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**CEO'S PAY DIFFERENTIALS AND THE LOCATION OF
IPOS: AN EMPIRICAL STUDY FOR CHINESE A-SHARE
AND H-SHARE COMPANIES**

**By
LIU YI**

**A thesis
submitted in partial fulfillment
of the requirements for the Degree of
Master of Philosophy in Economics
(Economics)**

Lingnan University

2011

ABSTRACT

CEO's Pay Differentials and the Location of IPOs: An Empirical Study for Chinese A-share and H-share Companies

By

LIU Yi

Master of Philosophy

This thesis provides an empirical investigation on how different public listing locations affect the CEO (chief executive officer)'s pay of Chinese SOEs (State Owned Enterprises) and whether such a pay differential would in turn affect the listing location choice by those firms, which have not received much attention in the current literature. In particular, we focus on two stock markets, the mainland (including Shenzhen and Shanghai) A-share market and Hong Kong H-share market. Unlike what have been found in many other markets, where firms listed in the foreign markets can normally enjoy a price premium, Chinese firms listed in the Hong Kong market (H-share) usually face a discount in prices comparing to what they can get in the domestic stock markets (A-share). So it is a real puzzle why they are eager to be listed in Hong Kong. Explanations have been sought in the past regarding to access to international capital markets and reputation or image effects for the Chinese firms. Our study contributes to the current oversea-listing literature by examining CEOs' personal factors that affect listing location choice of SOEs in China. In this thesis, we aim to examine the association between CEO's pay and different listing locations. Our sample covers all the Chinese listed SOEs in both A-share and H-share over the period of 1990-2009. First, we examined the effect of different listing locations on CEO's pay and found that a positive CEO's pay differential exists for H-share listing other things being equal, which means a wage premium for H-share CEOs. Furthermore, our evidences also support the hypothesis that such a wage premium does provide an incentive for CEOs to choose to list in Hong Kong.

DECLARATION

I declare that this an original work based primarily on my own research, and I warrant that all citations of previous research, published or unpublished, have been duly acknowledged.

(LIU Yi)

Date:

CERTIFICATE OF APPROVAL OF THESIS

CEO'S PAY DIFFERENTIALS AND THE LOCATION OF IPOs: AN EMPIRICAL STUDY
FOR CHINESE A-SHARE AND H-SHARE COMPANIES

By

LIU Yi

Master of Philosophy

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ACKNOWLEDGEMENTS

Three years ago, I came to Lingnan University to attend a program, Master of International Banking and Finance. After one year's study, I became an MPhil Student in the Department of Economics. In the past two years, I received lots of generous help from many persons around.

Firstly, I am heartily thankful to my Chief Supervisor, Prof. Xiangdong WEI, whose encouragement, guidance and support from the initial to the final level enabled me to develop an understanding of the labor economics literature and the overseas listing subject. Many thanks to Prof.WEI, his knowledge and insight gave me a strong support during my whole study, not only the academic work but also the daily life. Also thanks to my co-supervisor Dr.Yifan ZHANG who gave me quite a lot of valuable suggestions and indications throughout my thesis.

Special thanks also go to Prof. Michael Firth and Dr.Kent Lai. Without their friendly help and encouragement, I could not make my thesis meaningful.

Besides my supervisors, I am also grateful to the staff in the Department of Economics, as they inspired me a lot and shared their expertise with me. And I express my great thanks to Ava and Kit, who offered their support in a number of ways.

Many thanks also go to the fellows: Maia, Willy, Laura, Laurel, Arbitor, Roger and Roy, also my roommate, Vera. I owe my deepest gratitude to their friendship and encouragement.

Finally, I wish to thank my family, who provides the solid support to me. I share the achievement with my family members.

1. INTRODUCTION

Enterprises not only choose where to sell products and services, but also decide where to raise funds to finance themselves. Listing location seems to be a big issue for enterprises to concern about. In recent studies, more attention has been paid to the issue of firm's foreign listing, which included the location choice and the effect due to different locations.

Sarkissian et al. (2010) argue that a valuation premium that non-U.S. firms achieved through listing on U.S. equity markets is not unique. They observed first the U.S. firms listed on non-U.S. exchanges and then firms from several other countries experienced the foreign listing premium. After examining the foreign listing premium across a broad set of home and host markets, they found that not only the U.S. firms listed abroad get a value premium but also the non-U.S. firms do and in many other foreign markets, too.

Doidge et al. (2001) focused on firm's cross-listings. In their study, they found that cross-listed firms have higher valuation than other firms from their country that do not cross-list. However, the work did not tackle the potential self-selection issue. They pointed out that self-selection does not work in their conclusion due possibly to the limitation of the modeling framework or their belief that selection itself does not affect the results. They mentioned that further research may help in resolving this issue by modeling the listing decision as well.

For emerging market firms, Lins et al. (2005) pointed out that issuing equity on U.S. stock exchanges could help those firms get a greater access to international capital markets. They also explicitly considered the location choice for listing. Richter's study (2009) investigated the role domestic firm-level political connections plays in determining a firm's propensity to cross-list securities in equity markets outside their traditional home country. He has reached the following conclusion. The weaker the domestic institutional environment is, the less likely the average firm is to cross-list. While for connected firms, the weaker the domestic property rights institutions are the more likely they are to cross-list.

Similarly, there are several papers examining the overseas-listing of Chinese firms as more and more Chinese firms choose to list overseas in recent years. In a HKIMR working paper, Liu (2011) tests the effects of public listing on the performance of banks in China, which contain the different effects of public listing locations in particular. Tobin et al. (2008) show that international listing can mitigate many of the constraints on best practice of China's state banking sector by not only imposing a more consistent set of rules, but also providing the incentives for convergence.

Specially, previous and recent researches are keen to find out the factors that lie behind the Chinese firms' location choice for overseas-listing. They find that cross-listing of Chinese SOEs (State Owned Enterprises, which are the enterprises controlled by central government or local governments) is mainly politically motivated as the politically connected firms are more likely to list overseas. For example, Hung et al. (2010) find that the connected firms' managers list their firms overseas for private benefits even though the connected firms' post-overseas listing performance is worse than non-connected

firms. The investigation covers Chinese SOEs listed in four overseas stock markets, including Hong Kong, Singapore, the UK and the U.S. Lin et al. (2010) consider political connection in their study as well. In that paper, they use a broader data set to investigate the overseas IPO location choice of Chinese firms with the following two characteristics: (1) the data contain both cross-listed firms and firms just listed abroad; (2) the sample also includes indirect listings which are lack in Hung's study.

The objective of our study is to investigate how different public listing locations affect the CEO's pay of Chinese SOEs and whether such a pay differential would in turn affect the listing location choice by those firms. Our study contributes to the literature of overseas-listing, as recently it has not been paid much attention to that the effect on CEO's pay due to different listing locations also the effect of pay differentials on location choice.

My study extends Lin et al.'s study by adding CEO's pay differentials as an endogenous variable to explain IPO location choice. As in Lin et al.'s paper, it mentioned that SOEs and firms with direct listings are more likely to choose Hong Kong, so we concentrated on two markets in our study, mainland A-share market and Hong Kong H-share market.

From the two figures 1 and 2 as shown, it is clear that although the number of Chinese firms listed in H-share market appears to be stable since 1990, the scale of overseas-listing is increasing since 2004, which represented a threefold increase in scale than the previous year. But the climbing trend goes down sharply after 2006, and then rebounds slowly since 2008. In contrast to A-share market, either listing number or listing scale of H-share is smaller than that of A-share. It is possible due to the stricter requirement

imposed by Hong Kong stock exchanges. However, from Figure 2, we could easily conclude that the Chinese enterprises are eager to list abroad as the growing market occupation proved this phenomenon. It is well known that the mainland stock market holds the much higher P/E ratio than that in Hong Kong stock market. Under such market situation, that the Chinese enterprises are still eager to list abroad seems to be big puzzle in the Chinese stock market. Why Chinese firms aspire to list abroad, especially for SOEs?

In China, there exists a special case. Usually, a CEO of SOEs is a government official or used to work for government. Especially for a firm controlled by central government, which we called SOECG (Firth, 2005) in short in the following sections, the CEO is dominated or appointed by the central government. Mostly, they are strongly connected with the government. Nevertheless, there is a heavy restriction on government official's pay, so if a typical CEO with a stronger connection with the government, his pay compensation may be more concerned about by the public, which means that the amount of pay is under a forceful supervision within mainland environment. For another part, there may exist such a situation, the supervision would become weaker if the CEO entered into Hong Kong's environment. Because of the different setting of compensation, or the different standard level for pay, the CEO could have an excuse to raise his annual pay with not so much limitation within the Hong Kong system. As a positive pay differential is supposed, CEOs would desire to self-select into Hong Kong market if it were available, in order to meet their expectation for higher compensation. A greater pay differential according to different listing locations would be the motivation for CEOs to devote for H-share approval.

As self-selection is taken as endogeneity, so we use the Heckman selection model to control for it, which is widely used in the labor economy literature when concerning about union/non-union workers wage differentials. Still, other variables have been concerned about when modeling the procedure about forming a decision to choose where to list, domestic or overseas. Following the previous study in location choice for listing, we include several variables into our location determining model, such as political connection, firm's size, listing offer amount, cost rate and other control variables.

In summary, we test the effect of different location on CEO's pay and found that a positive CEO's pay differential exists, which means a wage premium of CEO in H-share SOEs. Then we use the predicted wage premium to find out whether it would in turn point out a straight direction to the Hong Kong stock market, as what we want to prove.

The rest of the thesis is organized as follows. Section 2 reviews the initial public listings (IPOs) of Chinese enterprises. It describes the listing situation in mainland A-share exchanges and Hong Kong H-share exchanges and reports the cross-listing of Chinese firms as well. Section 3 review the current literature related to oversea-listings and the CEO compensation literature. In section 4, we point out the theoretical background of our model and raise several hypothesis related to our study. Section 5 explains the research method using Heckman two-step selection as a widely accepted model to control the endogeneity. Also in this section we present our unique empirical sample. Consequently, we perform the test on relationship between different listing locations and pay differentials in section 6. Nevertheless, we analyze the empirical results based on our theory in this section. Finally, we conclude in section 7.

2. REVIEW OF THE PUBLIC LISTINGS OF CHINESE ENTERPRISES

Following the economic reforms and the privatization over the last 30 years, China's economy experiences a strong growth, emerging the stock market and leading to a great increase in the number of listed enterprises. The dramatic growth of China's economy in recent years makes China play an important role in the emerging stock market. Specially, the rise in IPO events in China can not only be measured by the number of listings, but also the offering size, the listing methods, no matter direct or indirect, the range of industries involved and the choices of listing locations.

As Du et al. (2007) show that, in China's state-dominated financial system, a stock market listing is a channel to help SOEs raise external financing. Many enterprises, especially non-state-owned or private firms, face serious restrictions in gaining access to equity markets. So in this section, we overviewed the phenomenon of IPOs for Chinese enterprises in both mainland stock market and Hong Kong stock market. As concern to the direct listing, we observed the A-share market and H-share market. Furthermore, we divide SOEs into two distinct channels: SOECGs and SOELGs. The SOECGs are firms controlled by central government and the SOELGs are firms controlled by local government or a SOECG, according to Firth (2005).

2.1 IPOS OF CHINESE ENTERPRISES IN MAINLAND

Figure 3 and 4 show the entire pictures of IPO listings in mainland A-share market, describing the composition of IPO listing number and the composition of total offer amount since 1990 until now, at the end of June 2011, respectively. Especially, the SOEs are with breakdowns for different types.

From Figure 3, in general, before 2004, the Chinese SOEs occupy nearly 70% of the total number of IPOs in mainland A-share market except a bottom of 25% in 1991, while after that, the occupation of SOEs experience a drop from 50% in 2005 to less than 2% at the end of June 2011. As the red bars represent the SOELGs proportion, it is obvious to find that the SOELGs are the majority source of initial listings in A-share market before 2004, which account for almost 50% of the total number. But there is a downward trend after 2003, with a drop about nearly 22% during the period of 2004 to 2010. The blue line seems to be flat within the whole period, which represents the listings of SOECGs. It remains at the region of 10% to 20%, except no listing in 1991.

Figure 4 shows the proportion of SOEs offer amount in mainland market especially for the directing listings. The SOEs account for nearly 80% of the total amount of offering during the whole period, only occur a great drop of 50% in 2010. Still, SOECGs hold the majority proportion of total offering amount in A-share market. However, the SOELGs experience two highly declines, while the first occur in 2005 accounted for 18% and the second occur in 2010 accounted for 15%. But the situation of SOECGs is different from that in the previous figure. Before 2000, SOECGs hold a constant proportion of market

offerings represented for about 20%. From 2000 to 2010, the proportion of SOECGs seems to be fluctuated, climbing to a peak in 2002 (57.9%) then decline to a bottom in 2004 (only 4.8%), while following the first drop it jumps again to achieve the second peak (64.2%) after two years but falls down again by 27.3% in 2007, and consequently it reaches a third peak increased by 17.3% in 2008 to get 54.2%. However, it appears quite low in both 2009 and 2010, representing for only 3%.

Compared with those two figures, we find that the Chinese SOEs still play the most important role in mainland A-share market. It is more interesting that although the occupation of SOECGs in number decreased during the period of 2004 to 2009, but its occupation in amount remains to be the largest part of total offer amount in the same period.

As shown below in the appendix, Figure 5 and 6 specifically describe the situation of SOECGs and SOELGs in A-share market respectively. In both figures, the blue bar stands for the number of IPOs and the red line stands for the offer amount of listing. Compared to SOELGs, the SOECGs have both less number and offer amount in general. Specially, even when the financial crisis happened in the late 2008, the SOELGs still raised their offering in the following year but decrease offering in 2010. Such phenomena seem to be not obeyed to the market rule or could be explained as that the mainland stock market has a delay in reaction when facing the financial crises.

2.2 IPOS OF CHINESE ENTERPRISES IN HONG KONG

Similarly, Figure 7 and 8 show the entire situation of Chinese firms' direct listing in Hong Kong H-share market, describing in both the composition of total number and the composition of total offer amount respectively.

In Figure 7, we find that in four special years SOEs account for the total oversea-listing number in the whole H-share market, in which are 1994, 1998, 2007 and 2008. Year 1995 appears to be a special year for Hong Kong stock market, as there are no Chinese firms listed there, either the SOEs or the private companies. Maybe the situation like this could be explained as in that year, the Chinese central government started the privatization process of SOEs, which weaken the attraction of Hong Kong stock market as domestic market seems to be more attractive. While the SOEs also suffer three bottom point during the whole period of 1994 to 2011, which the lowest occurred in the year 2002 and the following year 2003 representing for 33.37% and the last bottom point appeared in the year 2009 representing for 66.7%. The proportion of SOECGs in IPO numbers fluctuated in H-share stock market, also the SOELGs, where the SOECGs have the peak point of 66.7% twice, jump to reach almost 50% three times and go down to the bottom (0%) also three times. For the SOELGs, more fluctuated than that of A-share market but the average level of the proportion is much lower than that of A-share market, as its mean value is around 44% in Hong Kong stock market compared to 55% in mainland stock market.

Figure 8 describes the whole picture about composition of Chinese firms listing amount in Hong Kong stock market, as it were quite different from that in mainland stock market. As a whole, in two thirds of the period as shown, the SOEs cover nearly all the offering amount through IPOs, except in year 1995 as no Chinese firms listed in H-share. And in the rest period, the SOEs still act as an important part for the overseas market, with around 64% proportion in 2004 and 2009 while around 32% proportion in 2003 and 2010. Similarly, the SOECGs do practice the same trend as SOEs mentioned before. But no SOECGs offer H-share in 1998 and 2010 where is different from the SOEs as the SOELGs choose to list abroad. Furthermore, it is hard to judge for the trend of SOELGs listing through the proportion of offer amount. Because the movement is more complicated as it changed frequently. While it has the highest point of 100% and the lowest point of 0%, but the gap between the consecutive two years changes from the smallest of 4% to the largest of 50% and fluctuated out of order.

However, the SOECGs and the SOELGs have the same reaction when facing the financial crises in late 2008. It is shown in both Figure 7 and 8 that the SOECGs and SOELGs decreased either IPO numbers or IPO offering amount in the Hong Kong stock market from 2008 to 2009. From 2009 to 2010, the number of SOECGs listing climbed up while other indices still remained to fall down. However, all the indices of SOECGs and SOELGs began to go up since 2010. In contrast to A-share market, SOEs listed overseas are more sensitive to the market environment maybe due to lack of government controlled.

As shown below in appendix, Figure 9 and 10 specific represent the situation of SOECGs and SOELGs in H-share market respectively. Apparently, the SOELGs are

easy to enter into the Hong Kong stock market to make overseas listing as the number of IPOs is much larger than that of SOECGs. However, the situation of total offer amount is not alike the situation of listing numbers. Although the SOECGs have an even smaller quantity in H-share listing, but they have an extremely greater scale of H-share listing when bring the SOELGs into comparison. The greatest scale of SOECGs is about 285 billion RMB, which is more than six times of the greatest one of SOELGs accounted for about 45 billion RMB. What's more, the average scale of SOECGs is still larger than the average one of SOELGs, where 33.6 billion RMB for SOECGs while 11.9 billion RMB for SOELGs.

Looking into the two stock markets, A-share market and H-share market, through all the figures shown above, we conclude that Chinese SOEs dominate Hong Kong H-share market. Either the IPO numbers or the scale of IPOs for Chinese SOEs began to decline since 2009, which indicate that Hong Kong stock market is more attractive for the Chinese SOEs in the current and future year. An increase of Chinese SOEs listing will certainly spark the H-share stock market and boom the Hong Kong economy. As a result, Hong Kong becomes an emerging equity market for Chinese SOEs among other overseas-listing locations.

2.3 CROSS LISTING OF CHINESE ENTERPRISES

By the end of June, 2011, 69 Chinese firms have been cross-listing in both mainland and Hong Kong. In those firms, 59 are SOEs, which represented nearly 86% of total cross-listings in China. Specially, the SOEs included 32 SOECGs and 27 SOELGs, which show that the majority of cross-listings are SOEs and also signaled that the enterprises controlled by central government still have a leading position to list abroad.

Besides that, almost 64% of the 69 cross-listed firms choose to list in Hong Kong much earlier than to list in mainland, which count for 44 as shown on Table 1. And only 7 of them are private companies, which seems to be interesting that SOEs prefer to choose Hong Kong stock market not domestic stock market. The total number of SOECGs' H-share listing following A-share listing and the cross listing at the same financial year is similar to their H-share listing before A-share, which represents that the SOECG choose Hong Kong as its preferred IPO location when they provided cross listings. While the number of SOELGs cross-listing simultaneously is as twice as the number of their A-share listings at first. In general, no matter SOEs or non-SOEs, they all desire to list in Hong Kong stock market as their first choice if it is available. The evidence in total supports such conclusion as the joint number of first two columns is almost half of the number in last column, with 25 compared to 44. Actually, Hong Kong still remains as the most preferred venue for Chinese enterprises' overseas listing especially for the SOELGs, where the majority of them occurred to issue H-shares as the first choice.

3. LITERATURE REVIEW

3.1 LITERATURE ON THE DETERMINANTS OF OVERSEA-LISTING

(1) Access to external capital market

Raising financial funds seems to be the most important reason for firms to list overseas. In Lins et al.'s paper (2000), they show that access to external capital markets is important for non-U.S. firms listing in the U.S., and especially so for emerging markets firms. If a firm is rationed in its access to U.S. exchange market, it may reduce the level of information asymmetry and achieve a larger investor base. Then investment liquidity will improve and also the firms could raise funds at a lower cost than firms in domestic exchange market.

Consequently, we use the total IPO offer amount and cost rate (IPO cost over annual sales) to test whether such expectation will affect a firm's listing choice.

(2) Regulatory Bonding

Coffee (1999, 2002) and Stulz (1999) explained the regulatory bonding theory why some firms choose to cross-list, one of the most common explanations for why a firm chooses to cross-listing other than its size. Foreign listing benefits from functionally and

stricter disclosure requirements could highly protect the investors. Firms can maintain greater potential benefits by listing in higher quality contracting institutions.

Firm size is one of the variables that we use to predict whether a firm prefer to overseas listing as we expect that larger firms would be more attractive to investors in foreign exchanges and have more capability to bear the stricter requirements. In our model, we provide three variables to identify a firm's size, including registered capital, annual sales and employees' number.

(3) Role of political connection in the overseas listing of Chinese SOEs

Prior literature suggests that political relations and institutional environments affect privatization outcomes (Megginson and Netter, 2001; Gupta, 2005; Fan et al., 2007), it provides little evidence on the implication of political connections in the overseas listing of SOEs. While in Hung et al.'s paper (2010), they investigate the role of political connections in the overseas listing of Chinese SOEs. They point out that firms have strong political connections are more likely to list overseas and the managers of politically connected Chinese SOEs can extract private benefits from listing overseas. The private benefits are described as the recognition in the political media or a promotion.

In our empirical test, we use the political connection as a factor to explain the overseas-listing choice, but not an instrumental variable to affect a CEO's benefit on wage.

3.2 LITERATURE ON CEO COMPENSATION

(1) Definition of CEO compensation

In the paper of Jiang et al. (2010), there are two flow compensation measures, cash pay and total pay. Cash pay is the sum of salary and bonus, whereas total pay is the sum of cash pay, stock option grants, restricted stock grants, long-term incentive plan payouts, and other annual compensation. In our data sample, the CEOs of Chinese firms rarely has equity incentives in compensation, so we define the wage of CEOs in Chinese firms as the sum of total pay excluding the equity grants in our study.

(2) CEOs pay determination

As what Conyon (1997) mentioned, the most consistent and enduring result from myriad studies of CEO pay is that firm size is positively and significantly associated with compensation levels.

While agency theory argues that one way to align the interests of managers to the interests of shareholders is to make manager's compensation a function of firm performance (Kaplan, 1994; Murphy, 1985, 1999). In Firth's model (2005), they used two measures, one is accounting-based and one is the stock return. Their accounting measure of performance is return on sales (ROS) and the other performance measure is the annual stock return (RET).

In our model, we also use firm size and firm performance to justify the CEOs compensation. We use both the number of a firm's employees and its annual sales to proxy for a firm's size. And still we use both accounting-based measure and stock return to calculate a firm's performance. Our accounting measure of performance includes ROA, ROE and profit ratio. The ROA (return on assets) and ROE (the return on equity) are not used in Firth's model as it mentioned by Chen et al. (1998) that those measures of profitability suffers from the fact that the values placed on assets are subject to management discretion. However, we only focus on SOEs, so we think the ROA and ROE could measure the firm's performance better as still. And the profit ratio is defined as net profit over annual sales while EPS (earning per share) is used as measure of stock return.

4. THEORETICAL BACKGROUND AND HYPOTHESIS

This section discusses the theoretical background with the Heckman Selection model and proposes some hypothesis regarding the oversea-listing choice for our empirical analysis. In our research, we aim to investigate how different public listing locations affect the CEO's pay of Chinese SOEs and whether such a pay differential would in turn affect the listing location choice by those firms. So our model has been separated into two parts. First, we build a CEO pay model which involves a location dummy to determine the pay setting and predict a typical CEO's pay due to different stock markets. Deriving from those predicted pays in A-share market and H-share market, we get a pay differential for each observation. Accordingly, we would like to examine the listing location decision based on pay differentials and other characteristics as our second part.

4.1 SELF-SELECTION MODEL FOR CEO PAY DIFFERENTIALS

Consider a CEO's pay, using a dummy variable to simply pick up the H-share effect in a pooled sample of H-share and A-share CEOs is inappropriate since CEOs in H-share may self-select and CEOs being in H-share may not be random. Pay differentials due to different market status would obtain when self-selection is taken into account. If a CEO expected that the standard pay in H-share market is greater than that in A-share market, he may choose to list in H-share market because of the pay differential and push the

enterprise to achieve H-listing approval. Thus the endogeneity arises as the market status is a selection bias in the estimation of CEO's pay.

In the literature of labor economy, a conventional Heckman two-step selection model is used to obtain union/non-union wage differentials by controlling the potential endogeneity of union status. In our empirical studies, the situation about H-share/non-H-share (A-share) CEO pay differential is quite similar to the situation about union/non-union wage differential, so we use the Heckman two-step selection model to predict the CEOs pay differentials result in self-selection for H-share status.

In our model, we use the separately estimated A-share and H-share pay equations for CEOs as we supposed that a typical market status is endogenous and CEOs self-select into H-share/A-share markets. Taking H-share status as an endogenous variable refers to the fact that it is potentially a choice variable, the decision to list in H-share or not list in H-share is correlated with unobservable that affect CEO's wage. Supposed that within the Hong Kong market CEOs may expect to raise their pay in order to meet the market standard level, we use the separately estimated wage equations due to the different markets.

Following the approach, a percentage union-nonunion wage differential with a worker's reservation wage is presumed to determine his union status. If the union wage differential exceeds the reservation wage, the worker chooses for a union job, if opposite, the worker selects a nonunion job.

Now, we supposed that if the predicted H-share/non-H-share wage differential is positive, CEO selects to list in H-share, otherwise he does not.

Let H_i be an H-share status variable, if $H_i=1$, CEO selects to list in H-share market, otherwise he does not. For the i th individual, the H-share/non-H-share status equation is defined as:

$$(1) H_i = \alpha_0 + \alpha_1 X_i + \alpha_2 Y_i + \alpha_3 (\ln W_{hi} - \ln W_{ai}) + \alpha_4 Z_i + \varepsilon_i$$

Where X_i is a vector of personal characteristics; Y_i is also a vector of each firm's characteristics; W_{hi} and W_{ai} are H-share and A-share CEO's pay, respectively; Z_i is a vector of other explanatory variables to determine the H-share status, and ε_i is a random disturbance term. The term $(\ln W_{hi} - \ln W_{ai})$ is defined as approximate percentage CEO's pay differential.

The personal characteristics included in X_i in the equation above are CEO's political connection, CEO's education level and CEO's age. The firm's characteristics included in Y_i are firm's nature belongings, firm's performance measures, firm's profitability, firm's size and firm's industry catalogue defined by GICS in Hong Kong as the same in mainland.

The selection model also included the two equations representing the pay determination for H-share and A-share CEOs:

$$(2) \ln W_{hi} = \beta_{h0} + \beta_{h1} X_{hi} + \beta_{h2} Y_{hi} + \varepsilon_{hi}$$

$$(3) \ln W_{ai} = \beta_{a0} + \beta_{a1} X_{ai} + \beta_{a2} Y_{ai} + \varepsilon_{ai}$$

Equation (2) is the pay equation determined for H-share CEOs while (3) is the pay equation determined for A-share CEOs, where X_{hi} and X_{ai} are vectors of personal characteristics for H-share and non-H-share (A-share) CEOs, respectively; Y_{hi} and Y_{ai}

are vectors of each firm's characteristics for H-share and non-H-share (A-share) firms, respectively; and ε_{hi} and ε_{ai} are random disturbance terms.

Observed personal characteristics included in X_{hi} and X_{ai} are CEO's education level, CEO's professional background and CEO's age. The observed firm's characteristics included in Y_{hi} and Y_{ai} are firm's nature belongings (SOECG or SOELG), firm's size (annual employees number and sales), firm's performance measures (ROA, ROE, EPS), firm's profitability (profit ratio which defined as net profit over sales) and firm's industry belongings (separated into 5 industries).

Using Heckman two-step selection model, where in the first step a probit model is used to predict the probability of H-share status and in the second step, the inverse Mill's ratio (IMR) is included as a regressor.

4.2 HYPOTHESES FOR LISTING LOCATION

Next, we examine the firm's listing location choices. In this subsection, we will present the main hypotheses regarding the advantages and disadvantages of H-share status for Chinese SOEs.

(1) CEOs pay differentials advantage of H-share market

CEOs pay differentials derived from the Heckman selection model would make a positive effect on firm's H-share listing choice. CEOs under different market conditions

may expect to be compensated by different setting levels. Suppose that we could obtain a positive pay differential derived from the selection, which means that a pay premium of CEOs in H-share SOEs. Such pay premiums will certainly affect listing location choice, which incentives CEOs to self-select in H-share market. As a result, expecting the pay premium, CEOs are more eager to achieve approval of H-share listing in order to meet their self-satisfactions. CEOs pay differentials seem to be a strong motivation for firms to list aboard other than domestic stock market.

(2) Advantage of CEO's political connection

As mentioned before, political connection means that the chairman or CEO of the firm is a government official, or a member of National People's Congress or People's Political Consultative Conference, following the definition of Hung et al. (2010). When a CEO is politically connected, it is highly likely that the firm would be much easier to get access to the oversea-listing. Also, with a politically connected CEO, the firm is supposed to be much easier to get through the barrier of listing aboard compared to the firm without such a CEO.

(3) Advantage of SOECGs

SOEs controlled by central government also have political advantage. Following Lin et al. (2010), oversea-listings of the SOEs need to be approved by CSRC and the central government in fact plays an important role in deciding where the firms will be listed.

The central government may have its own political objectives and use listings to support Hong Kong's economy. In general, the central government has stronger political influences on SOEs compared with the local government. In our study, we enlarge the hypothesis that SOECGs usually are supersize enterprises which need much more funding raised and also own the strong power to attract foreign investors. In consequence, it is much more attraction for SOEs controlled by central government to seek oversea-listings.

(4) Cost rate disadvantage of H-share market as compared to A-share market

The listing costs have recently attracted public attention in Hong Kong, and commentators have asked whether the costs of listing in Hong Kong are too high, reported by Research & Policy. The typical explicit costs of a Hong Kong IPO include underwriting commission, professional services fees, share certificates and fees of the registrar and receiving banks in the IPO, publicity costs and exchange fees. We defined the cost rate are determined as percentage of cost over annual sales. Within the stricter cost rate, it would make a negative effect on firm's H-share listings.

(5) Other hypotheses

Also there are other control variables that would influence the SOE's location choice, such as the firm's profitability, the firm's size and the firm's financing needs. Stronger profitability would certainly support the firms to decide listing aboard as to attract

foreign investors. Higher profit ratio may provide the firms much confidence to ensure shareholders benefit even facing higher market risk as listing overseas. Also the firm's size is a factor to affect its location choice. The large scale of size may guarantee firm's stability in a typical market. In other words, the larger the size, the more stable it is, which means that it has the ability to face the more challenge appeared in H-share market. Furthermore, H-share market could provide the opportunity for firms to meet their financing needs and also give them a chance to access to foreign capital market, while the A-share market is in shortage. The desire for huge raising funds would incentive the firms to list abroad, whereas the amount raised in domestic stock market is much smaller.

5. RESEARCH METHODOLOGY AND DATA

Following the theoretical model as discussed earlier, we would like to show whether there exists any empirical evidence to support our initial hypothesis. In particular, we try to predict each CEO's pay in different markets, both H-share market and A-share market, to see if the pays are different for "H-share listing company" and "A-share listing company". Furthermore, it is extremely important that if such pay differentials exist it must also influence listing location choice for Chinese SOEs in order to meet CEOs self-satisfaction.

5.1 THE DATA

Until 1998, Chinese listed companies in mainland stock markets were not required to disclose executive compensations, which include the remuneration to the board directors, supervisors and the senior management in the annual report. We use the exact pay for a typical CEO in A-share listing enterprise. The annual reported pay for companies listed in A-share market is the total cash compensation but not separated into detailed components, while the annual reported pay for companies listed in H-share market is broken down into several components, including cash pay and equity incentives, whereas the cash pay is the sum of fee, salary, discretionary bonuses, allowances, benefits in kind, pension scheme contribution and the equity incentives are the total amount of restricted stock grants and stock appreciation rights. When we

check the cross-listing enterprises whether they have different CEOs in different market, we find that such enterprises have the same CEO and the same pay in both markets. Meanwhile, we also find that the pay of A-share report is the value of cash pay except the equity incentives according to detailed pay components in H-share report. For Chinese listed companies, equity compensation is not commonly used and fewer companies use the equity incentives for CEO's compensation in either A-share market or H-share market. If they exist, we could only get the real value from H-share annual report, but in the A-share annual report, it is not available to value the stock grants and option grants from it. To judge the pay equally, we eliminate the equity pay from total pay in H-share report as an annual pay for CEOs titled in "H-share market". For CEOs titled in "A-share market", we use the total pay directly in A-share report as an annual pay. Unfortunately the compensation disclosures in Hong Kong stock market have only been required since 2005. The earliest data of CEOs pay we could get in H-share market is in 2004 as the listed companies are also required to report the executive compensation of last accounting year in the annual report.

Specifically, the IPO total offer amount for a typical SOE we discussed is the amount of direct listing on the stock market. Those companies listed through indirect channel, such as back door listing and enterprise's mergers and acquisitions, would not be included in our sample. Also, the data for listing cost is unavailable before 1993 in A-share market and before 1999 in H-share market. Due to the data constraint, we omitted some observations in both markets.

In total, our sample includes 626 listed SOEs in both A-share market and H-share market, whereas the number of A-share companies is 593 while the number of H-share

companies is 33. The sample data consists of 2211 A-share CEO observations from 1998 to 2009, which covered 85 SOECGs and 507 SOELGs, and 124 H-share CEO observations from 2004 to 2009, which covered 11 SOECGs and 23 SOELGs. We treated as an unbalance pooled sample.

We use the Wind Database as our main data source of information for A-share firms' characteristics and performance measures, CEOs characteristics and compensation, and the information of H-share firms' characteristics and performance measures. H-share CEOs characteristics and compensation are obtained from the annual reports which are collected from the Hong Kong Stock Exchange (HKEx) website. Furthermore, all the SOEs in both markets have been divided into two groups, SOECG and SOELG. We search the website of State-owned Assets Supervision and Administration Commission of the State Council to signal the "SOECG" enterprises.

5.2 SAMPLE CHARACTERISTICS

Figure 11-15 describe the CEOs average pay for firms' IPO occurred in an assigned year. Due to the data constraint, we observe five special years, as the firms listed in those years have the data of CEO's pay pre-IPO and after-IPO. We defined IPO age as the number is equal to the report year minus listing year. So we know that if IPO age is smaller than zero, which means that the wage represented for the period before IPOs; if IPO age is equal to zero, where the wage represented for the listing year's pay; if IPO age is larger than zero, then the wage is the mean level of CEO's pay after IPOs. What

else, the full line show the pay level of A-share companies while the line of dashes show the pay level of H-share companies.

It is obvious to find that a booming on pay when IPO happened no matter the A-share companies or the H-share companies. What's more, it is indicated that CEOs of H-share companies experienced an average higher pay level compared to that of A-share companies, except in 2007. Such phenomena in deep make us convince our hypothesis, pay differentials should occur due to the different listing locations.

Table 2 shows the entire picture of CEOs average pay in three groups, CEO's general pay, CEO's pay based on ownership structure and CEO's pay based on industry catalogue. All the groups are separated into A-share market and H-share market. Still, CEOs in H-share market gain a higher pay in average through all the three groups, which proved our initial hypothesis about pay differentials in statistics analysis.

5.3 RESEARCH METHODOLOGY

5.3.1 HECKMAN SELECTIVITY MODEL

In our empirical study, we want to investigate the pay differential between H-share CEOs and A-share CEOs. For the purpose of this, we need to separate the CEOs into two groups using the location dummy to distinguish "H-share" vs. "A-share" CEOs and finally test our theory.

In the Heckman selection mode, our main dependent variable is the natural logarithm value of yearly pay for CEOs (described as Ln_{wage} below). We converted all the pays in accounting year into RMB. The independent variables included as follows:

(1) SOECG, a dummy variable coded 1 if the SOE is controlled by the central government, while if the SOE is controlled by the local government or SOECG, it coded 0;

(2) Ln_{sale} and Ln_{size}, which are defined as the natural logarithm value of annual sales and annual number of employees respectively, indicate the firm's scale and size;

(3) Firm's performance measures, our accounting measure of performance is return on owners' equity (ROE) and the measure of stock return is the earning per share (EPS). This is following Firth et al. (2005), as he mentioned that in developed nations, accounting profit and stock returns are two of the major indicators of a company's financial performance. To use these performance measures in China pre-suppose the profit number and stock returns have credibility. And the profit and stock returns do reflect economic performance. While in our model, we broadened the measures by adding the variables of ROA (return on asset).

(4) Firm's profitability, ratio index, defined as profit ratio, which is equal to net profit divided by annual sales. The same variable followed as used in Lin et al.'s research (2010).

(5) Potential working experiences, as most of the CEOs completed their postgraduate study during the working period, which is treated as a Part-time degree. It is hard to judge their working years if we use the method of age minus the year of finishing the

highest grade of education and again minus six, so we straightly use the age (accounting year-birth year) and its square term to measure the CEO's potential working experiences in an indirect way;

(6) Education level, we use dummy variable to estimate the highest degree the CEO obtained, where degree coded 1 if the CEO obtained a bachelor degree or a postgraduate degree, if the CEO's qualified is sub-degree, then degree coded 0;

(7) Control variables such as year dummy and industry dummies. Year dummy is equal to the exact number of accounting year, while industry controls contain four dummies, where Ind1 represents the Information Technology and Energy Industry, Ind2 represents the Utilities and Health Care Industry, Ind3 represents the Raw Materials and Industrial Industry, Ind4 represents the Financial Industry and the benchmark choice (omitted) is Daily and Non-Daily Consumption Industry.

Specially, we want to examine whether difference in pay-offs for CEOs result in self-selection for H-share status. In consequence, we need some variables explained for the choice of listing location but not affect pay directly. We believe that CEO's political connection, firm's profitability and the scale of firm's raising funds through IPO could be explanatory factors to the choice of market status but not necessarily affect the pay setting. It is supposed that the CEO's political connection will provide positive political power on getting through the barrier of H-share listings. The last two variables will capture the firm's ability and desire to list aboard. Such three variables further satisfy the identification conditions of our selection model where taken "H-share" status as the selective bias.

As mentioned before, our empirical study aims to estimate the impact of “H-share” status on CEOs pay differentials between H-share SOEs and A-share SOEs. Firstly, we need to run the basic pay equation as follow:

$$(4) \text{LnWage}_i = \lambda_i X_i + \varepsilon_i$$

Where the indice i stands for individual. ε_i is a normally distribution error term with zero mean. X_i is a vector of independent variables including all the variables described above plus a constant and a location dummy variable. Also we estimate the wage equation using the robust estimator to signal each individual by a typical “stock code” in the unbalance pooled data.

Next, if the differences of CEO’s pay for different location status are observable to individuals, it is believed that a typical CEO will react to such differences and self-select into an “H-share” status if it is available. As a result, observed pay differentials may be censored by such a selection. So we need to run Heckman selection model to correct such a bias and examine that whether there is a self-selection process for CEOs to obtain a wage premium.

The selectivity model for “H-share” vs. “A-share” status is similar as presented before in part 4.1:

$$\text{LnWage}_{hi} = \lambda_{hi} X_i + \varepsilon_{hi}$$

$$\text{LnWage}_{ai} = \lambda_{ai} X_i + \varepsilon_{ai}$$

$$H_i = \alpha (\text{LnWage}_{hi} - \text{LnWage}_{ai}) + Z_i \Phi + \eta_i \quad (5)$$

where the subscript h and a stand for “H-share” status and “A-share” status respectively. H_i is the location dummy for “H-share” status. $Wage_{hi}$ is observed when $H_i=1$, while $Wage_{ai}$ is observed when $H_i=0$. And $\varepsilon_{hi} \sim N(0, \sigma_{hi})$, $\varepsilon_{ai} \sim N(0, \sigma_{ai})$, $\eta_i \sim N(0, 1)$.

Z_i contains the four explanatory variables determined the choice of market status and all independent variables in X_i , described in equation (4), except for the location dummy defined as “H-share” status. This self-selection model can be estimated simultaneously by the full information maximum-likelihood method. A test for selectivity bias “H-share” status is a test for $\rho=0$, if $\rho<0$, it means that the self-selection mechanism exists and those CEOs who self-select in H-share status obtain a wage premium.

5.3.2 PROBIT MODEL FOR LOCATION CHOICE

We would like to test which market status is a SOE’s preferred choice, taking Hong Kong H-share market and mainland A-share market for concern.

We estimate the following probit regression model. Assuming the determined component H_{hi} and random components ε_{hi} are separable, the probability of the individual i choosing location h can be expressed as:

$$P_i = P(H_{hi} + \varepsilon_{hi} > H_{ai} + \varepsilon_{ai}) \quad (6)$$

where h and a represent for the location choices of H-share market and A-share market.

We express the index H_{hi} as:

$$H_i = \rho_0 DW_i + \rho_1 Z_i + \varepsilon_i \quad (7)$$

Where H_i is the location dummy for “H-share” status; DW_i is derived from Heckman selectivity model, defined as $DW_i = \ln \hat{Wage}_{hi} - \ln \hat{Wage}_{ai}$; Z_i contains explanatory variables in the selection model plus a constant. Still we use the robust estimator to signal each individual by a typical “stock code” in the unbalance pooled data.

6. EMPIRICAL RESULTS AND ANALYSIS

6.1 LINEAR WAGE EQUATIONS

Following the estimation approaches presented in section 5, first we run linear equations to estimate CEOs' pay setting. The results are shown in Table 3, in which we presented four wage estimation results. They are derived from a basic wage equation based on labor economics literature. The important variation in our model is to include an IPO location dummy-hdummy, which is equal to one for "H-share" in all wage equations.

In column (1) of Table 3, following the labor economy literature, we build a basic wage equation by using the traditional wage determinants, such as age, education level and control variables (industry dummy and year dummy). Except those human capital variables, a location dummy is involved. In column (1), Hdummy and Degree variables are statistically significant at 1% and 10% level respectively while the Age variable is insignificant, which indicates that location does affect wage setting in rough as the model is too simple.

It is widely known that a CEO's pay could not be only explained by his personal characteristics but also affected by a firm's performance, as the CEO's pay is linked to the firm's normal operation. So in column (2), we add some performance measures to valuate the effect on wage in firm's level. Still Hdummy is significant at 1% level even despite adding some accounting measure variables. But for the new variables, ROE and EPS seem to be significant and make a positive effect while ROA and Profit (Profit ratio

in short) are insignificant. Again the Age variable, examining the working experience indirectly, is insignificant as well as the Degree.

With more extension in column (3), more characteristics of a firm have been concerned about, such as a firm's belongs and its size (including the number of employees and sales by year). Looking into column (3), we find that Hdummy, Lnsale and EPS are highly significant at 1% level in affecting the CEO's pay positively. While firms' scale of employees and control by central government make a significant negative effect on pay setting. Still other explanatory variables do not work in determining wage except ROE.

Finally, in the last column- we insert four new variables into our linear wage equation for CEOs, which contained a dummy variable to indicate a CEO's political status (Political in short), a firm's registered capital and some indicators to evaluate the IPO event (including total offer amount and cost ratio). Variables such as Lnnp, Lnoffer and Csale are statistically insignificant in the wage equation, where Lnnp represents the natural logarithm value of a firm's registered capital, Lnoffer represents the natural logarithm value of a firm's offering shares times its offer price per share through IPO and Csale represents the cost ratio that equaled to the actual IPO cost over annual sales. Those insignificant variables can then be used as instrumental variables to explain for location choice in Heckman two-step selectivity model. However, the variables that are significant in column (3) still remain the same effect on wage in column (4) significantly. Especially, the new variable, Political, gives a positive influence on pay setting.

In general, the location dummy variable is shown to be statistically significant at 1% level in all four columns, from which we could conclude that the effect of location choice on CEOs compensation does exist. Also the positive coefficient of Hdummy demonstrates that for a typical CEO, when other factors are controlled, entering into an H-share market could earn a higher wage, dominating a wage premium of “H-share” status. Such expected wage premium would be the motivation for CEOs to self-select into oversea market and therefore would induce endogeneity. If endogeneity exists, simple linear regression would be not appropriate to explain for the CEOs’ pay setting, as the location effect should be taken as the selective bias.

Moreover, the pay of a CEO in SOEs is not market driven in China as some indicators of performance measurement do not work. It makes more sense to run wage equations separately for A-share and H-share CEOs to match the different market situations. So we should better use the Heckman two-stage model to modify the wage determined equation.

6.2 HECKMAN TWO-STAGE SELECTION MODEL

Next, we turn to our Heckman two-stage selection model. In the model, first stage is to describe the determinants of the selected bias while in the second stage the selected observations form the wage equation under an appointed condition. Specifically, the Hdummy is the selective bias in our model.

From the conclusion made above, we keep all the explanatory variables in column (3) except Hdummy in the second stage to calculate the wage equation. For the selection stage, concerning Hdummy as the dependent variable, we use Political, Lnrp, Lnoffer and Csale as the instrumental variables for location choice. Although the variable Political appears to be significant in linear wage regression, when we put it into the second stage as a determinant for wage in the selection, it does not work. It is perhaps because of its little impact on wage. However, when we consider a location for listing, political connection seems to be mostly important as we discussed in the hypothesis part. Other variables like registered capital of the firm, the firm's offering amount and experienced cost in the IPO day are also necessary to determine the location, as they are all insignificant in the linear wage regression. So we pick up those four variables as the instrumental variables.

Table 4 and 5 describe the wage determination under H-share market and A-share market respectively.

For H-share status, a CEO's pay is positively related to a firm's annual sales and profitability, that a firm's performance could affect a CEO's compensation level in certain. Also higher education level gives an advantage to gain higher pay as the benchmark choice (omitted) of education level is bachelor and above. The coefficients of SOECG and EPS are both negative which is fit for the Chinese situation that a CEO belongs to a central government controlled firms usually has to obey the restriction on pay compensation as we mentioned before. Now we turn to the first stage of the selection model, which shows the procedure of self-selection into a special market, and we find that political connection is more related to a firm's location choice. If a typical

CEO were political connected, the firm would prefer listing on H-share market. Maybe it is attributed to the possibility that with political connection a firm could obtain the approval of H-share listing easier. Meanwhile compared to SOELGs, SOECG are more likely to list in H-share market. And the total IPO offer amount and ROE both make positive effect on choosing Hong Kong market, but a firm's registered capital and ROA both make negative effect on the "H-share" status. Nevertheless the cost rate and a firm's size (both the number of employees and the annual sales) do not affect the decision of location determined. Most importantly, the value of $\text{Ln}\sigma$ is significantly negative. This show that CEOs do self-select themselves to "H-share" status and selectivity does exist. This further proves our hypothesis of endogeneity.

For A-share status, the situation is different. In wage equation, annual sales, ROE and EPS all positively affect a CEO's pay while the number of employees negatively affects on pay. There seems to be no influence from SOECG, maybe because that now all the SOEs in sample are under the mainland market environment, so the CEOs of SOEs are all restricted on pay, no matter whether they belong to a SOECG or belong to a SOELG. Then as we turn to location determined equation, it is found that the coefficient sign of variables, which are significant in "H-share" status, are all opposite to the sign in "H-share" location determined equation and still significant in "A-share" status. In addition, the value of $\text{Ln}\sigma$ in A-share market is significant negative again, proving that selectivity exists.

Deriving from the Heckman selection model in different markets, we get the predicted wage for each CEO, naming LnH and LnA , which represented a typical CEO's wage in H-share market and the wage in A-share market respectively. Next we build a pay

differential for each CEO, which is defined as the differentials between the H-share predicted wage and the A-share predicted wage. We denote it D , which is equal to $\ln H$ minus $\ln A$.

In summary, we show the value of $\ln wage$, $\ln H$, $\ln A$ and D in Table 6. It is clear to say that pay differentials really exist due to different market conditions. D is equal to 1.042 on average, which shows that for a typical CEO, his wage in H-share market is nearly 10 times greater than his wage in A-share market equally.

6.3 LOCATION DETERMINED MODEL

Finally, in table 7, we show the Probit test of location choice. As it is shown, the wage differentials, political connection, total IPO offer amount and SOECG, ROE and profitability are all positively related to a firm's choice on H-share market, but ROE is negatively related to the H-share decision. Besides, all the control variables seem to be statistically significant and pointing to a direction to list aboard. However, the firm's registered capital does not work on location choice, as well as if a firm belongs to the financial industry.

In other words, the firms controlled by central government are much more eager to list aboard and the wage differentials do matter the location choice. All the effects are proven as what we expected before.

7. CONCLUSION

In the recent research on firm's choice of listing location, attentions are mainly paid at potential considerations at firm or country level, which draw the conclusion that the purpose of overseas listing is mainly related to raising funds through external financing or the desire of promoting firm's reputation in the global market. Such factors not be sufficient to explain the puzzle why many Chinese SOEs would like to choose Hong Kong as their IPO location even though the average P/E ratios of H-share firms is often significantly lower than that of A-share firms. There is hardly any literature considering about the potential influence of CEOs' compensation level on location choice. This thesis provides an empirical investigation on whether and how a CEO's pay would affect where a firm is listed using SOE firms from the Chinese mainland as our sample. By so doing, we not only can better explain the puzzle mentioned above but also provides a different angle to consider firms' IPO location choice.

Our empirical analyses aim to test two main hypotheses. First, we suggest that CEO pay, especially for SOE, may vary across different stock markets. More specifically, other things being equal, there may be a wage gap between CEOs of H-share vs. A-share firms. In other words, a wage premium may occur in H-share market. Second, in response to pay differentials across different markets, CEOs are more likely to self-select themselves into H-share market by listing their firms in there. This shows that a pay differential would lead to a preference to list in Hong Kong.

Indeed, the empirical results provide support to our claims. The wage premium actually existed in favor of H-share firms and as a result CEOs for SOE do tend to self-select themselves into H-share market. Such a finding is very plausible in the Chinese context in particular. CEOs of state-owned enterprises in China are often appointed by the government and are treated as government officials, especially for large SOEs. Hence, their pays are often benchmarked against certain level of government officials in China and hence may be significantly lower than the pay for similar CEOs in the private sector. By listing their firms abroad such as the Hong Kong stock market, this gives the CEOs an excuse to raise their pay more closely to the market level as Hong Kong follows free market rules and local board members and other staff hired by these SOEs listed in Hong Kong have to be paid at market rate. Our finding of CEO pay differentials in favor of H-share CEOs really confirms such a conjecture. The more interesting finding then is whether such a pay differential influences CEOs' listing decisions in a way that is driven by the private motives of these CEOs. Indeed, the finding here confirms it would induce CEOs' of state-owned enterprises to seek for listing in Hong Kong. Such a finding provides an additional and forceful explanation to the puzzle that many SOEs in China would like to choose to list in Hong Kong despite the factor their shares usually command lower prices here.

Our study still has the limitation as we only observe the Hong Kong stock market as the listing abroad location. In future, we could broaden the sample size by including other foreign stock markets, such as U.S., London and Singapore.

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APPENDIX

Figure 1. The Yearly Quantity of IPOs in A-share Market and H-share Market (1990-2011)

Figure 2. The Yearly Scale of IPOs in A-share Market and H-share Market (1990-2011)

Figure 3. The Yearly Quantity of SOE's IPOs in Percentage in A-share Market (1990-2011)

Figure 4. The Yearly Scale of SOE's IPOs in Percentage in A-share Market (1990-2011)

*: Offer Amount = Offering price per share * Total offering shares

Figure 5. The Yearly Quantity and Scale of SOECG's IPOs in A-share Market (1990-2011)

*: Offer Amount = Offering price per share * Total offering shares

Figure 6. The Yearly Quantity and Scale of SOELG's IPOs in A-share Market (1990-2011)

*: Offer Amount = Offering price per share * Total offering shares

Figure 7. The Yearly Quantity of SOE's IPOs in Percentage in H-share Market (1994-2011)

Figure 8. The Yearly Scale of SOE's IPOs in Percentage in H-share Market (1994-2011)

*: Offer Amount = Offering price per share * Total offering shares

Figure 9. The Yearly Quantity and Scale of SOECG's IPOs in H-share Market (1994-2011)

*: Offer Amount = Offering price per share * Total offering shares

Figure 10. The Yearly Quantity and Scale of SOELG's IPOs in H-share Market (1994-2011)

*: Offer Amount = Offering price per share * Total offering shares

Figure 11-15. The CEOs Yearly Average Pay for Listed Firms

(Figure 11 for Year 2004, Figure 12 for Year 2005, Figure 13 for Year 2006, Figure 14 for Year 2007 and Figure 15 for Year 2008.)

*: IPO Age= Pay Reporting Year – Listing Year

Figure. 13 CEOs Average Pay for firms listed in 2006

Figure.14 CEOs Average Pay for firms listed in 2007

Figure. 15 CEOs Average Pay for firms listed in 2008

Table 1.SOEs Cross-Listings in A-share Market and H-share Market

Number of firms	H>A	H=A	H<A*
SOECG	4	9	14
SOELG	3	6	23
SOE	7	15	37
Non-SOE	1	2	7
Total	8	17	44

*H represents for listing year in H-share while A is for listing year in A-share.

H>A means that listed in mainland before listing in Hong Kong;

H=A means that cross-listing occurred at the same year;

H<A means that listed in mainland after listing in Hong Kong.

Table 2.CEOs Average Pay in Three Groups

Variables	A-share Market			H-share Market		
CEO's Pay	Year	Mean	Std. Dev.	Year	Mean	Std. Dev.
(RMB thousand)	2009	521.74	588.67	2009	837.31	924.05
	2008	471.13	595.42	2008	733.48	630.41
	2007	437.13	534.85	2007	747.81	743.20
	2006	289.02	278.57	2006	601.24	602.40
	2005	250.03	243.11	2005	621.40	720.19
	2004	137.67	44.23	2004	623.83	700.28
	2003	110.22	42.77			
	2002	92.46	58.00			
	2001	78.20	66.63			
CEO's Pay base on ownership structure*						
(RMB thousand)	SOECG	445.31	452.87		649.12	581.45
	SOELG	382.82	489.34		833.32	1007.59
CEO's Pay base on industry						
(RMB thousand)	Ind1	414.22	337.93		522.48	1201.10
	Ind2	387.78	440.85		520.79	587.54
	Ind3	340.16	406.97		848.88	771.14
	Ind4	757.14	969.79		1474.25	277.69
	Ind5	338.01	348.66		999.57	1048.69

Ownership represents the actual controller of enterprises where SOECG stands for the SOE controlled by central government and SOELG stands for the SOE controlled by local government.

*The CEO's pay base on ownership structure (mean and standard deviation) is for the whole period.

Ind1-IT & Energy

Ind2-Utilities & Health Care

Ind3-Raw Materials & Industry

Ind4-Financial Industry

Ind5-Daily & Non-Daily Consumption

Table 3. The Definition of Variables

Variables	Definition
Hdummy	Dummy Variable, if the firm listed in H-share Market, equal to 1, otherwise, 0.
Political	Dummy Variable, if the CEO is Political Connected, equal to 1, otherwise, 0.
Lnrp	$Lnrp = \ln(\text{the firm's registered capital})$
Lnoffer	$Lnoffer = \ln(\text{the firm's offering price per share} * \text{total offering shares})$
Csale	$Csale = \text{IPO Cost} / \text{the firm's annual sales}$
SOECG	Dummy Variable, if the firm is controlled by central government, equal to 1, otherwise, 0.
Lnsale	$Lnsale = \ln(\text{the firm's annual sales})$
Lnsiz	$Lnsiz = \ln(\text{the firm's yearly number of employees})$
ROA	Return on Asset (Yearly)
ROE	Return on Equity (Yearly)
EPS	Earning per share (Yearly)
Profit	$\text{Profit} = \text{Net Profit} / \text{the firm's annual sales}$
Age	$\text{Age} = \text{CEO's Pay Reporting Year} - \text{CEO's Birth Year}$
Age2	$\text{Age2} = \text{Age} * \text{Age}$, the square of Age.
Degree	Dummy Variable, if the CEO obtained a bachelor degree or above, equal to 1, otherwise, 0.
Year	the exact number of CEO's Pay Reporting Year
Ind1	IT & Energy Industry
Ind2	Utilities & Health Care Industry
Ind3	Raw Materials & Industrial Industry
Ind4	Financial Industry
Lnwage	$Lnwage = \ln(\text{the CEO's annual pay})$
LnH	$LnH = \ln(\text{the CEO's predicted annual pay in H-share Market})$
LnA	$LnA = \ln(\text{the CEO's predicted annual pay in A-share Market})$
D	$D = LnH - LnA$, the CEO's predicted pay differential.

Table 4.The Empirical Results of Linear Wage Equations

Variables	(1) Lnwage	(2) Lnwage	(3) Lnwage	(4) Lnwage
Hdummy	0.552*** (0.169)	0.544*** (0.143)	0.505*** (0.129)	0.403*** (0.141)
Political				0.182** (0.078)
Lnrp				0.054 (0.047)
Lnoffer				0.009 (0.046)
Csale				-0.057 (0.295)
SOECG			-0.199* (0.107)	-0.197* (0.110)
Lnsale			0.290*** (0.030)	0.265*** (0.036)
Lnsiz			-0.119*** (0.032)	-0.133*** (0.033)
ROA		-0.002 (0.00429)	-0.0002 (0.003)	8.38e-05 (0.004)
ROE		0.004*** (0.002)	0.003** (0.001)	0.003** (0.001)
EPS		0.542*** (0.071)	0.363*** (0.061)	0.357*** (0.061)
Profit		-0.000877 (0.001)	-0.000684 (0.001)	-0.000790 (0.001)
Age	0.00969 (0.0524)	-0.028 (0.048)	-0.042 (0.047)	-0.045 (0.047)
Age2	0.0001 (0.001)	0.0004 (0.0005)	0.0005 (0.0005)	0.0005 (0.0005)
Degree	0.196* (0.101)	0.125 (0.096)	0.005 (0.090)	-0.016 (0.090)
Year	0.176*** (0.012)	0.158*** (0.012)	0.133*** (0.012)	0.137*** (0.012)
Ind1	0.122 (0.132)	0.079 (0.127)	0.125 (0.122)	0.138 (0.125)
Ind2	0.077 (0.121)	0.056 (0.113)	0.167 (0.104)	0.177* (0.105)
Ind3	0.046 (0.088)	0.003 (0.082)	-0.042 (0.076)	-0.030 (0.077)
Ind4	0.497*** (0.171)	0.413*** (0.150)	0.363*** (0.136)	0.307** (0.149)
Constant	-342.8*** (24.29)	-304.1*** (23.19)	-258.3*** (23.59)	-267.4*** (24.41)
Observations	2,335	2,335	2,335	2,335
R-squared	0.136	0.237	0.313	0.319

Robust standard errors in parentheses : *** p<0.01, ** p<0.05, * p<0.1

Table 5.The Result of Heckman Selection Model in H-share Market

Variables	(1) Lnwage	(2) Hdummy
Political		0.981*** (0.205)
Lnrp		-0.336* (0.192)
Lnoffer		0.645*** (0.166)
Csale		2.048 (1.373)
SOECG	-0.828** (0.341)	0.470** (0.239)
Lnsale	0.417** (0.179)	0.0241 (0.132)
Lnsize	-0.0102 (0.222)	0.0485 (0.0817)
ROA	0.0403 (0.0249)	-0.0324** (0.0137)
ROE	-0.00119 (0.0105)	0.0127*** (0.00413)
EPS	-0.219** (0.105)	-0.00774 (0.214)
Profit	-0.00523*** (0.00195)	0.000915 (0.00307)
Age	-0.204 (0.305)	0.310* (0.163)
Age2	0.00111 (0.00288)	-0.00312** (0.00156)
Degree	1.547*** (0.594)	0.649 (0.413)
Year	-0.0531 (0.0660)	0.0365 (0.0370)
Ind1	-0.456 (0.648)	1.381*** (0.413)
Ind2	-0.352 (0.762)	1.013** (0.458)
Ind3	-0.961 (0.722)	0.912*** (0.352)
Ind4	-0.212 (0.738)	-1.155 (0.801)
Constant	117.8 (132.3)	-91.46 (73.11)
Athrho	-0.308(0.225)	
Lnsigma	-0.187*(0.199)	
Observations	124	124

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 6.The Result of Heckman Selection Model in A-share Market

Variables	(1) Lnwage	(2) Adummy
Political		-0.984*** (0.212)
Lnnp		0.326* (0.194)
Lnoffer		-0.652*** (0.168)
Csale		-2.023 (1.368)
SOECG	-0.168 (0.114)	-0.463* (0.238)
Lnsale	0.289*** (0.0310)	-0.0174 (0.132)
Lnsize	-0.121*** (0.0323)	-0.0436 (0.0815)
ROA	-0.00147 (0.00358)	0.0319** (0.0138)
ROE	0.00265** (0.00120)	-0.0123*** (0.00421)
EPS	0.388*** (0.0624)	0.00364 (0.215)
Profit	-0.000643 (0.000743)	-0.000757 (0.00316)
Age	-0.0505 (0.0462)	-0.309* (0.162)
Age2	0.000590 (0.000448)	0.00311** (0.00156)
Degree	0.000863 (0.0904)	-0.644 (0.413)
Year	0.141*** (0.0115)	-0.0358 (0.0370)
Ind1	0.118 (0.127)	-1.356*** (0.417)
Ind2	0.176* (0.106)	-0.996** (0.459)
Ind3	-0.0429 (0.0768)	-0.893** (0.352)
Ind4	0.349** (0.137)	1.165 (0.809)
Constant	-274.2*** (22.89)	90.07 (73.04)
Athrho	0.0658(0.143)	
Lnsigma	-0.171*** (0.0275)	
Observations	2,211	2,211

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 7.The CEO's Predicted Wage in H-share Market and A-share Market

Variable	Obs	Mean	Std.Dev.	Min	Max
Lnwage	2335	12.42332	1.030578	9.392662	15.79477
LnH	2335	13.43476	1.118449	9.615799	17.07791
LnA	2335	12.39313	0.5688072	10.39169	15.33087
D	2335	1.041621	1.125575	-2.62776	4.90614

Table 8.The Result of Probit Test

Equation	Variables	(1) Hdummy
Hdummy	D	0.531*(0.298)
	Political	1.007*** (0.207)
	Lnrp	-0.249(0.186)
	Lnoffer	0.687*** (0.170)
	SOECG	0.824*** (0.316)
	Lnsale	-0.199*(0.121)
	ROA	-0.0612*** (0.0199)
	ROE	0.0147*** (0.00418)
	EPS	0.332(0.301)
	Profit	0.00718*** (0.00257)
	Age	0.409** (0.178)
	Age2	-0.00353** (0.00160)
	Year	0.145** (0.0614)
	Ind1	1.725*** (0.457)
	Ind2	1.311*** (0.500)
	Ind3	1.388*** (0.447)
	Ind4	-0.964(0.838)
	Constant	-310.2** (123.9)
	Observations	2,335

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1