Control Variables on the Choice of China Enterprises' Overseas Listing (By Market)

The table reports the descriptive statistics of control variables to investigate the choice of China enterprises' overseas listing. The sample in the table includes 539 observations which are Chinese enterprises going public between January 2000 and May 2007, including 448 A shares and 91 H shares. The sample has excluded dual-listing observations. ***RLT-MKT-PE*** is the monthly average PE ratio of Hang Seng Index over that in A-share market; ***IND*** is a dummy variable which equals to 1 if the firm is within one of the government supporting industries, including energy, basic materials, transportation, and commercial banking; ***TRD*** is the percentage of tradable shares, either A shares or H shares; ***SO*** is the percentage of state-owned shareholding; ***LP*** is the percentage of the legal person shareholding; ***1ST*** is the percentage of the first large shareholding; ***BOARD*** is the size of boards; ***OPM*** is the operating profit margins; ***ROE*** is return on shareholders' common equity; ***TA*** is the logarithm of total assets; ***D/E*** is the debt-to-equity ratios; and ***QUICK*** is the quick ratios.

Note: For the dummy variable IND, ******* *represent the number of observations which equal to one, and † states the percentage of observations with value equal to one.*

All Observations												
	RLT-MKT-PE	***IND***	***TRD***	***SO***	***LP***	***FIRST***	***BOARD***	***OPM***	***ROE***	***TA***	***D/E***	***QUICK***
Mean	0.430	104*	30.2%	13.5%	24.1%	46.1%	11	0.183	0.184	13.733	0.682	1.368
Median	0.390	19.29%†	30.0%	0.0%	4.1%	46.9%	11	0.147	0.162	13.318	0.458	0.898
Minimum	0.188	-	2.2%	0.0%	0.0%	5.6%	2	-0.188	-0.064	9.930	0.045	0.000
Maximum	1.030	-	90.2%	88.5%	85.0%	85.0%	21	1.123	1.072	22.588	11.547	43.758
S. D.	0.189	0.411	0.089	0.247	0.280	0.170	3.294	0.138	0.132	1.636	1.053	2.271
Skewness	0.726	1.390	0.642	1.550	0.579	-0.082	0.175	2.052	2.075	2.172	5.177	12.470
Kurtosis	-0.177	-0.068	4.578	0.816	-1.375	-1.001	0.084	6.796	7.363	6.972	39.978	217.568
A-Share Observations												
	RLT-MKT-PE	***IND***	***TRD***	***SO***	***LP***	***FIRST***	***BOARD***	***OPM***	***ROE***	***TA***	***D/E***	***QUICK***
Mean	0.415	72*	29.9%	9.6%	27.4%	44.9%	11	0.169	0.170	13.487	0.618	1.357
Median	0.387	16.07%†	29.8%	0.0%	15.0%	44.6%	11	0.141	0.152	13.270	0.451	0.907
Minimum	0.188	-	3.6%	0.0%	0.0%	5.6%	2	0.003	0.022	11.715	0.045	0.000
Maximum	0.976	-	90.2%	85.0%	85.0%	85.0%	21	0.889	0.671	20.373	9.414	14.257
S. D.	0.172	0.368	0.088	0.206	0.285	0.168	3.341	0.117	0.104	1.163	0.903	1.503
Skewness	0.623	1.854	0.592	2.099	0.361	-0.007	-0.009	2.078	1.316	2.490	4.964	4.022
Kurtosis	-0.008	1.443	4.692	3.144	-1.581	-0.971	0.001	6.465	2.877	9.964	40.370	22.738
H-Share Observations												
	RLT-MKT-PE	***IND***	***TRD***	***SO***	***LP***	***FIRST***	***BOARD***	***OPM***	***ROE***	***TA***	***D/E***	***QUICK***
Mean	0.484	32*	31.2%	28.3%	11.5%	50.7%	10	0.232	0.236	14.659	0.922	1.409
Median	0.473	35.16%†	30.0%	0.0%	0.0%	53.7%	10	0.186	0.192	14.577	0.505	0.879
Minimum	0.200	-	2.2%	0.0%	0.0%	11.2%	5	-0.188	-0.064	9.930	0.005	0.000
Maximum	1.030	-	73.5%	88.5%	75.0%	82.8%	20	1.123	1.072	22.588	11.547	43.758
S. D.	0.236	0.496	0.091	0.322	0.220	0.169	3.102	0.191	0.197	2.571	1.467	4.023
Skewness	0.555	0.328	0.824	0.374	1.773	-0.402	1.012	1.420	1.675	0.916	4.543	10.082
Kurtosis	-0.518	-1.925	4.430	-1.696	1.710	-0.861	0.953	3.518	3.388	1.053	26.858	106.505
t-Value for Difference Between Mean												
	RLT-MKT-PE	***IND***	***TRD***	***SO***	***LP***	***FIRST***	***BOARD***	***OPM***	***ROE***	***TA***	***D/E***	***QUICK***
t-Value	-2.980	-5.334	-1.406	-6.013	6.538	-3.312	1.216	-3.422	-3.546	-4.841	-2.290	1.903

Table 5.4 Correlation of Control Variables on the Choice of China Enterprises' Overseas Listing

The table reports the correlation matrix of control variables to investigate the choice of China enterprises' overseas listing. The sample in the table includes 539 observations which are Chinese enterprises going public between January 2000 and May 2007, including 448 A shares and 91 H shares. The sample has excluded dual-listing observations. ***RLT-MKT-PE*** is the monthly average PE ratio of Hang Seng Index over that in A-share market; ***IND*** is a dummy variable which equals to 1 if the firm is within one of the government supporting industries, including energy, basic materials, transportation, and commercial banking; ***TRD*** is the percentage of tradable shares, either A shares or H shares; ***SO*** is the percentage of state-owned shareholding; ***LP*** is the percentage of the legal person shareholding; ***1ST*** is the percentage of the first large shareholding; ***BOARD*** is the size of boards; ***OPM*** is the operating profit margins; ***ROE*** is return on shareholders' common equity; ***TA*** is the logarithm of total assets; ***D/E*** is the debt-to-equity ratios; and ***QUICK*** is the quick ratios.

	RLT-MKT-PE	*IND*	*TRD*	*SO*	*LP*	*FIRST*	*BOARD*	*OPM*	*ROE*	*TA*	*D/E*	*QUICK*
RLT-MKT-PE	1.000											
IND	0.011	1.000										
TRD	-0.113	-0.072	1.000									
SO	-0.009	0.334	-0.065	1.000								
LP	-0.205	0.073	0.069	-0.391	1.000							
FIRST	-0.151	0.200	-0.088	0.296	0.264	1.000						
BOARD	0.012	0.115	0.145	0.093	0.172	0.019	1.000					
OPM	-0.095	0.248	-0.126	0.130	0.037	0.072	-0.049	1.000				
ROE	-0.156	0.050	-0.083	0.005	-0.034	0.121	-0.134	0.258	1.000			
TA	0.179	0.481	-0.239	0.435	-0.024	0.206	0.171	0.118	-0.022	1.000		
D/E	0.004	0.196	-0.071	0.032	-0.012	-0.034	-0.073	-0.048	0.162	0.238	1.000	
QUICK	0.139	0.025	0.066	-0.072	0.036	-0.107	0.019	0.060	-0.039	-0.063	-0.061	1.000

Table 5.5 Regressions on the Choice and Issuing Size of China Enterprises Domestic or Overseas Listing

The table reports the a Type II Tobit model which allow simultaneously tests the choice and issuing size of China enterprises' overseas listing. The model consists of a decision equation and an OLS regression equation. The sample in the table includes 539 observations which are China enterprises going public between January 2000 and May 2007, including 448 A shares and 91 H shares. The sample has excluded dual-listing observations. ***RLT-MKT-PE*** is the monthly average PE ratio of Hang Seng Index over that in A-share market; ***IND*** is a dummy variable which equals to 1 if the firm is within one of the government supporting industries, including energy, basic materials, transportation, and commercial banking; ***TRD*** is the percentage of tradable shares, either A shares or H shares; ***SO*** is the percentage of state-owned shareholding; ***LP*** is the percentage of the legal person shareholding; ***1ST*** is the percentage of the first large shareholding; ***BOARD*** is the size of boards; ***OPM*** is the operating profit margins; ***ROE*** is return on shareholders' common equity; ***TA*** is the logarithm of total assets; ***D/E*** is the debt-to-equity ratios; and ***QUICK*** is the quick ratios. t-values are reported in paragraphs. * state the significance at 5 per cent level.

Decision (Selection) Equation:

$$Prob\,(Y_i>0) = \beta_0 + \beta_1\, RLT\text{-}MKT\text{-}PE_i + \beta_2\, IND_i + \beta_3\, TRD_i + \beta_4\, SO_i + \beta_5\, LP_i + \beta_6\, FIRST_i + \beta_7\, BOARD_i + \beta_8\, OPM_i + \beta_9\, ROE_i + \beta_{10}\, TA_i + \beta_{11}\, D/E_i + \beta_{12}\, QUICK_i + \varepsilon_i$$

OLS Regression Equation:

$$E\,[Y_i|Z_i = 1] = \beta_0 + \beta_1\, RLT\text{-}MKT\text{-}PE_i + \beta_2\, IND_i + \beta_3\, TRD_i + \beta_4\, SO_i + \beta_5\, LP_i + \beta_6\, FIRST_i + \beta_7\, BOARD_i + \beta_8\, OPM_i + \beta_9\, ROE_i + \beta_{10}\, TA_i + \beta_{11}\, D/E_i + \beta_{12}\, QUICK_i + \varepsilon_i$$

Panel A. Decision (Selection Function)

	a. Corporate Governance		b. Firm-specific		c. All	
	Coefficient	*t-Value*	*Coefficient*	*t-Value*	*Coefficient*	*t-Value*
Constant	-0.178	(-1.84)	-0.931	(-6.48)*	-1.032	(-5.63)*
RLT-MKT-PE	0.311	(3.66)*	0.333	(3.71)*	0.351	(4.00)*
IND	0.214	(5.18)*			0.105	(2.42)*
TRD	0.634	(3.54)*			0.947	(5.31)*
SO	0.221	(2.65)*			0.124	(1.47)
LP	-0.289	(-4.05)*			-0.296	(-4.27)*
FIRST	0.344	(3.22)*			0.287	(2.76)*
BOARD	-0.009	(-1.91)			-0.008	(-1.76)
OPM			0.380	(3.08)*	0.372	(3.11)*
ROE			0.583	(4.43)*	0.525	(4.18)*
TA			0.060	(5.81)*	0.047	(3.91)*
D/E			0.015	(0.70)	0.011	(0.56)
QUICK			-0.013	(-0.79)	-0.016	(-1.04)
R^2	0.196		0.162		0.273	

Panel B. OLS Equation

	a. Corporate Governance		b. Firm-specific		c. All	
	Coefficient	*t-Value*	*Coefficient*	*t-Value*	*Coefficient*	*t-Value*
Constant	19.681	(65.6)*	14.455	(49.9)*	15.152	(36.4)*
RLT-MKT-PE	-0.192	(-0.85)	-1.075	(-5.20)*	-0.959	(-4.5)*
IND	0.472	(4.64)*			0.048	(0.52)
TRD	-2.703	(-5.46)*			-1.288	(-3.01)*
SO	1.000	(4.77)*			0.321	(1.76)
LP	0.498	(2.63)*			0.345	(2.18)*
FIRST	-0.041	(-0.15)			-0.282	(-1.22)
BOARD	0.053	(3.66)*			0.022	(1.75)
OPM			-0.225	(-0.91)	-0.349	(-1.37)
ROE			0.740	(2.83)*	0.870	(3.32)*
TA			0.412	(19.2)*	0.367	(14.00)*
D/E			-0.119	(-2.63)*	-0.116	(-2.55)*
QUICK			0.012	(0.36)	0.020	(0.63)
R^2	0.262		0.477		0.499	

Table 5.6 Descriptive Statistics and Correlation Matrix of Control Variables in Long-run Empirical Tests

The table reports the descriptive statistics (Panel A) and correlation matrix (Panel B) of control variables to test the improvement in corporate governance through overseas listing. The sample in the table includes 539 observations which are Chinese enterprises going public between January 2000 and May 2007, including 448 A shares and 91 H shares. The sample has excluded dual-listing observations. **IND** is a dummy variable which equals to 1 if the firm is within one of the government supporting industries, including energy, basic materials, transportation, and commercial banking; **TRD** is the percentage of tradable shares, either A shares or H shares; **SO** is the percentage of state-owned shareholding; **FIRST** is the percentage of the first large shareholding; **BOARD** is the size of boards; **NON** is the proportion of non-executive directors in the board; **INC-SMTH**, one of earnings management proxies, is standard deviation between annual operation profits and net cash flow from operating activities; **E-CASH**, the other proxy of earnings management, is a ratio of the absolute value of firm's accruals and the absolute value of the cash flow from operations; **TA** is the logarithm of total assets; **D/E** is the debt-to-equity ratios; and **QUICK** is the quick ratios.

*Note: For the dummy variable IND, * represent the number of observations which equal to one, and † states the percentage of observations with value equal to one.*

Panel A. Descriptive Statistics

All	IND	TRD	SO	FIRST	BOARD	NON	INC-SMTH	E-CASH	TA	D/E	GROWTH	QUICK
Mean	104*	30.2%	14%	46%	11	0.30	1.39	0.21	21.11	0.52	0.01	2.28
Median	19.29%†	30.0%	0%	47%	11	0.29	0.26	0.71	20.84	0.33	0.08	1.70
Max	-	90.2%	89%	85%	21	0.85	61.93	38.29	26.88	16.57	6.17	9.15
Min	-	2.2%	0%	6%	5	0.06	0.12	-97.51	18.28	0.04	-11.05	0.24
S.D	0.41	0.09	0.25	0.17	2.74	0.14	6.12	7.52	1.28	0.93	1.14	2.11

H-Share	IND	TRD	SO	FIRST	BOARD	NON	INC-SMTH	E-CASH	TA	D/E	GROWTH	QUICK
Mean	32*	31.2%	28%	51%	12	0.48	3.23	-0.07	21.80	0.50	0.09	2.15
Median	35.16%†	30.0%	0%	54%	12	0.48	0.45	0.57	21.92	0.31	0.06	1.65
Max	-	73.5%	89%	83%	21	0.85	61.93	38.29	26.85	3.55	0.58	8.77
Min	-	2.2%	0%	11%	6	0.11	0.12	-42.28	18.28	0.04	-0.47	0.24
S.D	0.50	0.09	0.32	0.17	2.61	0.17	11.31	7.34	1.84	0.60	0.16	1.66

A-Share	IND	TRD	SO	FIRST	BOARD	NON	INC-SMTH	E-CASH	TA	D/E	GROWTH	QUICK
Mean	72*	32%	10%	45%	10	0.25	0.86	0.29	20.91	0.52	-0.02	2.31
Median	16.07%†	32%	0%	45%	10	0.25	0.23	0.75	20.77	0.33	0.09	1.70
Max	-	55%	85%	85%	20	0.50	45.66	24.80	26.88	16.57	6.17	9.15
Min	-	4%	0%	6%	5	0.06	0.00	-97.51	19.47	0.05	-11.05	0.34
S.D	0.39	0.09	0.21	0.17	2.86	0.08	3.24	7.58	0.98	1.01	1.29	2.22

***t*-value**	**IND**	**TRD**	**SO**	**FIRST**	**BOARD**	**NON**	**INC-SMTH**	**E-CASH**	**TA**	**D/E**	**GROWTH**	**QUICK**
(H/A)	4.46	0.16	4.35	2.30	5.11	18.23	3.39	-1.41	6.31	-0.19	0.84	-0.67

Panel B. Correlation Matrix

	IND	TRD	SO	FIRST	BOARD	NON	INC-SMTH	E-CASH	TA	D/E	GROWTH	QUICK
IND	1.00											
TRD	-0.09	1.00										
SO	0.25	-0.16	1.00									
FIRST	0.18	-0.15	0.29	1.00								
BOARD	0.09	-0.04	0.01	-0.04	1.00							
NON	0.07	-0.02	0.13	-0.01	-0.28	1.00						
INC-SMTH	-0.03	-0.06	-0.01	-0.02	-0.06	0.15	1.00					
E-CASH	-0.07	0.07	0.01	0.01	-0.07	0.03	0.02	1.00				
TA	0.46	-0.24	0.31	0.22	0.11	0.10	-0.12	-0.06	1.00			
D/E	0.04	-0.04	0.04	-0.04	0.04	0.01	-0.05	-0.01	0.18	1.00		
GROWTH	0.04	0.03	0.01	0.01	-0.06	0.02	0.01	-0.03	0.06	-0.18	1.00	
QUICK	-0.10	0.08	-0.10	-0.08	-0.07	-0.01	0.16	0.04	-0.27	-0.23	-0.14	1.00

Table 5.7 Comparing Corporate Governance and Earnings Management across A- and H-share Firms

The table reports the results of Logit regression for testing the improvement in corporate governance through overseas listing. The sample in the table includes 539 observations which are Chinese enterprises going public between January 2000 and May 2007, including 448 A shares and 91 H shares. The sample has excluded dual-listing observations. **IND** is a dummy variable which equals to 1 if the firm is within one of the government supporting industries, including energy, basic materials, transportation, and commercial banking; **TRD** is the percentage of tradable shares, either A shares or H shares; **SO** is the percentage of state-owned shareholding; **FIRST** is the percentage of the first large shareholding; **BOARD** is the size of boards; **NON** is the proportion of non-executive directors in the board; **INC-SMTH**, one of earnings management proxies, is standard deviation between annual operation profits and net cash flow from operating activities; **E-CASH**, the other proxy of earnings management, is a ratio of the absolute value of firm's accruals and the absolute value of the cash flow from operations; **TA** is the logarithm of total assets; **D/E** is the debt-to-equity ratios; and **QUICK** is the quick ratios.

Regression function is listed as follow. Panel A reports the tests without accounting control variables, while Panel B reports the tests with accounting control variables.

$$\text{Prob}\,(H_i=1) = \beta_0 + \beta_1\,SO_i + \beta_2\,FIRST_i + \beta_3\,TRD_i + \beta_4\,BOARD_i + \beta_5\,NON_i + \beta_6\,INC\text{-}SMTH_i + \beta_7\,PRF\text{-}C_i + \text{Accounting Control Variables} + \varepsilon_i$$

Panel A. Regressions without Accounting Control Variables

	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*
Intercept	-0.208	-0.257	-0.25	-0.352	-0.349	-0.345	-0.461
	(-1.30)	(-3.04)*	(-2.97)*	(-3.77)*	(-3.75)*	(-3.18)*	(-3.97)*
SO		0.221	0.225	0.169	0.174	0.241	0.186
		(3.44)*	(3.51)*	(2.57)*	(2.64)*	(3.71)*	(2.82)*
FIRST				0.214	0.217		0.234
				(2.33)*	(2.37)*		(2.55)*
TRD						0.267	0.308
						(1.39)	(1.61)
BOARD		0.009	0.01	0.009	0.009	0.009	0.009
		(1.66)	(1.72)	(1.59)	(1.64)	(1.66)	(1.57)
NON		1.819	1.791	1.84	1.811	1.79	1.812
		(16.6)*	(16.2)*	(16.9)*	(16.5)*	(16.2)*	(16.6)*
INC-SMTH	0.011		0.005		0.005	0.005	0.005
	(3.40)*		(2.00)*		(2.01)*	(2.03)*	(2.11)*
E-CASH	-0.001		-0.002		-0.002	-0.003	-0.003
	(-1.48)		(-1.23)		(-1.26)	(-1.33)	(-1.37)
R^2	0.223	0.453	0.459	0.264	0.466	0.462	0.469

Panel B. Regressions with Accounting Control Variables

	Model 1	*Model 2*	*Model 3*	*Model 4*
Intercept	-2.048	-1.886	-1.789	-1.643
	(-5.6)*	(-5.23)*	(-4.58)*	(-4.22)*
SO	0.239	0.209	0.222	0.194
	(2.98)*	(2.54)*	(2.76)*	(2.35)*
FIRST		0.027		0.015
		(2.25)*		(2.39)*
TRD	0.661	0.587	0.648	0.569
	(2.78)*	(2.47)*	(2.74)*	(2.40)*
BOARD	0.038	0.040	0.039	0.040
	(5.83)*	(6.00)*	(5.92)*	(6.09)*
INC-SMTH	0.013	0.013	0.013	0.013
	(4.40)*	(4.43)*	(4.35)*	(4.39)*
E-CASH	-0.002	-0.002	-0.001	-0.001
	(-1.70)	(-1.70)	(-1.61)	(-1.60)
IND			0.091	0.082
			(1.84)	(1.64)
TA	0.115	0.110	0.102	0.099
	(7.23)*	(6.90)*	(5.90)*	(5.69)*
D/E	-0.025	-0.022	-0.024	-0.021
	(-1.23)	(-1.06)	(-1.17)	(-1.00)
GROWTH	-0.003	-0.003	-0.004	-0.004
	(-0.21)	(-0.21)	(-0.23)	(-0.23)
QUICK	0.002	0.001	0.001	0.001
	(0.09)	(0.03)	(0.09)	(0.06)
R^2	0.228	0.219	0.234	0.224

Table 5.8 36-Month Market-adjusted Abnormal Returns (ARs) of A- and H-share Firms

Table reports the CARs with associated s-statistics for the 36 months after going public, excluding the initial return. *t*-statistics for differences being different from at 5% significance level.

	All (619 Obs.)	**H All** (140 Obs.)	**A All** (479 Obs.)
Mth 0	-0.011	0.005	-0.020
Mth 1	-0.017	0.014	-0.023
Mth 2	-0.032	-0.027	-0.034
Mth 3	-0.041	-0.039	-0.044
Mth 4	-0.049	-0.060	-0.049
Mth 5	-0.051	-0.061	-0.052
Mth 6	-0.064	-0.085	-0.063
Mth 7	-0.068	-0.090	-0.068
Mth 8	-0.079	-0.115	-0.074
Mth 9	-0.087	-0.145	-0.076
Mth 10	-0.083	-0.134	-0.071
Mth 11	-0.089	-0.164	-0.071
Mth 12	***-0.084***	***-0.159***	***-0.067***
Mth 13	-0.091	-0.182	-0.066
Mth 14	-0.095	-0.180	-0.072
Mth 15	-0.111	-0.226	-0.081
Mth 16	-0.122	-0.252	-0.088
Mth 17	-0.138	-0.264	-0.104
Mth 18	-0.142	-0.256	-0.115
Mth 19	-0.148	-0.243	-0.124
Mth 20	-0.155	-0.249	-0.129
Mth 21	-0.171	-0.272	-0.142
Mth 22	-0.175	-0.295	-0.142
Mth 23	-0.179	-0.279	-0.148
Mth 24	***-0.183***	***-0.287***	***-0.154***
Mth 25	-0.188	-0.298	-0.160
Mth 26	-0.205	-0.295	-0.180
Mth 27	-0.226	-0.324	-0.199
Mth 28	-0.235	-0.328	-0.206
Mth 29	-0.256	-0.360	-0.219
Mth 30	-0.251	-0.333	-0.218
Mth 31	-0.258	-0.322	-0.226
Mth 32	-0.263	-0.348	-0.227
Mth 33	-0.266	-0.350	-0.231
Mth 34	-0.274	-0.368	-0.235
Mth 35	-0.277	-0.374	-0.238
Mth 36	***-0.273***	***-0.352***	***-0.237***

Table 5.9 LaPorta et al. (2006b) Measures of *ex post* Public Control

Ex-post Public Control	**Hong Kong**	**China**
Sum	**7.99**	**3.59**
Disclosure in periodic filings	1	0.8
Standing to sue	1	1
Rescission	0.5	0
Ease of holding (int.shrhld) liable	1	0
Ease of holding approving body liable	1	0
Access to evidence	0.75	0.25
Ease of proving wrongdoing	0.85	0.25
Ex-post private control of self-dealing	0.93	0.53
Anti-self-dealing index	0.96	0.76

Table 5.10 OLS Regressions For A- and H-share Firms Long-run CARs in One- and Three-Year after Listing

The table reports the results of OLS regression for testing the relationship between the systematic governance, financial as well as legal variables and the long-run stock trading performance. The sample in the table includes 539 (one-year) and 394 (three-year) observations respectively which are Chinese enterprises going public between January 2000 and May 2007, including 448 A shares and 91 H shares. The sample has excluded dual-listing observations. One- and three-year market-adjusted cumulative abnormal returns are dependent variable, calculated according to the benchmarks of several market indices. **IND** is a dummy variable which equals to 1 if the firm is within one of the government supporting industries, including energy, basic materials, transportation, and commercial banking; **TRD** is the percentage of tradable shares, either A shares or H shares; **SO** is the percentage of state-owned shareholding; **FIRST** is the percentage of the first large shareholding; **BOARD** is the size of boards; **NON** is the proportion of non-executive directors in the board; **INC-SMTH**, one of earnings management proxies, is standard deviation between annual operation profits and net cash flow from operating activities; **LaP** is value based on LaPorta et al. (2006b) to simulate the level of *ex post* public control to the extent of investor protection; **TA** is the logarithm of total assets; **D/E** is the debt-to-equity ratios; and **QUICK** is the quick ratios.

Regression function is listed as follow:

$$CAR_i = \beta_0 + \beta_1 IND_i + \beta_2 LaP_i + \beta_3 TRD_i + \beta_4 SO_i + \beta_5 LP_i + \beta_6 FIRST_i + \beta_7 BOARD_i + \beta_8 INC\text{-}SMTH_i + \beta_9 TA_i + \beta_{10} D/E_i + \beta_{11} GROWTH_i + \beta_{12} QUICK_i + \varepsilon_i$$

	Panel A. CAR-1				Panel B. CAR-3				
	Model 1	***Model 2***	***Model 3***	***Model 4***	***Model 1***	***Model 2***	***Model 3***	***Model 4***	***Model 5***
Intercept	-0.298	-0.546	-0.437	-0.569	-0.01	-2.544	-2.611	-2.659	-2.598
	(-2.51)*	(-1.76)	(-1.27)	(-1.80)	(-4.01)*	(-4.44)*	(-4.10)*	(-4.57)*	(-4.54)*
IND	0.006	0.068	0.047	0.065	0.165	0.006	0.029	0.027	0.024
	(0.15)	(1.54)	(1.04)	(1.47)	(2.01)*	(1.57)	(1.35)	(1.33)	(1.29)
LaP	-0.046	-0.044	-0.051	-0.044	-0.074	-0.084	-0.096	-0.094	-0.092
	(-5.80)*	(-5.94)*	(-6.42)*	(-5.84)*	(-4.83)*	(-6.17)*	(-6.34)*	(-6.49)*	(-6.47)*
TRD	-0.188		-0.105		-0.324		-0.035		
	(-0.90)		(-0.51)		(-0.83)		(-0.89)		
SO	-0.075		-0.108		-0.132		-0.282	-0.289	
	(-0.83)		(-1.21)		(-0.74)		(-1.65)	(-1.69)	
LP	-0.069		-0.098		-0.185		-0.29	-0.301	
	(-0.89)		(-1.29)		(-1.20)		(-1.98)*	(-2.07)*	
FIRST	0.107		0.109		0.315		0.322	0.337	
	(0.94)		(0.96)		(1.40)		(1.50)	(1.60)	
BOARD	-0.014		-0.015		-0.002		-0.007		
	(-2.32)*		(-2.43)*		(-1.15)		(-1.58)		
INC-SMTH		-0.002	-0.003	-0.002		-0.005	-0.005	-0.005	-0.005
		(-1.08)	(-1.28)	(-1.06)		(-1.22)	(-1.39)	(-1.37)	(-1.35)

Cntd.

	Panel A. CAR-1				Panel B. CAR-3				
	Model 1	***Model 2***	***Model 3***	***Model 4***	***Model 1***	***Model 2***	***Model 3***	***Model 4***	***Model 5***
TA		0.03	0.035	0.032		0.12	0.127	0.125	0.125
		(2.02)*	(2.25)*	(2.06)*		(4.37)*	(4.35)*	(4.43)*	(4.48)*
D/E		-0.012	-0.012	-0.012		-0.05	-0.052	-0.052	-0.052
		(-0.65)	(-0.68)	(-0.66)		(-1.53)	(-1.56)	(-1.56)	(-1.57)
GROWTH		0.049	0.047	0.049		0.122	0.123	0.124	0.123
		(3.40)*	(3.28)*	(3.38)*		(4.68)*	(4.69)*	(4.76)*	(4.74)*
QUICK		0.007	0.007	0.007		0.023	0.024	0.024	0.024
		(0.91)	(0.90)	(0.88)		(1.48)	(1.56)	(1.58)	(1.55)
R^2	0.128	0.13	0.129	0.14	0.168	0.165	0.176	0.176	0.175

Figure 5.1 Comparison of Adjusted Price of Shanghai (SH) and Shenzhen (SZ) Stock Exchange A-share Indices (Jan. 2005 – Jul. 2007)

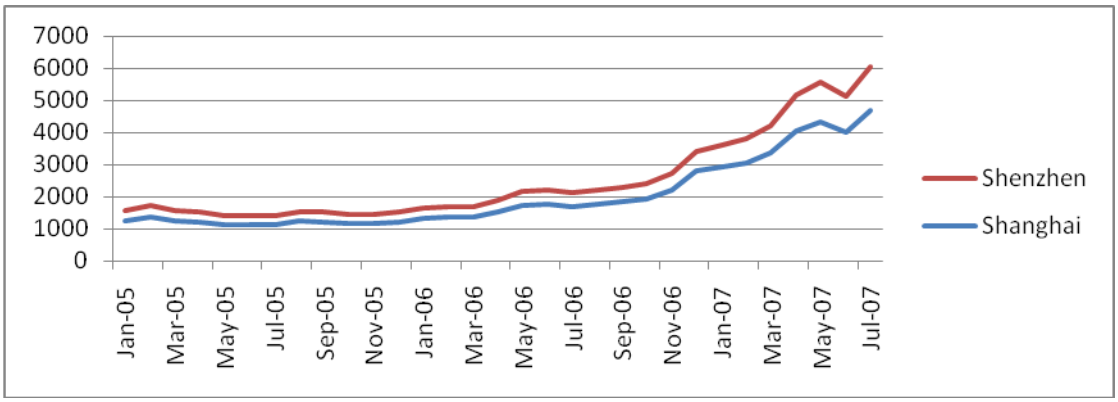
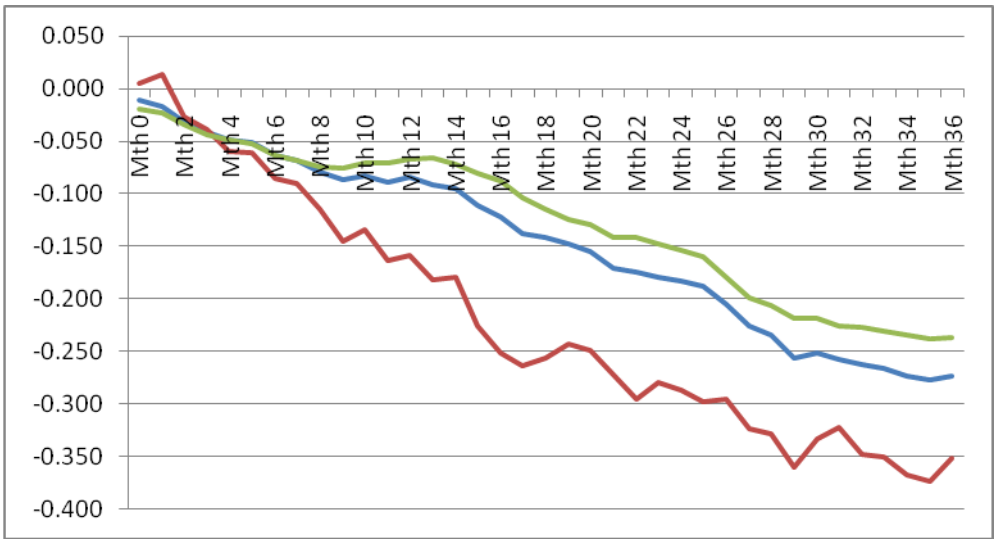


Figure 5.2 Market-adjusted Cumulative Abnormal Returns (CARs) of A- and Main Board listed H-share Firms



CHIAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

6.1 Summary and Conclusions

In this thesis, several empirical and theoretical issues that concern the overseas primary listing journey of Chinese SOEs in Hong Kong have been investigated. The addressed empirical works have covered IPO, cross-border flotation, privatization, and other related topics in finance. It mainly answers the question why Chinese enterprises, especially state-owned ones, are likely to go public through an overseas listing approach, including their motives, missions, strategies, performance, achievements, and influences regarding the home financial market.

6.1.1 Summary of Main Findings of Each Chapter

The addressed issues in the thesis can be summarized as follows.

In **Chapter II**, to reduce the potential risks of cross-border flotation and mitigate the gap of the less-developed domestic financial market, Hong Kong is an optimal choice Chinese companies going public. However, according to the empirical results in Chapter III, overseas listings are more likely to have attached higher costs due to the existence of asymmetric information. Although a unique strategy of pricing, marketing, and offering, compounded with high reputable investment bankers and hot market environment, can efficiently promote

the market position and investors' confidence of Chinese new shares, the "money left on the table" in the past fifteen years did not substantially upset these listed companies and the Chinese government. For further investigation, Chapter IV focuses on the information disclosure and earnings forecasting, by testing the accuracy of earning forecasts and their influence on after-market trading performance. This chapter provides supports for the divergence of opinion theory. In other words, the long-run underperformance of Chinese listed firms can be, as least, partially associated with IPOs' underpricing and early-market volatility. Chapter V, as the climax of the thesis, upon a review of the journey towards overseas listing, finds this approach is actually a method of China's partial privatization, a part of China's economic reform, and a way to protect as well as develop the domestic financial market.

A number of performance determinants identified in prior literature are intensively examined. To step further, every empirical chapter has adopted new variables and new proxies to enhance the explanation power. Meanwhile, since listing in Hong Kong is only the tentative stage for Chinese government and related enterprises, and the recent upsurge of China's capital outflow has received great attention from the global market, the empirical results in this thesis are expected to be applied to other international financial market. Therefore, this study not only fills in the gaps in the existing IPO literature, but also creates new avenues for future investigation. Principal conclusions of each chapter are summarized as follows.

In comparison of the Hong Kong and Chinese domestic financial markets, **Chapter II** mainly discusses the possible explanations and motivations behind overseas primary listing. First of all, in the past fifteen years, Hong Kong has provided a strong and attractive foundation and offshore capital market for China-related companies to raise funds, with

sufficient market capability and liquidity, various investment alternatives and derivatives, restricted accounting and disclosure practices, as well as knowledgeable institutional and retail investors. Although the Chinese domestic financial market has experienced a fabulously fast growth rate since the end of 2005, it is not a mature market. Apparently, the most recent domestic financial reform of changing non-tradable shares into tradable stocks has reached great achievement, however, the original intention of this reform was to seek a equivalent valuation for different classes of shares as part of the privatization programme. The ultimate development of the financial market still has a long way to go. This chapter points out a number of possible reasons for overseas primary listings in Hong Kong.

(1) Existing non-market-oriented listing selection procedures and simplified pricing methods in fact follow prejudiced criteria and create more information barriers, which results in the inefficiency in new shares' valuation.

(2) Due to the serious imbalance in supply and demand of domestic listed shares, permanent abnormal public subscriptions has been not appropriated to measure market response, while the subsequent underpricing represents the lack of market rationale.

(3) The gap between accounting standards adopted in the domestic market and the widely used international accounting standards exacerbates asymmetric information block and the underlying disclosure mechanism in the Mainland marketplace is pending for norms.

(4) The development of an institutional investor base in China faces the obstacles of insufficient policy coordination and policy hindrance across sectors. The present investor structure therefore is waiting for constant modification in the long run.

(5) Although a number of new policies have been carried out to channel capital outflows across the border, the immediate influence is hardly observed at the current stage.

And (6) since Hong Kong and the domestic market are likely to merge to the extent of closed movements and sentiments, Hong Kong can still be regarded as a segmented trading platform by reducing the intensive-policy-directed effects and providing a steady-growing environment.

Although this chapter does not directly give empirical evidence, it still provides a general view to the development of the Chinese domestic financial market.

Chapter III, as the first empirical chapter, based on asymmetric information models which are rooted on the widely debated IPO underpricing puzzle, finds the significant abnormal returns of overseas listed Chinese shares as well as their specific marketing and pricing strategy to mitigate potential loss and ensure successful offerings.

The results and main findings are summarized as follow.

(1) Chinese IPOs suffered significantly higher underpricing than their local counterparts. Empirical investigation implies the positive relationship between ex ante uncertainty and IPO initial returns, but the explanatory power of the classic proxies of the winner's curse model appears to be minor.

(2) Reputation of investment bankers can promote the aftermarket trading performance. Condition on the monopolistic competition among investment bankers in Hong Kong, the result provides indications to underwriters' persistent underpricing hypothesis.

(3) Empirical results are consistent with the market timing theory. Most of IPOs are likely to take advantages of optimistic valuation during the "hot issue market". In addition, recent IPOs' offering performance has strong impacts on other new shares thereafter.

(4) This chapter further isolates bookbuilding IPOs to test the partial adjustment hypothesis and other related theories. It is noted that the bookbuilding services in Hong Kong are normally provided by a few top international bankers and China-related leading financial institutions. When bookbuilding contracts are signed, the lead sponsors initially conduct the due-diligence and establish the underwriting syndicates. Institutional interests are believed to be incorporated into the preliminary valuation via the pre-offering meetings. And the substantial information leakage further lowers the valuation costs among retail investors. Therefore, the positive price revisions during the subscription period are more likely driven by retail demand and their confidence on underwriters.

(5) In Hong Kong, retail investors are more preferable in non-discretionary IPO allocation, and the exercise of the overallotment option solely depends on the level of public subscription. Consequently, the high public subscription can be easily transmitted to the aftermarket via a positive price revision, which in turn attracts more investors buying new shares and stimulates further ascent in share price.

(6) In testing the partial adjustment hypothesis, larger price revision reflects a greater yield of private information. A positive price revision indicates underwriters have knowingly incorporated more favourable information. The firm-specific characteristics cannot consistently and powerfully explain the level of underpricing, providing the additional supports to the changing risk composition hypothesis by Loughran and Ritter (2004). Also there is no strong evidence to reject the public information is freely available to all participants and price-setting reflects the market movements.

And (7) Chinese companies are endowed with a specific pricing and marketing strategy to reduce costs from underpricing and simultaneously ensure the success of equity offerings. They are normally underwritten by highly reputable bankers, and the overwhelming majority of Chinese firms went public via bookbuilding. The average price range seems to be relatively conservative, in order to encourage institutional and retail investors to submit subscription applications. More important, the potential loss can be partially mitigated via a positive price revision and carefully market timing.

The following **Chapter IV** focuses on the information disclosure during the IPO bookbuilding period, since for most less-informed investors, the accuracy of information in offering prospectuses is crucial to make investment decisions. It investigates the accuracy of IPO profit forecasts and its subsequent influence to the after-listing performance, which extends the research onto a broader area. Especially the tests are in line with the arguments based on the divergence of opinion. Meanwhile, other related hypotheses, including the agency problem, investor sentiments, overreaction, and the windows of opportunities, are jointly examined in this chapter.

(1) The average level of IPO profit forecasts errors represents a pessimistic bias when compared to the actual profits, which is consistent with studies in Chen et al. (2000). The magnitude of forecasting errors is higher for China-related companies than local shares, indicating a higher asymmetric information level. However, management forecasting has superiority over popular time-series forecasting models. In this section, the results also provide further evidence of the agency problem that issuing firms have better knowledge than others, which gives the opportunity to seek additional benefits when reporting the earnings forecasts in initial offering.

(2) In the further tests on forecasting rationality, according to DeBondt and Thaler (1990), the results demonstrate a pessimistic bias, suggesting the forecasts are not rational in the sense that managers correctly incorporate all available information, especially historical profits, in their forecasting.

(3) This chapter has fixed various systematic characteristics as determinant factors to the magnitude of forecast accuracy. Particularly, when the market condition is more volatile, the managers have a stronger incentive to misreport earnings forecasts in prospectuses.

(4) In terms of the relationship between forecast accuracy and short-run underpricing, this chapter conducts different groups of portfolios. Comparably, forecasting and non-forecasting IPOs have similar levels of underpricing, however, if the forecast is over-biased, the underpricing will significantly exceed a normal level, since investors have the ability to adjust investment expectations.

(5) This chapter also investigates the influence during the first financial announcement period, suggesting early-market volatility, underpricing, and China-related background are all significantly associated with abnormal returns around the certain event.

And (6) in the long-run investigation, both the investor sentiments hypothesis and divergence of opinion theory are considered to explain the IPO trading performance. By using different abnormal return measures after three years of trading, IPOs significantly underperform several benchmark portfolios. The performance decreases month by month, while China-related companies have worse performance than the local companies. In addition, in line with divergence of opinion theory, firms with higher initial returns

actually underperform in the long run, which is due to the initial overvaluation. Finally, the magnitude of forecasting errors can systematically affect the one-year trading performance.

In terms of implication, this chapter not only simulates managers' forecasting behaviours which confirms the importance of the information accuracy during IPO period, but also provides valuable hints to investors as well as issuing firms to the extent of IPO short-run and long-run trading performance.

By tracing back over the past fifteen years, the last empirical chapter, **Chapter V**, directly questions why and how the Chinese government takes so many SOEs public in the overseas market. The growth of privatization programmes and the increasing tendency of Chinese large companies' overseas listing have received great attention. Apparently, the recent dramatic expansion and fluctuation of the domestic securities market associated with the sentiment of capital boom are new for both market participant and researchers. This chapter jointly tests a number of models, including the market order hypothesis, bonding hypothesis, market timing hypothesis, and other asymmetric information models. By applying cross-sectional tests, this chapter discovers the political means behind the overseas listing channel, which can be confirmed as a successful effort for the Chinese government to push economy reform forward.

(1) Chinese SOEs' overseas primary listing takes on the formidable tasks of macroeconomic partial privatization, home market protection, and domestic infantile market development. To this end, prospective selecting, restructuring, and offering are all carried through a core mission of promoting the ongoing economy reform.

(2) To perceive through the appearance of complicated classification of Chinese stocks, whatever being tradable or non-tradable, state-owned shares and the most-alike legal person shares define a company's meaning to national economy. Therefore, the ownership structure, especially the concentration of state-owned shares, plays an important role in selecting procedure towards overseas listings. Meanwhile, companies within government supporting industries are likely to have priority to be selected.

(3) Although contradictory to a popular argument in the literature that listing abroad allows companies to enjoy a lower cost of capital, empirical results suggest lower costs are not a necessary motivation, as least not the most important motivation, for Chinese firms to seek overseas primary listing. However, the Chinese government still abstemiously choose a "good time" to take SOEs public in the international market, as further evidence of the market timing hypothesis.

(4) In terms of SOEs themselves, large and 'healthy' state-owned enterprises (SOEs) within the government's supporting industries are more likely to issue their shares on foreign, open, and well-developed stock exchanges.

(5) Overseas listing does bring benefits to listed firms and the home market. Listed H-share companies appear to maintain a modest corporate structure, effective corporate governance, moral information disclosure, steady profit growth, and less earning management, which, in turn, gives a good example and successful experience to domestic companies.

(6) As far as long-term significance is concerned, legal origin is an important determinant to accounting practice, corporate governance, disclosure procedures, and investor protection, which can crucially affect the development of financial markets as

well as market participants' investment expectations and activities. Therefore, partial privatization through an overseas primary listing approach, which the Chinese government is pursuing, is indeed a feasible way to facilitate the domestic market and to benefit economic reform.

6.1.2 Contributions and Implications of the Study

The investigations and applications in this thesis are expected to contribute to both academia and practice. First of all, to the practice, on the journey towards overseas listing, the Chinese government and enterprises have undergone fifteen years of improving operating performance, opening up new markets, and promoting international investors' confidence. The thesis concentrates on Chinese enterprises' offering preference, strategies, and performance. Being experienced global market participants, their specific offering strategy is expected to partially offset higher costs associated with information barriers. Therefore, with the spread of China's capital flow to other international stock exchanges, the underlying results and conclusions are expected to be applicable to other overseas well-developed markets.

Also, to the academia, the thesis summarizes and jointly examines a number of popular hypotheses. Meanwhile, the study covers many finance research topics related to IPOs, such as accounting, asset pricing, corporate governance, market efficiency, privatization, and issues related to jurisprudence.

In addition, the asymmetric information models, especially the principal-agency models have been tested in all of the empirical chapters, including the motives of issuing firms when

they hold superior information, incentives of top investment bankers if being an oligopoly, and the intentions of government when they act as both a regulator and a market participant. The findings do not only provide further empirical evidence to the existing literature, but the adopted variables and proxies have achieved the targets of complementing the current theoretical framework and entails suggestions to the future research.

Forth, as far as each individual chapter is concerned, each has a few contributions summarized as follows. Chapter II, as an introduction of research background and target market overview, has discussed last updated policies and market movements deeply. It goes further to discover the possible explanations of overseas primary listings. Besides the unique offering strategy of China-related firms, Chapter III also discusses the importance of retail demand and market movement to anticipate the level of preliminary offering price revision and subsequent level of underpricing. Chapter IV links IPO after-market performance to the divergence of opinion hypothesis, replicates analyst earning forecasting method towards management earning forecasts reporting, and provides valuable evidence to analyze IPO long-run performance. Chapter V, as a conclusive investigation, argues the overseas listing channel is in fact for achieving a further development of Chinese domestic financial market.

6.2 Recommendations for Future Research

This thesis makes several contributions to the existing literature and financial practice, it also opens the door to a number of interesting issues which may be addressed by further research.

To begin with **Chapter II**, although it summarizes several explanations behind the overseas primary listing channel and argues Hong Kong is an optimal choice towards this end,

due to some policies are newly effective, some of the opinions is to new to be lack of empirical investigation in current literature. **Chapter III** confirms the important roles of underwriters, but there is no conclusive result to the relationship between institutional allocation and the non-discretionary allocation. Current studies stress more on the process after releasing IPO prospectuses, which possibly neglects the information exchange between bankers and institutional investors during the pre-offering period. In addition, the empirical results are possibly driven by the regulatory concern, irreplaceable market features, the selection of samples, and even the measurement of tested proxies. In addition, **Chapter IV** and **Chapter V** all involve tests of stock trading performance; however, due to the contradictions on testing methods in literature, these two chapters are limited to the extent of choosing long-run performance measures. In this case, future research is worthy to go through this point to offer more prosperous discussions. Moreover, in terms of investigations of *ex post* public control and investor protection in Chapter V, further studies can be located on more related measures since to do so may spread implications of underlying research towards a more general level. Lastly, the aims and performance of China-related firms listed in Hong Kong actually vary over time, which results in conclusions being lagged behind real business. In other words, repeated research questions are always new and research is always on the way.

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