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Joseph K. W. Fung and Sanry Y. S. Che

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Initial Day Return and Underpricing Cost in Advance Payment Initial Public Offerings

Joseph K. W. Fung*

Hong Kong Baptist University

Hong Kong Institute for Monetary Research

and

Sanry Y. S. Che

Hong Kong Baptist University

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Abstract

Hong Kong represents the second largest of the initial public offering (IPO) markets that adopt an advance payment subscription procedure. The lengthy process creates substantial financing costs to investors but interest earnings to issuers. Data from a sample of 386 IPOs listed between 2000 and 2007 reveals that interest cost can reduce the return to public subscribers by 44%; while the HIBOR-based interest earnings to issuers are estimated at 0.59% of funds raised, and at 6.27% of forecast earnings. Consistent with Agarwal, Liu, and Rhee (2008), the realized subscription rate strongly influences returns but the link weakens at higher interest rates. Interest earnings and underpricing are highly correlated, a finding in support of Chowdhry and Sherman's (1996) proposition. However, the proposition is deemed irrefutable as both underpricing and interest earnings are highly related to the subscription rate. Moreover, regression results show that the relationship between the subscription rate and offer price of H-shares and red-chips are indistinguishable from other issues. These results cast doubt on the common conjecture that the management of China-related enterprises are more likely to underprice their offerings than the managers of other enterprises. The higher returns to H-shares and red-chips can be attributable to the higher public demand for large issues.

*Corresponding author.

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1. Introduction

The Hong Kong IPO market was ranked second in the world surpassing New York and behind only London with HK$333.9 billion (US$42.8 billion) of new equity capital raised in 2006 (Hong Kong Securities and Futures Commission, 2007). In sharp contrast to the US and European markets, Hong Kong adopts a non-discretionary allocation process and subscribers are required to pay in advance for the shares they apply for.[1] Australia, China, Korea, and the UK also use an advance payment process.

The distribution process is meant to allow individual investors fair participation in the IPO market but the process is lengthy and lasts from one to three weeks. For hot issues that are many hundred times over-subscribed, even successful applicants are allocated only a small fraction of the shares they applied for and are refunded the excess application funds but without interest. Subscribers have to bear the full financing (or opportunity) cost of funding their bids even though they many not be successful. As a result, the all-in-cost per allotted share is above the offer price, and increases with interest rates, length of distribution period, and the (over-) subscription rate.

In an efficient capital market, this cost should be embedded in the "nominal" initial day return measured against the offer price. The nominal return is therefore a positively biased measure of the actual return to subscribers. The nominal initial day returns of countries that adopt the advance payment method should be above those that do not, making it difficult to compare international IPO returns unless the incremental cost due to the advance payment process is properly accounted for.

Extending Fung, Cheng, and Chan (2004), this study carefully accounts for the financing cost of Hong Kong IPOs and provides estimates of the actual initial day returns to subscribers for the period 2000 to 2007. The period reflects distinctively different issuing practices compared to those contained in previous studies; for instance, a large percentage of recent IPOs postpone the fixing of the issue price until after the subscription information is revealed.

The allocation process provides a unique method of assessing the potential demand for an IPO. Agarwal, Liu, and Rhee (2008) use the (over-) subscription rate as a proxy for the latent excess demand. They find a significant positive relationship between the IPO return and the subscription rate. The study, however, does not control for the direct impact of the subscription rate on the financing cost. This study assesses the impact of the excess demand on the actual return to subscribers after controlling for the financing cost. This study also controls for the effect of the claw-back mechanism, introduced in 1998, on potential excess demand.

[1] Markets that require advance payment usually also adopt a non-discretionary allocation mechanism. However, some countries like the Netherlands and Taiwan use a non-discretionary system but do not require payment in advance.

The lock-up period of the application fund increases the cost to subscribers but provides interest earnings to issuers. Chowdhry and Sherman (1996) argue that underpricing can be induced by the prospective interest earnings that accrue to issuers. However, underpricing also affects the capital raised from overseas placements that do not require advance payment and hence do not provide an opportunity to earn interest. The study shows that the underpricing cost to the issuer is reflected in the weighted average return to public, employee, and overseas investors after controlling for the financing cost to subscribers. Therefore, the interest earnings from public and employee subscribers are limited relative to the total offer size if a majority of funds are raised from overseas placements. The study provides an empirical assessment of the importance of the interest earnings on the overall underpricing cost. The study also estimates the amount of money left on the table net of interest earnings by different issuers.

As a corollary to Chowdhry and Sherman's argument, it has been a popular conjecture that since H-shares and red-chips are wholly or majority owned by the Chinese state government, incumbent managements are more inclined to underprice their issues. The idea is that the senior management of a state-owned enterprise or a red-chip is unlikely to derive substantial marginal benefits by maximizing the issue price whilst interest generated by large over-subscription boosts the company's income and benefits the management. Hence, these two types of IPOs should provide abnormal returns to subscribers. The study estimates the potential magnitude of the interest income to different companies and tests whether the abnormal returns (if any) of these IPOs can be explained by other factors.

This paper contributes to the literature in a number of ways. The study extends Fung, Cheng, and Chan (2004) and examines a more recent period affected by a number of important institutional changes in the Hong Kong IPO market. The paper explores how the demand factor might affect the initial day return after controlling for the financing cost. It also provides an empirical evaluation of Chowdhry and Sherman's conjecture that underpricing can be induced by the prospective interest earnings from subscription funds that are lodged with the issuers' nominee account. The study tests explicitly whether share type and other company specific factors affect the level of underpricing. The test sheds lights on the popular conjecture that senior management intentionally underprice H-share and red-chip IPOs to benefit themselves at the expense of shareholders' interests. The current study examines IPO returns to employee subscribers for issues that offer an employee tranche, and provides measures of the underpricing cost and money left to the investors after factoring in the issuers' potential interest earnings.

2. Literature Review

IPOs are generally underpriced. Loughran, Ritter, and Rydqvist (2008) survey IPOs covering a total of 44 countries. The survey shows that every one of the 44 markets recorded positive average initial day returns. The level of underpricing varies across countries, with average initial day return ranging from

4.2% in Russia to 164.5% in China.[2] These IPO returns are calculated with reference to the offer price and are referred to as the nominal return in this paper.

2.1 Advance Payment and Underpricing of IPOs

The US and European markets generally adopt the discretionary approach in which the selling agent(s) can allocate shares on the same day of listing to their preferred (or chosen) clients immediately upon the customers' consent. Subscribers in these markets commit to pay for the shares only when they know how many shares are allocated to them. However, UK and many current or former Commonwealth markets including Hong Kong adopt a non-discretionary allocation process which requires upfront payment of the subscription price. Figure 1 below shows the major events that affect public subscribers prior to listing for a typical Hong Kong IPO.[3]

Copies of the prospectus are distributed through various channels such as branch offices of the nominee bank from the announcement day. Investors are given a few days to consider the offer before the subscription deadline. The offer price of an IPO may be fixed on the announcement day but most recent IPOs announce a price range in the prospectus and then fix the offer price when the demand is revealed after collecting the applications.

2.2 Financing Cost to Subscribers and Underpricing

When submitting an application, subscribers have to pay in full for the total number of shares requested in the application.[4] For over-subscribed issues, a lottery is used to determine who receives an allocation and by how many shares. Unsuccessful applications receive full refunds (in lieu of interest); and successful applicants are refunded (also without interest) the excess of the application amount over the value of the shares allocated to them. The allocation mechanism is intended to provide fair participation in the IPO market but the process is length and subscribers may incur significant financing cost for the shares they secure. Fung, Cheng, and Chan (2004) argue that the nominal initial day return which is measured against the offer price does not reflect the actual return to subscribers since the return contains compensation for the financing cost to subscribers.

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[2] There are many existing theories on why IPOs are underpriced. Rock's (1986) "winners' curse" hypothesis argues that because of information asymmetry IPOs have to be underpriced to attract uninformed investors. Another popular theory is the agency problem between underwriter and issuer. Against the interest of the issuer, the underwriter underprices an IPO to reduce the risk of under-subscription. This conjecture is supported by Habib and Ljungqvist's (2001) findings that it is often less costly to market underpriced IPOs. Please refer to Ritter and Welch (2002) for a thorough review of the theory and evidence on IPO underpricing.

[3] Some issuers offer a separate tranche for employee subscribers. The process is identical to that for public subscribers except that a separate lottery is used.

[4] The top of the price range is used to calculate the application money for issues that fix the offer price after the subscription deadline. The fund tendered in an application also includes commission, exchange charges and other fees which amount to around 1% of the share value.

The nominal initial day return to Hong Kong IPOs has been estimated at 16.36% between 1980 and 1990 (McGuinness 1993); 20.76% between 1993 and 1997 (Agarwal *et al*. 2008); 16.58% between 1996 and 2000 (Cheung and Liu 2007); and 15.9 % between 1980 and 2006 (Loughran, Ritter, and Rydqvist 2008). Fung, Cheng, and Chan (2004) show using data from 1993 to 1995 that the actual return can be substantially below the nominal return once the financing cost is factored in. The nominal return in their period was 19.5% but the estimated (actual) initial day return drops to 12.4% after adjusting for the deposit rate of interest (representing the minimum opportunity cost of capital to subscribers). For investors who use borrowed funds at the prime lending rate, the return drops to 7.1%. The results show that the nominal (offer-to-close) return is an upward biased estimate of the actual return to subscribers as a result of the non-discretionary allocation mechanism that requires advance payment; and the nominal return contains compensation for the financing cost. Therefore, it is important to adjust for the subscription-related cost when comparing IPO returns across different markets.[5]

2.3 Interest Earnings to Issuer and Underpricing

The cost to subscribers is a potential benefit to issuers. Issuers receive interest earnings with the application funds that are lodged in their nominee bank accounts.[6] Chowdhry and Sherman (1996) argue that interest earnings reduce the underpricing cost to issuers, and even encourage them to underprice the issue to induce over-subscription. Leung and Menyah (2006) examine 163 Hong Kong IPOs for the period 1994 and 1998 and estimate the average interest income to an issuer from application funds at HKD 41.4 million and HKD 63.2, using deposit rate and prime rate, respectively, amounting to 1% of the initial day firm value.

Fung, Cheng, and Chan's financing cost and Chowdhry and Sherman's arguments both predict higher nominal initial day returns to IPOs in markets adopting the non-discretionary (payment in advance) allocation mechanism. The following table extracts and pools the results from Loughran, Ritter, and Rydqvist (2008) and Jagannathan and Sherman (2006) and examines the possible linkage between the average IPO return of a country and advance payment from subscribers. Eighteen countries including the UK, and China in the combined sample require advance payment, 12 countries including the US and Germany do not. The mean of the average country returns is 39.7% for markets that require advance payment, significantly greater than the 16.5% for the market group that does not require advance payment. The difference between the two means is statistically significant at the 5% level.

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[5] The risk to subscribers is also higher under the advance payment non-discretionary allocation process. Besides facing uncertainty with respect to whether they will be allocated any shares, subscribers commit funds to buy the IPO from one to three weeks before the listing day although the risk is partly alleviated by offer price adjustment. Hence, the IPO return in these markets should also contain a higher risk premium.

[6] Low (2007) examines the case of Tianjin Prot Development Holdings Limited. The subscription rate for the issue was 1703 times, which set a new record for Hong Kong IPOs. The deadline of application to refund day was 6 days. The company received HKD 187 billion (USD 23.8 billion) of application money and earned an estimated HKD 95.3 million of interest.

2.4 Agency Problems Associated with China-Related IPOs

Following the economic reforms in Mainland China (China in short), two important share types that are closely affiliated with the Chinese government are listed on the HKEx. State-owned enterprises (SOEs) registered in China are listed in Hong Kong as H-shares; and companies that are registered outside China but have strong backing from the Chinese government are identified as China-affiliated enterprise or red-chips. The largest shareholder of both types of companies is the Chinese government. Senior management and key board members of H-share companies are appointed by the State. Even for red-chips, the senior management and the directors are rarely substantial shareholders. Since the senior management and the board are closely involved in the IPO process, the agency problem embedded in the management structure may bias downward the offer price.[7]

A corollary to the proposition of Chowdhry and Sherman (1996) in relation to H-share and red-chip listings is that at flotation the interest earnings from advance payment increase with the (over-) subscription rate and boost the first year profit for the enterprise. Hence, senior management has an incentive to further underprice the IPO since they may benefit directly from better earnings results.

However, Fung, Gul, and Radhakrishnan (2007) argue that underwriters for China-related IPOs tend to reduce the underpricing level in order to gain future repeat business. They find for 1993-2003, that H-share IPOs have lower first day returns and a higher offer price compared to other Hong Kong IPOs. Carty and Steen's (2006) study for the period August 1995 to July 1999, however, concludes that the return to H-share IPOs is positive but not significant.

2.5 Excess Demand and IPO Return

In contrast, the initial day return to an IPO is expected to be positively related to the excess demand for it. Using the subscription rate as a proxy for the latent excess demand, Agarwal, Liu, and Rhee (2008) find that for Hong Kong IPOs between 1993 and 1997, the nominal initial day return is significantly and positively related to the subscription rate. However, as shown by Fung, Cheng, and Chan (2004), the financing cost increases with the (over-) subscription rate. Higher subscription rates indicate higher demand but also increase the all-in-cost per share to investors. Therefore, it is important to control for the financing cost before examining the relationship between the subscription rate and the initial day return. Moreover, under the claw-back mechanism introduced by the HKEx in 1998, issuers have to increase the allocation to public subscribers for highly over-subscribed issues. This study uses the realized subscription rate based on the final allotment after adjusting for the claw-back (if any) instead of the nominal subscription to assess the potential excess demand.

[7] Mok and Chau (2003) study the corporate performance of H-share and red chip companies and find that these two types of companies are less profitable than the fully privatized blue chips due to the agency problem. See also Aharony, Lee, Wong (2000).

3. Data

The sample contains 386 IPOs listed on the main board of the Hong Kong Exchange and Clearing Ltd. (HKEx) between January 2000 to and December 2007.[8] The study excludes IPOs listed by Introduction, issues resulting from a switch from the Growth Enterprise Market (GEM) to the Main Board, IPOs of Exchange-Traded tracker funds (ETFs), Real Estate Investment trusts (REITs), and the 6 Unit IPOs listed during the period.[9]

Information on the offerings such as the deadline for application, listing date, refund date, and subscription price, etc. are collected from the HKEx website. The data is compared with the HKEx Fact Books to check for errors and omissions. The closing prices of the stocks on their listing (or first trading) day and the Hang Seng Index (HSI) during the sample period are retrieved from Datastream. Deposit interest rates, overnight HIBOR, and the best lending rate (prime rate) are obtained from the Hong Kong Monetary Authority (HKMA) website. For the period, deposit rate, HIBOR, and Prime, on average are 1.55%, 2.68%, and 6.62%, respectively.

The study divides the issues into three types; namely, H-shares, red-chips, and others for those that do not belong to the first two categories. Table 2 shows the yearly breakdown of these three types of issues for the period. Panel A shows that the number of new issues rises steadily from 2003. 15.5% of these listings are H-shares, and 5.7% are red-chips. Panel B shows that a majority (56.5%) of these IPOs are classified as industrial companies.[10]

Table 3 shows the total capital raised by these IPOs amounted to HKD 1,115 billion (USD 143 billion). Panel A shows that H-shares capture the majority (59.4%) of the new capital; moreover, 87% of the funds in 2006 were raised by H-shares. Red-chips capture 13.1% of the total. Although most listings are classified as industrial, panel B shows that Finance IPOs have the highest share (38.9%) of the total new capital.

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[8] Hong Kong IPOs can be issued via a pure placing or a double tranched mechanism. In a pure placing mechanism, there is only a placing offering; there are both placing and public offering in a double-tranche mechanism. Professional, institutional and private investors are allowed to subscribe either through the placing or public share offer. The general public subscribes through the public offering. In addition to overseas placement and public subscription, issuers can offer shares to employees separately. The number of shares allocated to employees is always from the public tranche. This paper focuses on the subscription cost to the public and employee subscribers and the overall underpricing cost to issuers after adjusting for interest income. Therefore, only IPOs issued using the double tranched mechanism are studied.

[9] Units are IPOs with warrants attached and are typically small in market capitalization. The HKEx raised in 1994 the minimum market value requirement from HKD 50 million to HKD 100 million and introduced Growth Enterprise Market (GEM) in 1999 to accommodate these companies. These changes resulted in a drastic decline in unit listings on the main board. The 6 unit IPOs capture only 0.3% of total fund raised during the period, and they are dropped from the sample to simplify the analysis. Interested readers may refer to Che (2009) for details related to these 6 unit IPOs.

[10] In 2008, the HKEx switched to a new industrial classification system (i.e., the Hang Seng Industry Classification System (HSICS) and listed companies were re-classified into eleven industries. The old system only contains seven categories. The study follows the pre-2008 classification.

Panel A of table 4 shows that the average amount raised is HKD 2,889 million (USD 370 million); and that the average size of H-share and red-chip IPOs are about 11 and 6.6 times the size of the others category, respectively.[11] Panel B, C, and D show the distribution among the three major funding sources – public subscription, employee subscription (if available), and overseas placement.[12] Overall, 80% of the total is raised from overseas placement and 20% through public subscription. An employee tranche is available in 122 offers and employees account for just a tiny portion of the total funds raised (0.1%). H-shares do not offer an employee subscription tranche. Funds from overseas placement account for a higher percentage for both H-shares (85.7%) and red-chips (78.3%) compared to the others category (69.3%). Apparently, large IPO issues rely more heavily on funding from overseas institutional investors.

Table 5 shows the distribution of the subscription funds lodged with these IPOs.[13] The total subscription funds over the 8-year period amounts to HKD 11,953 billion (USD 1,532 billion). The total subscription amount is over 50 times the actual funds raised from public and employee tranches indicating that Hong Kong IPOs are highly over-subscribed.

Table 6 shows the distribution of both "nominal" and "realized" subscription rates. The nominal subscription rate is simply equal to the number of shares subscribed divided by the planned offer size. When issues are highly over-subscribed, it may trigger the claw-back mechanism introduced by the exchange in 1998. When the claw-back mechanism is triggered, issuers have to increase the allocation to the public tranche.[14] The realized subscription rate is the ratio of the number of shares subscribed by the public divided by the actual number of shares being allocated to the public tranche.

Panel A in table 6 shows that the nominal subscription rate is on average 126 times; and only 4% of IPOs are under-subscribed. Red-chips attract the highest public investors' interest (263 times subscribed); and H-shares the second highest (212 times). Even IPOs in the others category are on average over-subscribed nearly 100 times. The exercise of the claw-back mechanism lowers the realized subscription rate substantially below the nominal subscription rate. The realized subscription rates for H-shares and

[11] The largest IPO listed in Hong Kong for period is the Industrial and Commercial Bank of China – H share (code: 1398). It had raised HKD 125 billion (USD 16 billion) which accounts for 38% of total funds raised in 2006.

[12] These figures represent the actual funds raised from public subscribers and overseas investors after adjusting for the claw-back mechanism and the additional shares issues with the exercise of the over-allotment option. The over-allotment option of underwriters may increase the issue size to at most 15% of the planned offer. Shares from the exercise of the over-allotment option are generally distributed to the placing tranche.

[13] There is no subscription fund from the placing tranche.

[14] This policy has been adopted since 1998. As stipulated by the Hong Kong Exchange, the number of shares allocated to public subscribers in an IPO must be at least 10% of the total issue size. Most issuers allocate only 10% to the public tranche in the planned offer; however, more shares can be reallocated from the overseas (placing) tranche to the public tranche through the clawback mechanism prescribed by the exchange. Under the clawback mechanism 30% of the total planned offer size has to be allocated to the public for a subscription rate between 15 and 50 times. The percentage is increased to 40% if the subscription rate rises between 50 and 100 times; and finally to 50% if the subscription rate is over 100 times. Companies can apply for a waiver and use a different reallocation method when the issues are oversubscribed. However, most of the companies in this study follow the prescribed rule. The clawback mechanism affects only the distribution between the public and overseas tranches and does not affect the allocation to the employee tranche.

red-chips are 46.99 and 62.77, respectively. Panel C shows that the employee subscription rates are generally low and the average is below 1 (0.98 times).

Table 7 shows the time lags among major event days before listing. It shows that it takes around 12.2 days on average from the announcement of an offer to listing. For highly over-subscribed issues, the majority of subscription monies is locked-up between the deadline for applications and the refund day, a period of around 6 days. After the refund day, funds for the allotted shares are locked-up for another 5 days assuming that the investor sells the shares on the listing day. The length of time between the price fixing day and the listing day affects the market exposure to subscribers. Over 60% of the issuers choose to announce an offer price range and fix the price after collecting the applications. The time lag between price fixing and listing days is 6.7 days, whereas for issues that fix the price on the announcement day the time lag is 8.3 days.

4. Methodology

4.1 The All-in-Cost for Public Subscribers

Similar to Fung, Cheng, and Chan (2004), the model assumes that the 'representative' public subscriber sells all the allotted shares on the first trading day.[15] Since subscribers are required to deposit funds based on the top of the price range for issues that do not fix the offer price before the application deadline, the per share all-in-cost per successful share to the investor valued on the settlement day t_s can be written as:[16]

$$C_{t_s} = \frac{1}{q}[P_{\max}(1+f_1)\prod_{i=t_d}^{t_r-1}(1+\frac{r_i}{365}) - \{P_{\max}(1+f_1) - qP_s(1+f_1)\}\prod_{j=t_r}^{t_s-1}(1+\frac{r_j}{365}) \quad (1)$$

where C_{t_s} is the all-in-cost per successful share; P_s is the offer price of the issue; t_d is the deadline for applications; t_r is the refund day; t_l is the listing day; q is the *ex-post* probability of success for the representative public subscriber and is equal to the actual issue size to the public (after adjustment for clawback, if any) divided by the total number of shares applied for by the public. q is equal to one for under-subscribed issues. f_1 is the transaction cost associated with subscribing for an IPO;[17] r_i represents

[15] In a typical Hong Kong IPO, shares can be rationed unevenly across different public allotment categories which are delineated by the application size. To simplify analysis and exposition, the representative investor represents the entire group of public subscribers. Please refer to Cheng, Chan, and Mak (2005) for details on the allotment classes.

[16] The equation is largely similar to equation (1) in FCC except that the offer price is being replaced by the top of the price range here.

[17] The trading costs for subscribing to an IPO include brokerage fees, SFC transaction levy and the Exchange trading fee. The costs are expressed as a percentage of the application money and stated in the prospectus. They range from 1.009% to 1.012% in the study period.

the appropriate interest rate for the particular day *i*.[18] P_{max} is the top of the offer price range. Since the subscription process is largely the same for employee subscribers where issues have an employee tranche, the all-in-cost for an employee share can be obtained by replacing the public's ex-post probability of success with that of the employees.

The initial day return to public subscribers is written as:

$$R = \frac{P_l(1-f_2) - C_{t_s}}{P_s} \tag{2}$$

where f_2 is the transaction cost associated with selling the shares.[19] This measure is comparable to the conventional measure.[20]

4.2 Market Adjusted Initial Day Return

To adjust the return due to market movements between the price fixing day and the listing day, the market adjusted return is calculated as:

$$MAR = R - \frac{I_l - I_f}{I_f} \tag{3}$$

where I_l and I_f represent the Hang Seng Index (HSI) on the listing day and on the price fixing day (or the prospectus day if the issue is announced with a fixed offer price), respectively. It is implicitly assumed that the market movement between the application deadline and the price fixing day is largely offset by adjustment of the offer price.

4.3 Weighted Average Initial Day Return of an IPO and the Underpricing Cost to Issuer

The weighted average return of an IPO with overseas placement, and public (and possibly employee) tranches is defined as:

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[18] By setting all interest rates to zero, the all-in-cost of fund per share without the financing cost is equal to $P_s(1+f_1)$.

[19] f_2 is composed of a minimum commission of 0.25%; investor compensation levy of 0.002%; stamp duties of 0.1%; transaction levy of 0.004% (0.005% before Dec, 2006); trading fee of 0.005%; $0.5 trading tariff and $5 transfer deed stamp duties. In this paper, the total cost for selling the share is assumed to be 0.365% of the sale transaction value. (The brokerage commission is negotiated after 1 April 2003. Investor compensation levy was suspended from 19 December 2005.)

[20] FCC uses the subscription cost as the denominator. Using the offer price as denominator makes the results more comparable to the conventional nominal return measure.

$$WAR = R_0 \times w_o + R_p \times w_p + R_e \times w_e \quad (4)$$

where *w* represents the percentage of funds raised from the particular funding source; and $w_o + w_p + w_e = 1$. The weighted average return of an issue largely mirrors the underpricing cost to the issuer. Higher financing cost due to perhaps higher interest rates and/or a longer distribution period lowers the return to subscribers but raises the issuer's interest earnings. Therefore a lower subscribers' return is synonymous with a lower underpricing cost to the issuer for the public float. Overseas placement captures the majority of the issue but does not provide a bank float to the issuer.[21] Hence, the relationship between the return to subscribers after adjusting for financing cost and the underpricing cost to issuers for the overall issue is blurred by the importance of the placement tranche. The larger the overseas placement tranche, the smaller the interest earnings from the public float in the issue as a percentage of total funds raised.

4.4 Potential Interest Earnings from Subscription Monies

An issuer earns interest from the subscription monies lodged in the nominee's accounts. Assuming that the issuer pays the transaction costs to the Exchange on the refund day,[22] the total potential interest earnings to the issuer can be calculated as follows:

$$\{N \times P_{\max} \times (1+f_1) \prod_{i=t_d}^{t_r-1} (1+\frac{r_i}{365}) - [N \times P_{\max} \times (1+f_1)] + nP_s\} \prod_{j=t_r}^{t_l-1} (1+\frac{r_j}{365}) - nP_s \quad (5)$$

where *N* is the number of shares subscribed by public and employee subscribers and *n* is the number of shares allotted to them after an adjustment for clawback.

4.5 Underpricing Cost to Issuer

With the assumption that the issuers pay the transaction costs to the Exchange and to the selling agent on the refund day, the total proceeds per share allocated to public and employee subscribers inclusive of interest earnings obtained by the issuer is equal to:

$$P'_s = \frac{1}{Q}[P_{\max}(1+f_1) \prod_{i=t_d}^{t_r-1} (1+\frac{r_i}{365}) - \{P_{\max}(1+f_1) - qP_s\} \prod_{j=t_r}^{t_l-1} (1+\frac{r_j}{365}) \quad (6)$$

[21] Overseas subscribers have to pay for the shares immediately before the listing day. The potential interest earnings from this short duration are ignored in this study.

[22] Appendix 8 of the Listing Rules stated that issuers shall pay the transaction levy and trading fee to the Exchange before dealings commence. For simplicity, it is assumed that issuers pay out the transaction cost on the refund day.

Q represents the ratio of total allotment of public and employee tranches to total (public and employee) subscription, or the probability of success across the public and employee tranches. The underpricing cost to the issuer (percentage of the offer price) for the public and employee tranches is:

$$U_{pe} = \frac{P_l - P_s'}{P_s} \tag{7}$$

Combined with the underpricing cost U_o due to overseas placement, the overall underpricing cost to the issuer is a weighted average of the underpricing cost to subscribers and overseas tranches and is equal to

$$WAU = U_o \times w_o + U_{pe} \times w_{pe} \tag{8}$$

where U_o is the IPO's nominal return and w is the weighting of the funds raised from the corresponding tranche (w_o+ w_{pe} =1).[23]

5. Empirical Results and Interpretations

Table 8 shows the distribution of initial day returns with and without adjustment for the financing cost. The average nominal return is 12.02%. The average nominal returns to H-shares, red-chips, and others are 20.08%, 14.05%, and 10.28%, respectively. Both H-shares and red-chips have higher average returns than the others category. T-tests show that the difference between the H-share and the others category is significant at the 5% level but the difference between red-chip and the others category is not statistically significant. The H-shares difference is robust for different interest rate levels.

The second column shows the number of IPOs that are underpriced relative to the number of IPOs that are overpriced. Specifically, 273 out of the 386 (i.e., 71%) IPOs are underpriced. The ratio is higher for H-shares (78%), and for red chips (73%).

The nominal return is a good proxy for the initial day return to overseas placees since they are not required to pay in advance. Public investors, however, incur financing and trading costs which substantially reduce their returns. Factoring in round-trip trading costs, the average return to subscribers drops to 10.60%. Moreover, including the financing cost, the average return drops to 9.70%, 9.00% and 6.78%, respectively, if the deposit rate, HIBOR, and prime rate are used as financing cost proxies. The return from H-shares drops from 18.63% with zero interest rate to 16.25% (12.81%) under HIBOR (Prime);

[23] Following Loughran and Ritter (2002), funds raised from over-allotment shares are excluded from the calculation.

while the return from red-chips drops from 12.62% with zero interest rate to 9.22% (4.55%) with HIBOR (Prime). This result shows that the impact of changes in interest rates on red-chips is greater than on H-shares, a consequence of the higher realized subscription rates for red-chips than for H-shares. Most importantly, the actual return to the representative subscriber drops significantly after factoring in the financing cost which is increasing in both interest rates and subscription rates. Pair-wise t-test comparisons show that all the mean returns across different cost categories are statistically significant at the 1% level.

To filter out the impact on the average return resulting from outliers, the study provides two weighted average returns – one that is weighted by public issue size and another one weighted by placement size. As shown in the next to the last column, the nominal return weighted by the actual public issue size is 21.91% and above the unweighted nominal return.[24] The weighted nominal returns to the H-share and others category are 23.63% and 24.81%, respectively. This shows that higher returns are associated with a large public float. However, the weighted nominal return to red-chips is 8.18% and the return becomes negative when a high interest rate (Prime) is used for the financing proxy.

The last column shows the average return weighted by the placement size.[25] Following Loughran and Ritter (2002), funds raised from the exercise of the over-allotment options are excluded. Since the nominal return can be used as a proxy for return to overseas placees, the weighted return is available only for the nominal return section. The overall weighted average return is 13.78%, which is slightly higher than the equally weighted return. The weighted average nominal return for H-shares and red-chips are 11.83% and 9.98%, respectively; and are substantially lower than the equally weighted returns. However, the others category has a higher weighted average return of 21.21%. Table 9 shows the market-adjusted returns where the returns are adjusted for the market movements between the price fixing day and the listing day. The returns with market adjustment are largely similar to those without the adjustment.[26]

Panel A of table 10 shows the distribution of returns to employees who subscribe for the employee tranche. The sample contains only 118 IPOs since 4 of the issues fail to attract any subscriptions for their employee tranche. Panel B of table 10 shows the distribution of returns to public subscribers for the same sub-sample. The average nominal return for the sample is 7.73% which is caused by the absence of H-shares from the sample. After controlling for the differential subscription rate and financing cost, the return to employees is significantly higher. Specifically, the returns to employees are 6.27% and 6.22%

[24] The return weighted by public issue indicates the return to a representative subscriber whose investment in an IPO is proportional to the IPO's actual public issue size.

[25] The return weighted by placement size reflects the return to a representative overseas investor (placee) whose investment in an IPO is proportional to the IPO's placement size.

[26] To ease exposition, the paper only reports the tables without market-adjustment. Results with market-adjustments are available upon request.

compared to 5.72% and 5.20% for public subscribers, using the deposit rate and HIBOR assumption, respectively.[27,28]

5.1 Weighted Average Return to Investors

Table 11 shows the distribution of the weighted average return for the three (inclusive of the employee class if applicable) investor tranches for each issue. The overall nominal average return is 12.02%; and the return to H-shares and red-chips are 20.08% and 14.05% respectively. After adjusting for deposit and HIBOR interest rates, the overall average returns drop to 11.19% and 10.90%, respectively. The impact of financing cost on the weighted average return is smaller than that on the subscribers' return (in table 8) since the cost does not affect overseas buyers. The case of red-chip provides a clear example. Under the assumption of prime interest rate, the average return to public subscribers drops from 14.05% (the nominal return) to 4.55%; however, the weighted average return only drops to 10.06%. Besides the large share of overseas funding for these issues, the difference is attributable to the unusually high (over-) subscription rate for red-chips.

Table 12 shows the distribution of the (aggregate) underpricing cost (as a percentage of the offer price) to issuers. The underpricing cost includes the cost due to public subscribers, to employee subscribers (if any), and to overseas placees. The underpricing cost actually mirrors the aggregate returns the different classes of investors receive from the issuer. The average nominal underpricing cost is 12.02%, the same as the weighted nominal return reported in table 11. The average underpricing cost drops to 11.35% if the issuer receives interest earnings based on HIBOR from the subscription monies.[29] The underpricing cost is well above the corresponding 9% initial day return to public subscribers since a large percentage of funds is obtained from overseas placees. The interest earnings to issuers are reduced by an average of only 67 bps out of the 12.02% of underpricing cost.[30] This result casts doubt on the conjecture that the interest earnings induce underpricing.

Table 13 shows the potential interest earnings as a percentage of the money raised by an issue. Under HIBOR, the interest earnings amount to 1.58% of capital raised from public and employee subscribers. The percentages are higher for H-shares (2.35%) and red-chips (3.35%) and can be attributed to the high

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[27] The variance of returns to employee subscribers may also be higher than that to public subscribers since employees have higher exposure per share subscribed. However, such exposure is likely to be skewed to the right since they enjoy a lower all-in-cost of fund per share.

[28] We also examine the distribution of returns to public subscribers for issues without the employee tranche. The result indicates that the sample without employee tranche generally has higher initial day returns. Similar results are also obtained with a market adjustment. The difference could be attributed to the absence of an employee tranche in all H-share listings.

[29] The underpricing cost slightly exceeds the weighted average return to all classes of investors even under the same interest rate assumption. The result is due to the T+2 settlement conventional for secondary market transactions in Hong Kong. The settlement delay increases the financing cost to subscribers.

[30] The underpricing cost after adjusting for interest earnings would be higher than 11.35% if the underpricing cost for the shares from the exercise of over-allotment option is included. This study follows Loughran and Ritter (2002) and excludes the over-allotted shares from the estimation.

subscription rates for the two issues.[31] However, the size of the interest earnings become much less significant once capital raised from overseas investors is included. Panel B shows that the overall interest earnings as a percentage of the total monies raised drops to 0.59%; and to below 1% for H-shares and 1.29% for red-chips. This result is largely in line with the findings of Leung and Menyah (2006). Panel C shows the potential interest income in percentage of forecast earnings. Based on HIBOR, the interest earnings amount to 6.27% of the forecast earnings for the overall sample. The percentages for H-share and red-chips are 6.11% and 10.78%, respectively.

Table 14 shows the distribution of money left after subtracting interest earnings accrued to issuers. Interest earnings lower the "net" amount of money left but by just a small amount, again due to the size of the overseas issue. Overall, the average amount of money left is HKD 403 million (USD 52 million) and reduces to HKD 382 million (USD 49 million), assuming issuers earn interest at HIBOR. The average amount of money left for H-shares and red-chips is HKD 1,353 million and HKD 570 million, respectively. Subtracting potential interest earnings based on HIBOR, the average net amount of money left for H-shares and red-chips reduces to HKD 1,303 million and HKD525 million, respectively.

5.2 Regression Analysis on the Determinants of Underpricing and Subscription Rate

Panel A of table 15 shows the regression result for the relationship between share type and initial day returns. The two dummy variables indicate H-shares and red-chips. The value of the intercept term indicates the mean return to the others category under different interest rate assumptions. The coefficient for H-shares is significant at the 1% level. The coefficient indicates that the unconditional nominal initial day return of H-share IPOs is higher than the others; while the estimated coefficient for red-chips is not significant.

Panel B of table 15 shows that the return to H-share IPOs are not significantly different from those in the others category after controlling for the size of the issue. Size of the issue can explain the higher return to H-shares. However, the relationship between the issue size and initial day return weakens if higher interest rates are assumed. This result indicates the influence of subscription rate on the financing cost.

Panel C shows the regression results after including the realized subscription rate. Consistent with the findings of Agarwal, Liu, and Rhee (2008), the realized subscription rate subsumes all other variables in predicting IPO returns.[32] Hence, the prelisting excess demand as reflected in the realized subscription rate is probably the most important determinant of an IPO's initial day return. However, the influence of demand on the returns declines with higher financing cost due to the impact of the subscription rate on the financing cost or the all-in-cost of funds per share. The t-value of the subscription rate coefficient

[31] The average interest incomes are HKD50 million and HKD44 million for H-shares and red-chips, respectively.

[32] Prior tests show that the fixed effects for industry groups are insignificant. These results are not reported here to save space.

drops from 9.27 to 5.51 after adjusting for financing cost based on deposit and prime interest rates, respectively. It is conceivable that for some public investors who borrow at higher interest rates the impact of a higher subscription rate on their return could become negative and this reason explains the below-average, albeit statistically insignificant, return to red-chip IPOs.[33] Table 16 shows how interest rates affect the nominal return. The average of the interest rate is used as a proxy for financing cost. The coefficient for all interest rates is significantly positive indicating that part of the nominal return reflects a compensation for the financing cost associated with Hong Kong IPOs. This result is consistent with our conjecture that the financing cost associated with advance payment allocation procedure should be embedded in the nominal IPO return in an efficient capital market.

5.3 Determinants of an IPO's Excess Demand

The unconditional mean regression in table 17 shows that H-shares and red-chips both attract higher public demand.[34] However, the inclusion of planned public offer size subsumes the explanatory power of the H-share dummy and reduces the significance of the red-chip dummy. This shows that offer size can fully explain the popularity of H-share issues; red-chips have unusual public followings. The last regression shows that red-chip, public issue size, and previous IPO returns significantly affect the subscription rate.

5.4 Underpricing and Interest Earnings

As shown in table 18, interest earnings and the nominal initial day return are highly correlated. The first regression shows that the relatively larger H-share and red-chip issues have higher amount of interest earnings. In percentages of total issue size and of forecast earnings, red-chip issues generate significantly more interest income than other issues per unit of underpricing. However, the hypothesis that management underprice IPOs to generate interest income is deemed irrefutable since both interest income and nominal return are highly positively related to the subscription rate.

5.5 Offer Price Determination in Relation to Public Demand

For issues with pricing ranges, the location of the offer price within the range should be directly related to the level of market demand. For instance, the offer price should be near or at the top of the price range for highly over-subscribed issues. This conjecture permits a test of whether H-shares and red-chips are underpriced relative to their price ranges for a given market demand. Table 19 shows the relationship between subscription rate and location of the final offer price within the range. The relative location of the

[33] The t-value drops to 2.44 when the interest rate is set at prime+4%.

[34] The subscription rate based on the planned public offer size is highly correlated (with a correlation coefficient of 0.97) with the realized subscription rate. All the qualitative regression results are robust with respect to the choice of subscription rates.

offer price is significantly related to either subscription rate measure; but the coefficients for H-shares and red-chips are both insignificant. This result shows that the offer prices of H-shares and red-chips correspond to market demand in a manner similar to other issues.

6. Conclusion

This study extends Fung, Cheng, and Chan (2004) and finds that financing cost significantly affects initial day returns from Hong Kong IPOs. The average nominal return for the period is estimated at 12%. However, factoring in the prime financing rate can reduce the actual return to a representative subscriber by over 40% to 6.78%. This suggests that the conventional offer price based return is an upward biased measure of the actual returns to subscribers in markets that adopt an advance payment allocation mechanism.

The study provides an empirical assessment of Chowdhry and Sherman's (1996) argument that the interest earnings encourage issuers to underprice IPOs. The average HIBOR-based interest earnings as a percentage of total funds raised is 0.59%, 0.84%, 1.29%, and 0.5% for overall, H-shares, red-chips, and others category, respectively. The size of interest earnings is relatively small since only public subscriptions provide interest earnings and overseas placement represents the majority (over 80%) of the funding sources. As a result, interest earnings have only a limited impact on the underpricing costs. For example, the underpricing cost of H-share IPOs is reduced by less than 1% from a total of 20.08%. These results cast doubt on the importance of interest earnings to the offer price decision.

The average nominal returns to H-shares, red-chips, and others category are 20.08%, 14.05%, and 10.28%, respectively. The difference between red-chips and others is not statistically significant. The average nominal return to subscribers for the employee tranche is 7.73%. The substantially lower return to employee subscribers can be attributed to the absence of H-shares from this tranche.

Regression tests show that the realized subscription rate, a proxy for excess demand, subsumes all other variables in explaining IPO returns. Moreover, the impact of the subscription rate on the return is reduced with the assumption of higher interest rates. This result shows that the overall impact of demand on initial day return depends critically on the extent of the influence of the subscription rate on the all-in-cost of funds per share. Finally, the paper finds that the issue size explains the demand for H-share and red-chip IPOs; and that the subscription rate is also positively related to the returns of prior IPO issues. These results cast doubt on the popular conjecture that the higher returns from China-related IPOs are due to the supply-side factor where the senior management artificially reduces the offer price. The higher return to H-share IPOs can be attributed to the demand factor which can be explained by their issue size. Further research is needed to determine whether a unique agency cost is present for China-related IPOs.

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Table 1. Allocation Mechanism and Average Initial Day IPO Return

Panel A: Countries that require advance payment			
Country	Sample size	Sample period	Average Initial Return (%)
China	1,394	1990-2005	164.5
India	2,811	1990-2007	92.7
Malaysia	350	1980-2006	69.6
Korea	1,417	1980-2007	57.4
Brazil	180	1979-2006	48.7
Thailand	459	1987-2007	36.6
South Africa	118	1980-1991	32.7
Singapore	441	1973-2006	28.3
Sweden	406	1980-2006	27.3
Ireland	31	1999-2006	23.7
Indonesia	321	1989-2007	21.1
New Zealand	214	1979-2006	20.3
Australia	1,103	1976-2006	19.8
Finland	162	1971-2006	17.2
United Kingdom	3,986	1959-2006	16.8
Hong Kong	1,008	1980-2006	15.9
Portugal	28	1992-2006	11.6
Turkey	282	1990-2004	10.8
Distribution of average initial returns	N = 18	Mean = 39.7%	S.D. = 38.0%

Panel B: Countries that do not require advance payment			
Country	Sample size	Sample period	Avg. Initial Return (%)
Taiwan	1,312	1980-2006	37.2
Switzerland	147	1983-2006	29.3
Germany	652	1978-2006	26.9
Italy	233	1985-2006	18.2
United States	15,649	1960-2007	18
Israel	348	1990-2006	13.8
Spain	128	1986-2006	10.9
France	686	1983-2006	10.7
Netherlands	181	1982-2006	10.2
Norway	153	1984-2006	9.6
Canada	635	1971-2006	7.1
Austria	96	1971-2006	6.5
Distribution of average initial returns	N = 12	Mean = 16.5%	S.D. = 9.8

Sources: 1 Jay R. Ritter, Kristian Rydqvist, (2008). “Initial public Offerings: International Insights”.
2 The information is based on Ravi Jagannathan, Ann Sherman, (2006). “Why do IPO auctions Fail?”
Note: The t-statistic of the difference between the two means is 2.47.

Table 2. Distribution of the Number of IPOs Listed on the HKEx (2000-2007, N = 386)

Panel A: By issue year and share type					
Year	Full sample		H-share[a]	Red-chip[b]	Others
2000-2007	386		60 (15.5%)[c]	22 (5.7%)	304 (78.8%)
2007	78	(20.2%)	6	7	65
2006	53	(13.7%)	17	2	34
2005	53	(13.7%)	9	3	41
2004	45	(11.7%)	8	3	34
2003	37	(9.6%)	10	1	26
2002	51	(13.2%)	4	1	46
2001	29	(7.5%)	3	3	23
2000	40	(10.4%)	3	2	35
Panel B: By industry and share type					
Industry[d]	Full sample		H-share[a]	Red-chip[b]	Others
Total	386		60	22	304
Industrials	218	(56.5%)	27	8	183
Consolidated Enterprises	96	(24.9%)	14	6	76
Finance	35	(9.1 %)	9	3	23
Properties	23	(6.0 %)	3	2	18
Utilities	6	(1.6 %)	1	2	3
Hotels	1	(0.3 %)	1	0	0
Miscellaneous	7	(1.8%)	5	1	1

[a] H-shares are issued by companies incorporated in Mainland China.
[b] Red-chips are issued companies that are controlled by Mainland entities and incorporated outside China.
[c] Percentage to the total issues for the sample period is shown in parentheses.
[d] Before 2008, the HKEx classified all the listed companies into seven business sectors. For IPOs listed before 2007, the corresponding business can be found in the Fact Book. In 2008 the HKEx adopted the Hang Seng Industry Classification System (HSICS). Listed companies are classified into eleven industries. For consistency, the paper use the seven industries and the data for IPOs listed in 2007 is obtained from the trade record issued by the HKEx.
The sample excludes IPOs listed by introduction, switched from the Growth Enterprise Market (GEM), exchange-trade tracker funds (ETFs). real estate investment trusts (REITs) and the 6 unit IPOs listed during the period.

Table 3. Distribution of Total Funds Raised[a] (in HKD million) from IPOs (2000-2007, N = 386)

Panel A: By issue year and share type					
Year	Full sample		H-share	Red-chip	Others
2000-2007	1,115,081		662,227 (59.4%)[b]	146,356 (13.1%)	306,499 (27.5%)
2007	290,443	(26.0%)	74,773	49,592	166,078
2006	332,083	(29.8%)	290,027	2,764	39,293
2005	164,930	(14.8%)	137,185	1,037	26,708
2004	94,418	(8.5%)	40,017	13,327	41,074
2003	54,007	(4.8%)	46,253	2,962	4,792
2002	44,483	(4.0%)	16,874	20,516	7,093
2001	21,517	(1.9%)	5,571	12,060	3,886
2000	113,200	(10.2%)	51,528	44,096	17,576
Panel B: By industry and share type					
Industry[e]	Full sample		H-share	Red-chip	Others
Industrials	305,261	(27.4%)	145,411	26,053	133,794
Consolidated Enterprises	197,359	(17.7%)	49,294	62,936	85,129
Finance	433,483	(38.9%)	400,988	22,519	9,975
Properties	86,964	(7.8%)	4,944	17,549	64,470
Utilities	40,157	(3.6%)	22,108	5,843	12,206
Hotels	2,783	(0.3%)	2,783	0	0
Miscellaneous	49,074	(4.4%)	36,698	11,452	924

[a] Total funds raised equals the total number of shares issued (including the over-allotment shares for overseas placement) multiplied by the offer price.
[b] Percentage of funds raised to the total funds raised of the sample is shown in parentheses.

Table 4. Distribution of Funds Raised (in HKD Million) from IPO by Share Type and Funding Source (Public Subscription, Employee Subscription, and Overseas Placement) (2000-2007, N = 386)

	N	Total	(%)[a]	Mean	S.D.	Median	Max	Min
Panel A: Total funds raised								
Full sample	386	1,115,081		2,889	9,706	391	124,948	10
H-share	60	662,227		11,037	21,516	2,681	124,948	258
Red-chip	22	146,356		6,653	9,928	2,921	43,608	53
Others	304	306,499		1,008	2,236	197	14,849	10
Panel B: Fund raised from public subscription								
Full sample	386	219,985	(19.7%)	570	1,223	78	10,865	2
H-share	60	95,059	(14.4%)	1,584	2,002	928	10,865	26
Red-chip	22	31,515	(21.5%)	1,432	1,606	903	6,310	7
Others	304	93,411	(30.5%)	307	783	44	6,430	2
Panel C: Fund raised from employee subscription								
Full sample	122[b]	1,116	(0.1%)	9	26	2	188	0
H-share	0	0		0	0	0	0	0
Red-chip	6	297	(0.2%)	49	71	16	186	3
Others	116	819	(0.3%)	7	19	2	188	0
Panel D: Fund raised from overseas placement (include shares from the over-allotment option)								
Full sample	386	893,980	(80.2%)	2,316	8,771	275	114,083	0
H-share	60	567,167	(85.7%)	9,453	19,768	1,876	114,083	233
Red-chip	22	114,544	(78.3%)	5,207	9,168	1,809	41,712	32
Others	304	212,269	(69.3%)	698	1,582	136	12,266	0

[a] The column shows the funds raised from each funding source in percentage of total funds raised from the corresponding share type.
[b] There are 122 issues (31.6% of the sample) offer employee tranche.

Table 5. Distribution of Subscription Funds[a] (in HKD Million) for Hong Kong IPOs (2000-2007, N = 386)

	N	Total	(%)[b]	Mean	S.D.	Median	Max	Min
Panel A: Total subscription funds								
Full sample	386	11,952,592		30,965	73,121	763	452,033	2
H-share	60	4,969,605		82,827	102,767	43,991	415,630	51
Red-chip	22	1,838,565		83,571	99,959	48,314	291,270	15
Others	304	5,144,422		16,922	55,798	378	452,033	2
Panel B: Subscription funds from public subscription								
Full sample	386	11,951,294	(99.99%)	30,962	73,121	736	452,033	2
H-share	60	4,969,605	(100%)	82,827	102,767	43,991	415,630	51
Red-chip	22	1,838,224	(99.98%)	83,556	99,962	48,204	291,270	15
Others	304	5,143,465	(99.98%)	16,919	55,797	378	452,033	2
Panel C: Subscription funds from employee subscription								
Full sample	122	1,298	(0.01%)	11	31	1.7	249	0
H-share	0	0	(0.00%)	0	0	0	0	0
Red-chip	6	341	(0.02%)	57	84	20	221	3
Others	116	957	(0.02%)	8	25	2	249	0

[a] Subscription funds are the amount that subscribers paid to subscribe for shares. The amount equals the number of shares they are subscribing for multiplied by the maximum price of the offer price range, plus the transaction cost.
[b] Subscription funds from each funding source in percentage of total subscription funds of each share type.

Table 6. Distribution of Subscription Rates

	N	Mean	S.D.	Median	Max	Min
Panel A: Nominal public subscription rate[a]						
Full sample	386	125.93	225.50	25.84	1703.49	0.19
H-share	60	212.39	249.61	119.35	928.17	0.20
Red-chip	22	262.66	387.82	114.33	1703.49	2.20
Others	304	98.97	196.19	18.14	1603.34	0.19
Panel B: Realized public subscription rate[b]						
Full sample	386	29.35	45.25	11.81	340.70	1.00
H-share	60	46.99	48.58	27.89	185.63	1.00
Red-chip	22	62.77	80.07	30.25	340.70	2.20
Others	304	23.45	38.99	10.09	320.87	1.00
Panel C: Employee subscription rate[c,d]						
Full sample	122	0.98	0.47	1.00	3.83	0.00
H-share	0					
Red-chip	6	1.09	0.22	1.00	1.55	1.00
Others	116	0.98	0.47	1.00	3.83	0.00

[a] Nominal public subscription rate is the ratio of actual number of shares subscribed by the public to the planned number of shares offered to the public.

[b] Realized subscription rate is the ratio of actual number of shares subscribed by the public to the actual number of shares offered to the public after the clawback mechanism if it is being triggered. In the sample, 220 IPOs triggered the clawback mechanism.

[c] Employees will not be allocated any clawback shares. Therefore, the maximum number of shares offered to employees is the planned size as stated in the prospectus. Hence, the subscription rate gives the probability of employees to successfully subscribe for a share.

[d] Out of the 122 offerings with employee tranche, 4 (in the others category) received no application from employees. If the four offerings are excluded, the average employee subscription rate of the remaining 118 issues is 0.99 times, and 33 are under-subscribed.

In the sample, 15 IPOs are undersubscribed (the subscription rate is less than 1). Out of them, 3 are H share IPOs.

Table 7. Distribution of the Length of Major Event Windows

Number of calendar days between	Mean	S.D.	Median	Max	Min
Prospectus to listing	12.2	2.47	12	26	9
Subscription deadline to settlement	11.3	2.13	11	24	8
Subscription deadline to refund	6.1	1.68	6	15	2
Refund to settlement	5.2	1.66	5	13	1
Subscription deadline to listing	8.0	2.06	7	22	4
Prospectus to listing for issues without offer price range (N=133)	12.5	2.96	12	26	9
Subscription deadline to listing for issues without offer price range (N=133)	8.3	2.78	7	22	4
Price fixing to listing for sample with offer price range (N=253)	6.7	1.77	7	13	1

Table 8. Distribution of Initial Day Returns under Different Interest Rates for Public Subscribers for the Period 2000-2007 (in %) (The Nominal Return is used as a Proxy for the Initial Day Return to Overseas Subscribers)

	no. of issues underpriced (overpriced)	Mean	S.D.	Median	Max	Min	Weighted by actual public issues[b]	Weighted by placing[c,d] issues
Nominal								
Full sample	273 (90)	12.02	25.35	5.75	192.59	-64.71	21.91	13.78
H-share	47 (11)	20.08	27.58	12.55	119.08	-18.93	23.63	11.83
Red-chip	16 (5)	14.05	21.17	8.82	67.05	-15.68	8.18	9.98
Others	210 (74)	10.28	24.92	4.23	192.59	-64.71	24.81	21.21
Zero[a]								
Full sample	254 (132)	10.60	25.25	4.35	190.52	-65.85	20.46	
H-share	45 (15)	18.63	27.48	11.13	117.27	-20.24	22.16	
Red-chip	15 (7)	12.62	21.10	7.41	65.44	-17.00	6.74	
Others	194 (110)	8.87	24.83	2.83	190.52	-65.85	23.35	
Deposit								
Full sample	247 (139)	9.70	24.40	3.68	182.61	-65.99	18.44	
H-share	44 (16)	17.32	26.39	10.00	113.02	-20.34	20.46	
Red-chip	15 (7)	10.49	19.62	7.04	58.72	-18.95	4.72	
Others	188 (116)	8.13	24.09	2.59	182.61	-65.99	21.02	
HIBOR								
Full sample	242 (144)	9.00	23.73	2.96	176.34	-66.04	16.80	
H-share	43 (17)	16.25	25.48	9.29	107.22	-20.37	18.97	
Red-chip	15 (7)	9.22	18.14	6.25	52.26	-18.07	3.61	
Others	184 (120)	7.53	23.53	2.28	176.34	-66.04	19.04	
Prime								
Full sample	222 (164)	6.78	22.53	1.72	158.69	-66.14	12.70	
H-share	41 (19)	12.81	23.77	5.77	101.36	-20.55	15.35	
Red-chip	14 (8)	4.55	17.86	4.45	42.32	-28.06	-1.23	
Others	167 (137)	5.75	22.46	0.71	158.69	-66.14	14.70	

[a] Zero interest rate indicates zero financing cost but return is adjusted for transaction cost.
[b] This represents the weighted average return to public subscribers from the particular sample.
[c] Over-allotment shares are excluded in weighting the returns to placees.
[d] The nominal return reflects the return to placees (i.e., institutional investors who invest in IPOs from overseas placements). Hence the return weighted by overseas placement size reflects the return to placees as a group.

Table 9. Distribution of Market Adjusted[a] Initial Day Returns under Different Interest Rates for Public Subscribers for the Period 2000-2007 (in %)

	no. of issues underpriced (overpriced)	Mean	S.D.	Median	Max	Min	Weighted by actual public issues	Weighted by placing
Nominal								
Full sample	269 (117)	11.88	24.89	5.17	199.40	-63.51	21.47	13.97
H-share	44 (16)	19.37	27.28	11.35	112.17	-20.39	23.32	11.85
Red-chip	17 (5)	14.09	20.06	9.86	64.76	-18.51	8.17	11.11
Others	208 (96)	10.24	24.50	4.50	199.40	-63.51	24.07	21.28
Zero								
Full sample	252 (134)	10.46	24.80	3.77	197.32	-64.65	20.01	
H-share	41 (19)	17.92	27.18	9.93	110.36	-21.69	21.86	
Red-chip	15 (7)	12.67	19.98	8.45	63.14	-19.83	6.76	
Others	196 (108)	8.82	24.41	3.10	197.32	-64.65	22.60	
Deposit								
Full sample	248 (138)	9.55	23.95	3.44	189.41	-64.79	18.00	
H-share	41 (19)	16.61	26.08	9.52	106.11	-21.79	20.15	
Red-chip	15 (7)	10.53	18.45	8.31	56.42	-21.78	4.74	
Others	192 (112)	8.08	23.67	2.88	189.41	-64.79	20.28	
HIBOR								
Full sample	246 (140)	8.84	23.30	3.12	183.14	-64.84	16.35	
H-share	41 (19)	15.54	25.18	7.85	100.31	-21.82	18.66	
Red-chip	15 (7)	9.26	17.00	7.53	49.97	-20.90	3.63	
Others	190 (114)	7.49	23.14	2.49	183.14	-64.84	18.30	
Prime								
Full sample	219 (167)	6.64	22.01	1.74	165.49	-64.94	12.26	
H-share	40 (20)	12.10	23.37	5.16	94.45	-22.00	15.05	
Red-chip	14 (8)	4.59	16.71	3.51	40.03	-28.33	-1.21	
Others	165 (139)	5.71	22.07	1.23	165.49	-64.94	13.96	

[a] The market adjusted return is obtained by deducting the market return during the price fixing day (or the prospectus day for fixed price offers) to the listing day from the nominal return.

Table 10. Distribution of Initial Day Returns of IPOs with Employee Tranche[a] under Different Interest Rates

	no. of issues underpriced (overpriced)	Mean	S.D.	Median	Max	Min	Weighted by actual employee	Weighted by placing
Panel A: Initial day return for employee subscribers								
Nominal								
Full sample	79(29)	7.73	18.97	2.67	68.00	-44.44	11.34	9.13
Red-chip	5(0)	21.24	25.86	12.74	67.05	0.00	6.60	6.11
Others	74(29)	7.01	18.40	2.59	68.00	-44.44	13.06	10.38
Zero								
Full sample	72(46)	6.33	18.90	1.28	66.38	-45.66	9.93	
Red-chip	4(2)	19.78	25.76	11.32	65.44	-1.37	5.20	
Others	68(44)	5.61	18.33	1.21	66.38	-45.66	11.64	
Deposit								
Full sample	72(46)	6.27	18.89	1.23	66.26	-45.70	9.85	
Red-chip	4(2)	19.71	25.74	11.24	65.35	-1.45	5.17	
Others	68(44)	5.55	18.33	1.12	66.26	-45.70	11.54	
HIBOR								
Full sample	72(46)	6.22	18.89	1.20	66.20	-45.75	9.80	
Red-chip	4(2)	19.66	25.74	11.23	65.28	-1.54	5.11	
Unit	2(0)	10.49	10.64	10.49	18.02	2.97	10.78	
Others	68(44)	5.50	18.33	1.06	66.20	-45.75	11.49	
Prime								
Full sample	71(47)	6.09	18.89	1.04	66.07	-45.84	9.66	
Red-chip	4(2)	19.54	25.71	11.15	65.13	-1.65	4.99	
Others	67(45)	5.37	18.33	0.91	66.07	-45.84	11.35	

Table 10. Distribution of Initial Day Returns of IPOs with Employee Tranche[a] under Different Interest Rates (Continued)

	no. of issues underpriced (overpriced)	Mean	S.D.	Median	Max	Min	Weighted by actual employee	Weighted by placing
Panel B: Initial day return for public subscribers								
Nominal								
Full sample	79(29)	7.73	18.97	2.67	68.00	-44.44	13.76	9.13
Red-chip	5(0)	21.24	25.86	12.74	67.05	0.00	9.23	6.11
Others	74(29)	7.01	18.40	2.59	68.00	-44.44	15.77	10.38
Zero								
Full sample	72(46)	6.33	18.90	1.28	66.38	-45.66	12.33	
Red-chip	4(2)	19.78	25.76	11.32	65.44	-1.37	7.82	
Others	68(44)	5.61	18.33	1.21	66.38	-45.66	14.33	
Deposit								
Full sample	68(50)	5.72	18.49	1.12	66.25	-45.75	10.84	
Red Chip	4(2)	17.43	23.23	10.86	58.72	-2.97	6.49	
Others	64(48)	5.09	18.12	0.79	66.25	-45.75	12.78	
HIBOR								
Full sample	67(51)	5.20	18.18	0.96	66.19	-45.87	9.69	
Red-chip	4(2)	15.40	21.12	10.71	52.26	-5.05	5.07	
Others	63(49)	4.65	17.95	0.62	66.19	-45.87	11.74	
Prime								
Full sample	58(60)	3.78	17.77	-0.07	66.05	-46.09	7.20	
Red-chip	4(2)	11.64	17.60	10.22	42.32	-7.34	2.67	
Others	64(48)	3.36	17.76	-0.14	66.05	-46.09	9.21	

[a] Only the 118 IPOs with employee tranche and received application from employee are included in this sub-sample.

Table 11. Distribution of Weighted Average Initial Day Return for All Investors (Public, Employee, and Places) under Different Interest Rates

	no. of issues underpriced (overpriced)	Mean	S.D.	Median	Max	Min
Nominal						
Full sample	273(90)	12.02	25.35	5.75	192.59	-64.71
H-share	47(11)	20.08	27.58	12.55	119.08	-18.93
Red-chip	16(5)	14.05	21.17	8.82	67.05	-15.68
Others	210(74)	10.28	24.92	4.23	192.59	-64.71
Zero						
Full sample	270(116)	11.57	25.23	5.37	192.07	-64.87
H-share	47(13)	19.65	27.37	12.19	118.17	-19.07
Red-chip	15(7)	13.58	21.07	8.69	66.24	-16.34
Others	208(96)	9.83	24.82	3.93	192.07	-64.87
Deposit						
Full sample	270(116)	11.19	24.84	5.11	190.10	-64.89
H-share	47(13)	19.12	26.80	11.99	116.05	-19.08
Red-chip	15(7)	12.65	20.33	8.65	62.95	-17.32
Others	208(96)	9.52	24.50	3.85	190.10	-64.89
HIBOR						
Full sample	269(117)	10.90	24.52	4.80	188.53	-64.90
H-share	47(13)	18.68	26.31	11.85	113.15	-19.08
Red-chip	15(7)	12.12	19.67	8.63	59.78	-16.87
Others	207(97)	9.27	24.25	3.84	188.53	-64.90
Prime						
Full sample	263(123)	9.96	23.87	3.72	184.12	-64.91
H-share	46(14)	17.24	25.33	11.09	110.22	-19.10
Red-chip	15(7)	10.06	18.86	6.38	54.90	-20.59
Others	202(102)	8.52	23.71	3.28	184.12	-64.91

[a] The weighted average initial day returns is the initial day returns for the three classes of subscribers weighted by the funds raised from the corresponding tranche. Funds raised from the over-allotment shares are excluded. This reflects the cost to issuers.

Table 12. Weighted Average Underpricing Cost to Issuers for Hong Kong IPOs for the Period 2000-2007 (In % of Issue Price)

	Mean	S.D.	Median	Max	Min
Nomianl					
Full sample	12.02	25.35	5.75	192.59	-64.71
H-share	20.08	27.58	12.55	119.08	-18.93
Red-chip	14.05	21.17	8.82	67.05	-15.68
Others	10.28	24.92	4.23	192.59	-64.71
Deposit					
Full sample	11.64	24.96	5.48	190.62	-64.72
H-share	19.55	27.02	12.34	116.96	-18.94
Red-chip	13.13	20.43	8.78	63.78	-16.65
Others	9.97	24.60	4.06	190.62	-64.72
HIBOR					
Full sample	11.35	24.64	5.36	189.05	-64.73
H-share	19.12	26.52	12.20	114.08	-18.95
Red-chip	12.60	19.77	8.77	60.63	-16.21
Others	9.72	24.35	4.04	189.05	-64.73

The underpricing costs are weighted by the funds raised from each class of subscribers, excluding those from the over-allotment subscribed by placees.

Table 13. Distribution of Potential Interest Income in Percentage of Fund Raised and Forecast Earnings

	Mean	SD	Median	Max	Min
Panel A: Potential interest earnings as percentage of funds raised from public and employee subscribers					
Deposit					
Full sample	0.89	1.78	0.12	14.88	0.00
H-share	1.30	1.90	0.09	7.44	0.00
Red-chip	2.10	3.53	0.29	14.88	0.00
Others	0.72	1.51	0.12	10.56	0.00
HIBOR					
Full sample	1.58	3.04	0.31	19.33	0.00
H-share	2.35	3.25	0.44	12.00	0.01
Red-chip	3.35	5.23	0.68	18.91	0.00
Others	1.30	2.71	0.25	19.33	0.00
Panel B: Potential interest earnings as percentage of total funds raised (including the over-allotment option)					
Deposit					
Full sample	0.34	0.75	0.02	6.47	0.00
H-share	0.47	0.81	0.01	3.23	0.00
Red-chip	0.82	1.52	0.06	6.47	0.00
Others	0.28	0.63	0.02	4.59	0.00
HIBOR					
Full sample	0.59	1.26	0.07	8.40	0.00
H-share	0.84	1.40	0.12	5.22	0.00
Red-chip	1.29	2.17	0.19	8.22	0.00
Others	0.50	1.12	0.05	8.40	0.00
Panel C: Potential interest earnings as percentage of forecast earnings[a]					
Deposit					
Full sample	3.69	8.71	0.11	63.37	0.00
H-share	3.28	5.54	0.04	22.52	0.00
Red-chip	7.44	11.62	6.19	42.78	0.00
Others	3.46	9.20	0.10	63.37	0.00
HIBOR					
Full sample	6.27	14.14	0.48	105.41	0.00
H-share	6.11	10.48	0.88	40.59	0.00
Red-chip	10.78	15.51	4.52	54.35	0.00
Others	5.89	15.04	0.33	105.41	0.00

[a] Sub-sample of 191 stocks that forecast earnings are available in their prospectuses. The sub-sample is composed of 44 H-shares, 13 red-chips and 134 IPOs in the other category.

Table 14. Distribution of the Net Amount of Money Left of the Table (in HKD Million)

	Total	Mean	SD	Median	Max	Min
Zero						
Full sample	155,620	403	1,737	9	22,331	-1,484
H-share	81,167	1,353	2,892	282	15,926	-1,055
Red-chip	12,538	570	1,441	75	5,119	-1,484
Others	61,914	204	1,357	6	22,331	-1,108
Deposit						
Full sample	151,227	392	1,715	8	22,103	-1,574
H-share	79,564	1,326	2,859	269	15,806	-1,056
Red-chip	11,906	541	1,432	75	5,001	-1,574
Others	59,757	197	1,339	6	22,103	-1,108
HIBOR						
Full sample	147,641	382	1,696	8	21,921	-1,540
H-share	78,165	1,303	2,834	261	15,747	-1,057
Red-chip	11,561	525	1,403	75	4,846	-1,540
Others	57,916	191	1,322	5	21,921	-1,110

Following Loughran and Ritter (2002), the amount of money left on the table is calculated after excluding additional shares issued after the initial trading day with the exercise of the over-allotment option.

Table 15. Regression Analysis of Initial Day Return of Different Share Types (N=386)

Dependent variable: Market adjusted return to public subscribers under different interest rates

	Panel A:					Panel B:				
	Nominal	Zero	Deposit	HIBOR	Prime	Nominal	Zero	Deposit	HIBOR	Prime
Intercept	0.10238***	0.08825***	0.08084***	0.07487***	0.05710***	-0.37453**	-0.38701**	-0.32414**	-0.27555*	-0.18500
	(7.22)	(6.25)	(5.92)	(5.63)	(4.52)	(-2.34)	(-2.43)	(-2.10)	(-1.83)	(-1.29)
H-share	0.09133***	0.09097***	0.08526**	0.08055**	0.06390**	0.03093	0.03078	0.03397	0.03617	0.03324
	(2.61)	(2.61)	(2.53)	(2.46)	(2.05)	(0.77)	(0.77)	(0.88)	(0.96)	(0.93)
Red-chip	0.03856	0.03843	0.02448	0.01774	-0.01120	-0.00945	-0.00942	-0.01629	-0.01754	-0.03558
	(0.71)	(0.71)	(0.47)	(0.35)	(-0.23)	(-0.17)	(-0.17)	(-0.30)	(-0.33)	(-0.70)
Ln (planned size)						0.02764***	0.02755***	0.02347***	0.02031**	0.01403*
						(2.99)	(2.99)	(2.63)	(2.33)	(1.69)
R^2	0.0180	0.0180	0.0166	0.0156	0.0114	0.0405	0.0405	0.0341	0.0294	0.0188
Adj. R^2	0.0129	0.0129	0.0115	0.0104	0.0063	0.0329	0.0329	0.0265	0.0218	0.0111
F-value	3.51	3.51	3.23	3.03	2.21	5.37	5.37	4.50	3.86	2.44
Pr>F	0.0308	0. 0309	0. 0405	0. 0495	0. 1109	0.0012	0.0012	0.0041	0.0097	0.0644

H-share and Red-chip are dummies for share type. H-share = 1 if the issue is H-share and = 0 otherwise. Red-chip = 1 if the issue is red-chip and = 0 otherwise.
Ln (planned size) is the natural logarithm of the planned offer size (planned number of shares to be issued to public multiplied by the offer price (or the middle of the offer price range, if any)).

t-value is shown in parentheses.
***1% level of significance; **5% level of significance; *10% level of significance.

Table 15. Regression Analysis of Initial Day Return of Different Share Types (N=386) (Continued)

Panel C:

	Nominal	Zero	Deposit	HIBOR	Prime
Intercept	-0.11894	-0.13236	-0.09751	-0.06783	-0.05144
	(-0.83)	(-0.92)	(-0.69)	(-0.48)	(-0.37)
Realized	0.00267***	0.00266***	0.00237***	0.00217***	0.00139***
Subscription Rate	(10.31)	(10.31)	(9.27)	(8.59)	(5.51)
H-share	0.00842	0.00836	0.01402	0.01788	0.02148
	(0.24)	(0.24)	(0.40)	(0.52)	(0.62)
Red-chip	-0.08233	-0.08203	-0.08090	-0.07676	-0.07366
	(-1.63)	(-1.63)	(-1.63)	(-1.56)	(-1.50)
Ln (planned size)	0.00920	0.00918	0.00712	0.00532	0.00440
	(1.10)	(1.10)	(0.86)	(0.65)	(0.54)
R^2	0.2497	0.2497	0.2117	0.1870	0.0913
Adj. R^2	0.2418	0.2418	0.2035	0.1785	0.0818
F-value	31.69	31.69	25.58	21.91	9.57
Pr>F	0.0001	0.0001	0.0001	0.0001	0.0001

H-share and Red-chip are dummies for share type. H-share = 1 if the issue is H-share and = 0 otherwise. Red-chip = 1 if the issue is red-chip and = 0 otherwise.
Ln (planned size) is the natural logarithm of the planned offer size (planned number of shares to be issued to public multiplied by the offer price (or the middle of the offer price range, if any)).

t-value is shown in parentheses.
***1% level of significance; **5% level of significance; *10% level of significance.

Table 16. Regression Analysis for the Impact of Realized Subscription Rate on the Market Adjusted Initial Day Return (N=386)

Dependent variable: Market adjusted nominal IPO return

Intercept	0.3841***	0.01279	-0.01811	-0.08612*
	(2.79)	(0.70)	(-0.82)	(-1.68)
Realized	0.00273***	0.00272***	0.00272***	0.00268***
subscription rate	(10.79)	(10.80)	(10.91)	(10.65)
Deposit rate[a]		0.01614**		
		(2.11)		
HIBOR[a]			0.01981***	
			(3.24)	
Prime rate[a]				0.01867***
				(2.53)
H-share	0.02710	0.03080	0.03240	0.03160
	(0.87)	(0.99)	(1.05)	(1.02)
Red-chip	-0.06873	-0.07060	-0.06917	-0.06932
	(-1.41)	(-1.45)	(-1.43)	(-1.43)
R^2	0.2473	0.2560	0.2675	0.2597
Adj. R^2	0.2414	0.2482	0.2598	0.2519
F value	41.83	32.78	22.30	33.41
Pr>F	0.0001	0.0001	0.0001	0.0001

[a] The average interest rates between the deadline of application and the settlement day is used to reflect the impact of the interest rate level on the financing cost. H-share and Red-chip are dummies for share type. H-share = 1 if the issue is H-share and = 0 otherwise. Red-chip = 1 if the issue is red-chip and = 0 otherwise.

t-value is shown in parentheses.

***1% level of significance; **5% level of significance; *10% level of significance.

Table 17. Regression Analysis on Realized Subscription Rate

Dependent variable: Realized public subscription rate

Intercept	23.4479***	-95.81345***	-89.27137***
	(9.34)	(-3.42)	(-3.22)
H-share	23.5397***	8.436171	9.365534
	(3.81)	(1.20)	(1.35)
Red-chip	39.32471***	27.31736***	27.49214***
	(4.07)	(2.77)	(2.82)
Ln_planned size		6.912743***	6.350108***
		(4.27)	(3.96)
Previous market adjusted IPO return			28.72971***
			(3.55)
N	386	386	384
R^2	0.0683	0.1108	0.1390
Adj. R^2	0.0634	0.1038	0.1299
F value	14.03	15.87	15.30
Pr>F	0.0001	0.0001	0.0001

H-share and Red-chip are dummies for share type. H-share = 1 if the issue is H-share and = 0 otherwise. Red-chip = 1 if the issue is red-chip and = 0 otherwise.
Ln (planned size) is the natural logarithm of the planned offer size (planned number of shares to be issued to public multiplied by the offer price (or the middle of the offer price range, if any)).
t-value is shown in parentheses.
***1% level of significance; **5% level of significance; *10% level of significance.

Table 18. Regression Result on the Relationship between Interest Earnings and Underpricing

Dependent variable:	Ln of interest earnings	Interest earnings as % of total funds raised	Interest earnings as % of forecast earnings[a,b]
Intercept	11.61153***	0.00238***	0.00690
	(68.08)	(3.62)	(0.64)
Nominal initial day return	5.28636***	0.02506***	0.33649***
	(9.31)	(11.48)	(10.87)
H-shares	2.56456***	0.0009953	-0.02554
	(6.43)	(0.65)	(-1.31)
Red-chips	2.68645***	0.00697***	0.07268**
	(6.35)	(2.94)	(2.24)
N	386	386	191
R^2	0.2986	0.2774	0.3919
Adj. R^2	0.2931	0.2717	0.3821
F-value	54.22	48.88	40.48
Pr>F	0.0001	0.0001	0.0001

[a] The correlation between nominal return and ln of interest earnings is 0.45, between nominal return and interest earnings as a percentage of total funds raised is 0.51, and between nominal return and interest earnings as a percentage of forecast earnings is 0.61.
[b]The regression analysis uses a sub-sample of 191 issues that provide forecast earnings in their prospectuses. The sample contains 44 H-shares, 13 red-chips and 134 issues in the others category.
t-values of the estimates are shown in parentheses.
***1% level of significance; **5% level of significance; *10% level of significance.

Table 19. Regression Results on the Relationship between Offer Price Location and Subscription Rate

Intercept	0.6112***	0.59622***
	(22.48)	(21.58)
Nominal subscription rate	0.0006375***	
	(7.68)	
Realized subscription rate		0.00332***
		(8.02)
H	0.01466	0.00896
	(0.30)	(0.19)
Red	0.0535	0.02636
	(0.72)	(0.36)
N	248	248
R^2	0.2062	0.2199
Adj. R^2	0.1965	0.2103
F-value	21.13	22.92
Pr>F	0.0001	0.0001

t-values of the estimates are shown in parentheseis.
***1% level of significance; **5% level of significance; *10% level of significance.

Figure 1. Major Events for Public Subscribers in a Typical Hong Kong IPO