Incentive Fees: Do they bond underwriters and IPO issuers?

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This paper examines the impact of incentive fees in mitigating conflicts of interest between the IPO firms and their underwriters. Consistent with cost minimisation hypothesis, our results show that granting incentive fees to underwriters results in lower listing costs and high IPO proceeds. We find IPOs that are large, not cash constrained at the time listing and those underwritten by reputable underwriters are more likely to offer incentive fees. Further tests reveal that incentive fees are granted when the market is volatile, but the average listing costs as a proportion of gross proceeds is 9.328% compared to 12.293% for IPOs that do not provide incentives to their underwriters. The listing costs decrease by 6.724% specifically for IPOs that offer incentive fees. Overall, the evidence shows that large Hong Kong IPOs can minimise their listing costs and maximise their proceeds by offering incentive fees to their underwriters as part of their compensation package.

Key words: Incentive fees; Underwriter compensation; Hong Kong; Underwriter reputation; Initial Public offerings.

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1. Introduction

"Incentive fees, which are awarded to the leading or star banks in a deal deemed to have done a good job. Bankers say that while such incentives have been around for some time, the number of deals offering them last year picked up noticeably. Dealogic data bear that out: 40 IPOs that raised a total of $45.2 billion offered incentive fees in Hong Kong last year, compared with 27 deals offering $14.4 billion in 2009, according to the data provider. In the Asian-Pacific region, 55 IPOs had incentive fees, compared with 31 in 2009. In Europe last year, 20 IPOs had incentive fees. By contrast, North America had just one, and that was a London listing: Seattle clean-water technology company Halo Source Inc., which raised $80 million in an initial public offering on London's Alternative Investment Market". Wall Street Journal, January 17, 2011.

The total compensation package of IPO underwriters can be (i) cash in the form of gross spread only, (ii) gross spread and warrants that give the underwriters the option to purchase the IPO shares after listing or (iii) gross spread and an incentive fee. The gross spread represents a significant component of the underwriters' total compensation and the direct listing costs of the IPO firms. The incentive fee is paid over and above the gross spread. This component of the compensation is only paid when the underwriter reaches some explicit or non-explicit threshold as set out by the issuers (Garrahan, 2005). The incentive fee is widely used in the Asian markets, especially in the Hong Kong IPO market (Goplan, 2011). A number of very large IPOs that went for listing on the Hong Kong stock exchange have used the incentive fee to lower their issuing costs and maximise their proceeds. For instance, Sinotrans Shipping Ltd listed in November 2007, paid its underwriters a gross spread of 2.5% and an incentive fee of 1.25%. Similarly, Sinopec Engineering Group listed in May 2013 paid a gross spread of 1% and an incentive fee of 0.8%. The Chinese internet company (Alibaba) listed on the NYSE in September 2014 paid its five lead underwriters (Credit Suisse, Deuthsche Bank, Goldman Sachs, JP Morgan & Morgan Stanley) a 1% gross spread of the $25 billion gross proceeds ($250 million) and also offered to pay an "incentive fee" 0.2% ($50 million). The incentive fee is paid at the discretion of Alibaba.

Underwriter's compensation forms a significant part of the different direct costs for a typical IPO company. Although it is well documented in the IPO literature that listing costs are significant, there are ways for the IPO companies to minimise these costs. For example,

Dunbar (1995) and Garner and Marshall (2014) show that US IPO companies can minimise the costs of IPO listing by granting warrants to their underwriters as part of their compensation package. Similarly, Khurshed, Kostas, and Saadouni (2016) find that UK IPO companies seeking listing on the Alternative Investment Market (AIM) can minimise their costs of going public by issuing warrants as part of the compensation package to their underwriters. These warrants give the underwriters the option to buy shares of the IPO company at a fixed price. Some IPO companies may, at their discretion, pay the underwriters an incentive fee. This fee is usually dependent on the final offer price relative to the price range (Jenkinson and Jones, 2009). Jenkinson and Jones (2009) report that based on Deallogic database, over the period 2004 to 2007, 27% of the European IPO companies included an incentive fee component as part of the compensation of the underwriters and yet this form of compensation is almost ignored in the academic literature. We aim to examine the use of incentive fees payments as part of underwriter's compensation package for IPO companies listed on the Hong Kong Stock Exchange. The Hong Kong institutional setting is similar to UK, but different from the US. While, in the US, both cash and non-cash components of the compensation of the underwriters of the IPO companies are constrained by regulatory requirements. The compensation of Hong Kong IPO underwriters is not subject to any regulatory requirements. It is also unique in that it is the only market, where more than 50% of the recent IPO companies offer the incentive fee to their underwriters. The compensation of some IPO underwriters can be into two components: (1) underwriting gross spread, which tends to average about 3% of the gross proceeds; (2) An incentive fee payment, which in some IPO offerings could be double the underwriting gross spread. The decision of whether the incentive fee is paid or not is at the discretion of the IPO companies. This incentive fee is only paid only paid after listing. To the best of our knowledge, this is the first paper that examines the use of incentive fees payments as part of the compensation package to the underwriters of the IPO firms. This component of the compensation is different from warrants issued to underwriters. The key difference is the payment of the incentive fee, which is at the discretion of the IPO firm. However, the exercise of the warrants by the underwriters is dependent on the offer price and the performance of the IPO shares post listing. The latter type of compensation may give arise to a conflict of interest. This may arise as the underwriter is responsible for the valuation of the IPO firm and part of their compensation is linked to the offer price and the performance of the IPO firm post listing. The lower the offer price, the higher the value of warrants and the higher the underwriters' compensation. However, this is unlikely to be the case for the IPO firms that offer an incentive fee to their

underwriters as part of the compensation package. The IPO companies are likely to pay the incentive fee if and only if they manage to maximise the offer price and hence the gross proceeds. However, the higher the offer price the more difficult it is for the underwriter to sell the offering.

The main novelty of our paper is that to the best of our knowledge, this is the first study that considers the incentive fees as part of underwriters' compensation. The paucity of empirical research in this area is surprising given the fact that the incentive fees payments to underwriters are becoming more prevalent in many countries (Jenkinson and Jones, 2009). According to data provider Dealogic, Gopalan (2011) notes that 40 Hong Kong listed IPOs offered incentive fees as part of the underwriters' compensation in 2010, and this form of compensation is becoming more widely used by European IPOs as well.

For a sample of 680 Hong Kong IPOs listed over the period 2003-2013, we find that, IPOs that grant incentive fees to their underwriters, the total package of underwriter compensation of 3.727%. This consists of an average gross spread of 2.834% and an average incentive fee of 0.893% of the gross proceeds. This total compensation of 3.727% is lower than the 7% (for offerings with gross proceeds in the range of $25 mil-$100 mil - large) reported by Abrahamson, Jenkinson and Jones (2011) and Chen and Ritter (2000) and 13.9% (for small IPOs) reported by Garner and Marshall (2014), for US IPOs. The total compensation for the underwriters in Hong Kong is also slightly lower than the 4% (for large offerings) reported by Abrahamson et al. (2011), for European IPOs. We focus on a company's decision to include incentive fees as part of the underwriter's compensation package. We examine the types of firms that are likely to offer incentive fees to their underwriters, whether reputable underwriters are likely to accept this form of compensation, and whether market conditions have any bearings on the decision to offer incentive fees. We find that IPOs that are large, not cash constrained at the time listing and those that underwritten by reputable underwriters are more likely to offer incentive fees. Further, incentive fees are more likely to be offered in volatile markets. We next examine whether the objective of cost minimisation is a key factor in the granting incentive fees as part of the of the compensation package to the underwriters of Hong Kong IPOs. Based on the 'what-if' analysis, our results reveal that that Hong Kong IPO firms make efficient decisions in their choice of the compensation package for their underwriters. Those IPOs that grant their underwriters incentive fees as part of the compensation package are able to minimise their total IPO costs (total underwriter's

compensation plus underpricing). The results show, IPOs that grant incentive fees incur an average total cost of 9.328%% of the gross proceeds. This cost would have been 16.052% had they not granted incentive fees to their underwriters. For the subsample of IPOs that do not grant incentive fees, the actual total IPO listing cost is 12.293% (a total underwriter compensation of 2.793% plus underpricing of 9.5%). This would have been 18.717% if these firms had granted incentive fees. These findings provide support for Dunbar's (1995) 'cost minimisation' hypothesis and suggest that, in a market with no regulatory constraints on underwriter's compensation IPOs that grant incentive fees minimise their total listing costs.

The remainder of this paper is organised as follows. Section 2 provides brief information on the Hong Kong stock exchange. In section 3, we discuss the literature on underwriter's compensation and the related literature concerning the use warrants as a part of the underwriters compensation. In Section 4, we describe our data. Section 5 presents our results and analysis. Section 7 concludes

2. Hong Kong Stock Exchange Market

This section describes some of the key features of the Hong Kong Stock Exchange that are relevant to underwriter's compensations. The IPO market of the Hong Kong Stock Exchange (HKEx) ranks highly internationally. It has proved to be resilient in terms of IPO volume while other IPO markets (including London Stock Exchange, NASDAQ and NYSE) experienced significant falls in the volume of IPOs following the internet bubble (1999-2001) and after the Financial Crisis of 2008. Over the past decade, HKEx has consistently ranked amongst the world's top five IPO markets in terms of funds raised by IPO firms, and ranked first in three successive years following the 2008 Financial Crisis (2009-2011) and in 2015 and 2016.

Hong Kong stock exchange requires IPO firms to provide detailed information on underwriters' compensation and any incentive fees that they may grant to the underwriters. As of April 2003, the Hong Kong stock exchange rules require the underwriters to disclose the following information within seven days following the expiry of the over-allotment option and the stabilization period: (i) if and the extent to which the overallotment options were exercised (ii) whether the issue was stabilized; (iii) the expiry date of the stabilization period; (iv) where there were more than one purchase for the purpose of stabilization, the

price range at which underwriters repurchased the shares; and (v) the date of the last purchase relating to stabilization and the price at which it was made.

Unlike most markets, including the US and UK, the Hong Kong stock exchange also requires underwriters to fully disclosure information on the overall demand for IPO shares by investors, and on the allocation of shares in the IPO to various investor groups.

3. Literature Review

Chen and Ritter (2000) examine US firm-commitment offerings for the period 1985-1998 and find that more 90 percent IPOs with gross proceeds of between $20 million to $80 million almost paid a gross spread of 7% to the underwriting syndicate. They concluded that the clustering of gross spread is consistent with implicit collusion or "strategic pricing". This prompted an investigation by the U.S. Department of Justice. The investigation was dropped due to lack of evidence of explicit collusion between underwriters. However, Hansen (2001) & Torstila (2003) argue against even implicit collusion. Hansen reports that the U.S. IPO market is far from being concentrated and barriers to entry are low. Torstila uses a very large sample of IPOs from Asian Pacific, European and US markets to examine gross spreads in other markets as well as the US ones. He reports that the gross spreads in other markets is different and varies from country to country. For example, gross spreads tend to cluster at 2.5% in Hong Kong, India and Singapore, 2% in Malaysia and 2.5% to 4% in some of the European markets (Germany, France, and Belgium). His results show that clustering occurs at much lower level and is more pronounced in countries with even lower spreads. He concludes that although there is clustering of spread in these markets as well, but at lower levels, and argues that this clustering does not imply collusion amongst underwriters.

Abrahamson, Jenkinson, & Jones (2011) report that the "7% solution" has become more pronounced during the period 1998-2007. They report that just over 95% of U.S. IPOs raising gross proceeds in the region of $25 mil - $100 mil had gross spreads of exactly 7%. This is

higher than the 84% reported by Chen & Ritter (2000). In contrast to Chen & Ritter (2000) who finds that no IPOs in their sample with over $150 million proceeds had a 7%, Abrahamson et al. (2011) report that gross spreads of 7% became more common for larger IPOs (77% of IPOs with offer size $100 mil - $250 mil charge exactly 7%). The authors also report that gross spreads of European IPOs are not clustered. They find European IPOs with offer size of $25 mil-to- $100 million pay an average spread of just over 4%and only 1% of IPOs raising $25 million or more had a gross spread of 7%. They find that gross spreads for larger U.S. IPOs have increased over time, while European spreads got cheaper. Abrahamson et al. (2011) find that the same investment banks charge significantly higher fees for underwriting U.S. IPOs than for similar IPOs they underwrite in Europe. Overall, the authors conclude, "despite entry into both markets, strategic pricing occurs in the United States but not in Europe".

Previous studies have focused on why the IPO firms issue warrants to the underwriters as part of their compensation package. However, to the best of our knowledge, we are not aware of any study that examines incentive fees as part of underwriters' compensation. Barry et al., (1991) use circumvention hypothesis, Dunbar (1995) uses cost minimisation hypothesis, while Ng and Smith, (1996) use certification hypothesis to explain the reasons for the IPOs to issue warrants to the underwriters. The circumvention hypothesis argues that underwriters use warrants as a way to avoid the maximum compensation guidelines set by the Financial Industry Regulatory Authority (FINRA) (formerly the National Association of Securities Dealers - NASD).. In Hong Kong, there is no regulatory requirement that sets any limits to the underwriters' compensation and hence the circumvention hypothesis is not applicable in the context of Hong Kong IPOs market. The cost minimisation hypothesis postulates that IPO firms minimise their costs of going public by issuing non-cash compensation to their

underwriters. According to the certification hypothesis, underwriters include warrants as part of their compensation to certify that the issue is not overpriced.

The empirical literature that examines the use of warrants as part of the underwriters' compensation in firm commitment offerings is limited to the US and UK. The acceptance of warrants as part of the compensation package for underwriters in the US might be due to the fact that the pricing formula used by the regulator undervalues warrants when compared to the Black and Scholes and Constant Elasticity Variance (CEV) models. This is because the FINRA model does not take into account the volatility of the IPO shares (Garner and Marshall, 2014). This means that underwriters are more likely to demand warrants as part of compensation when taking risky IPOs for listing than charging the issuers a high cash gross spread that would violate NASD guidelines. Barry et al. (1991) provide evidence that the total costs of going public are significantly higher for IPOs that issue warrants than those do not issue warrants.

Dunbar (1995) finds the total costs of US IPO issuers are lower for those who use warrants as part of underwriter's compensation package than those do not issue warrants. Moreover, his results support the cost minimisation hypothesis, according to which issuers choose the type of contract that minimises their costs. Thus, underwriter warrants are chosen because they are considered a credible signal that the offering will not be overpriced (underwriter certification). Ng and Smith (1996) provide evidence that issuers select contracts that maximise their net proceeds. The total underwriter costs would have been much higher had the issuers not used warrants. Ng and Smith (1996) also find evidence in support of the certification hypothesis since less well-established underwriters, who lack reputational capital, certify offers by accepting warrants as part of their compensation. Hence, they mitigate the information asymmetry problem on whether the issue is overpriced, since their compensation is tied to the aftermarket price performance. Moreover, Ng and Smith (1996)

show that companies that are small, risky, and have significant growth opportunities use warrants as part of their underwriters' compensation package. Overall, the authors suggest that certification has a much greater effect on the decision to use warrants than circumvention.

Garner and Marshall (2014) study small US firm commitment offerings (gross proceeds of $20 million or less) and find that the compensation structure of the IPO firms reveals information about their quality. When underwriters trade off warrants for cash compensation, or in other words when underwriters include warrants in their compensation packages instead of cash, then the IPO firms outperform in the long-run. However, when underwriters maximise their cash compensation and receive warrants, then IPO firms underperform in the long-run.

Previous US studies show that risky firms are more likely to use warrants (Barry et al., 1991) in order to provide extra compensation to their underwriters. We aim to investigate whether the choice to provide cash incentive is any different from warrants in a market with different settings than US. Since incentive fees are different from warrants in terms of commitment, we expect that such firms to be large and less constrained in terms of cash. Since IPOs that issue warrants are risky, those that grant incentive fees might be less risky provided that they are large in size with more cash than those choose not to do so.

Underwriters are repeat players in capital markets. While the need to maintain (or even build up) reputational capital provides the underwriter with an incentive to exert effort to conduct due diligence especially when the underwriter is provided with incentive fees *A priori* it is reasonable to predict that both non-reputable and reputable underwriters would be offered incentive fees as part of their compensation package. However, Barry et al. (1991) and Garner and Marshall (2014) show that, for US IPOs, non-reputable underwriters are more

likely to have warrants in their compensation packages. We seek to explore whether incentive fees are offered to reputable or non-reputable underwriters.

Dunbar (1995) and Ng and Smith (1996) find that companies minimise their costs of going public by using warrants as part of the compensation package. The main source of this reduction in costs comes from reduced underpricing of the issue (Barry et al., 1991, Booth and Smith, 1986, Dunbar, 1995). If insiders can credibly send a signal to the market that they are not selling overpriced securities, then investors are likely to require a lower level of underpricing (Dunbar, 1995). One way to achieve that is to compensate the underwriters with warrants. Certification through warrants should be more valuable for smaller and riskier firms, which are characterised by greater informational asymmetries, because insiders may be better informed about the true value of the companies than outside investors. We examine whether the cost minimisation hypothesis or certification hypothesis explain the use of incentive fees in the Hong Kong IPO market. The use of incentive fees as part of the underwriters' compensation package is gaining popularity amongst European IPOs. To date very little is known about whether incentive fees have any value to the IPO firms in terms of minimizing the underwriters compensation (gross spread plus incentive fee) and the underpricing and maximizing gross proceeds. Traditionally, Hong Kong IPOs offer incentive fees to their underwriters and has been a popular method for compensating the underwriters instead of warrants. Our study would shed lights on the types of IPOs that are likely to issue incentive fees and whether investors view the incentive fees as credible signal about the quality of the issuing firms by accepting a small discount on the issuers' underpricing.

4. Data

Our study focuses on the IPOs listed on the HKEx from January 2003 through December 2014. We begin our analysis with all IPO firms that went public during our study period. The list of IPO firms and their listing dates are obtained from the Hong Kong Stock Exchange

Annual Fact Book. We exclude introductions, private placements and transfers from General Enterprise Market (GEM) to the Main Board, which leaves a final sample of 680 IPOs. This final sample consists of 285 IPOs that have granted incentive fees to their underwriters and the remaining subsample of 395 did not grant incentive fees to their underwriters.

The data relating to the lead underwriters, underwriters syndicate, the different components of underwriters compensation including the gross spread and incentive fees (if there is any), are from the IPO prospectuses, the Hong Kong Stock Exchange (allocation details), and internet searches. Data on issuers' characteristics such as offer size, offer price, listing date, gross proceeds, market capitalisation, the size of overallotment option and the relevant pre-listing accounting information is collected from the issuers' prospectuses. IPO prospectuses are downloaded from the Hong Kong Stock Exchange website. About 40% of the IPO firms in the sample had an incentive fee component for the compensation of the lead underwriters. The first-day closing stock prices are from DataStream.

5. Results and Analysis

5.1 Univariate Analysis

Table 1 reports the distribution of Hong Kong book building IPOs listed over the period 2003-2014. The table also reports the number and percentage of IPOs that grant incentive fees to their underwriters and the average annual gross spread of both IPOs with and without incentive fees. The figures show that the use of incentive fees increased from a low of 2.5% in 2003 to a high of nearly 72% in 2014. The average gross spread varied from a low of 2.67% to a high of 2.94% paid by IPO firms in 2010.

[INSERT TABLE 1 HERE]

Table 2 shows the descriptive statistics for the full sample of IPOs that went public between 2003 and 2014. The figures are reported by mean, median and standard deviations. The mean size of a firm listing in Hong Kong Stock Exchange is HK$8.5 billion, while the median is HK$1.2 billion. The standard deviation of the size is around HK$18 billion. This shows that the size of IPO firms listing in Hong Kong vary significantly in terms of size. The mean

initial returns are 7.8%, while the median is 2.8%. This is slightly lower than initial returns reported for the US, UK and other European markets. However, the lower initial returns might also reflect the fact that only few firms seeking listing in Hong Kong Stock Exchange are Technology firms. Typically, initial returns (i.e. underpricing) is higher in the Technology sector than other sectors. It is evident from the table that listed firms on Hong Kong market are mature and aged between 13 (median) and 15 (mean) years. This is very different to the firms listed in US or Europe. On average the gross proceeds at the time of listing is HK$2.38 billion, while the median proceeds is HK$0.903 billion. The standard deviation of the gross proceeds is around HK$3.74 Billion, which is high and explains the high difference between mean and median values. The insider ownership has a mean of 77% and median of 75%. This suggests that on an average, existing shareholders of the IPO firms tend to sell the minimum shares as required by the listing requirements. On an average, IPO firms have high growth potential (46.2%) as measured by book to market ratio. Underwriters are compensated between 2.75% (median) and 2.83% (mean) by each firm seeking listing. Cash to gross proceeds is close to 1 (i.e 0.86) at the time of listing. This suggests that IPO firms tend to raise cash as much as they hold. The average (median) volatility of the IPO stock k returns in the aftermarket is about 25.7% (20.7%), which is consistent with the previous Hong Kong studies, while the market volatility is 3.2% on an average with median of 3%. The figures also show that reputable underwriters take nearly 55% of Hong Kong IPOs to the market. This percentage is higher than IPOs taken public by reputable underwriters in other markets.

[INSERT TABLE 2 HERE]

To investigate the characteristics of the IPO firms that provide incentive fees to the underwriters, we split the full sample into two subsamples: (I) IPOs that provide incentive fee to their underwriters and (II) those do not provide any incentive fees. Table 3 provides the mean and median values for each of the subsample and statistical differences in mean and

median values. Except for the age, insider ownership and stock return volatility, IPOs that grant incentive fees to their underwriters are different from those do not. They are typically, larger; less underpriced, raise more cash, have higher growth potential, higher underwriter's compensation and are generally underwritten by reputable underwriters. The difference in means and median values are significant at 1% level and economically meaningful. For instance, almost 76% of the IPOs that grant incentive fees are taken to the market by reputable underwriters compared to only 40% of the IPOs that do not. Although the 40% might seem a higher proportion, it is less than the average percentage of IPO firms that have reputable underwriters (40% vs 55%) when listing in the Hong Kong market. It is clear from the Table, IPOs that provide cash incentives to the underwriters are different in terms of characteristics from those without incentives.

[INSERT TABLE 3 HERE]

Table 4 shows the frequency distributions of IPOs that grant incentive fees and those do not provide any incentives to the underwriters. Approximately, 44% of the IPOs with incentive fees pay a gross spread (excluding the incentive fee) of between 2.5 and 3%, compared to only 29% for the IPOs without incentive fees. Similarly, 51.69% of the IPOs without incentive fees pay 2 to 2.5% gross spread and only 25.26% of the IPOs with incentive fees pay similar underwriters' gross spread. Clearly, the underwriters' compensation is different between IPOs with and without incentive fees in terms of frequency. The highest underwriters' compensation fees are between 5% and 5.5% for IPOs with incentive fees, while the compensation from IPOs without incentive fees range from 4.5% to 5%. Only about 1.4% of the IPOs with incentive fees pay gross spread between 0.5% and 1%, while only 0.52% of those without incentive fees pay similar gross spread to the underwriters. Overall, the results of Table 4 show that underwriters' compensations vary significantly between IPOs with and without incentives in terms of frequency distributions.

[INSERT TABLE 4 HERE]

Table 5 reports the descriptive statistics (means, medians, maximum, minimum, and standard deviation of the gross spread of IPOs with and without incentive fees. The table also shows descriptive statistics of the incentive fees and the incentive fees as a percentage of gross spread of IPOs with incentive fees. The figures show that IPOs without incentive fees pay a mean (median) gross spread of 2.793% (2.5%) and a maximum and minimum of 5% and 1% respectively. The IPOs with incentive fees pay a slightly a higher mean (median) gross spread of 2.834% (3.0%) and a maximum (minimum) of 5.2% (0.75%). The standard deviation of the gross spread of IPOs with incentive fees is higher than the standard deviation of the gross spread of IPOs without incentives (0.624% vs 0.485%). The average (median) incentive fee is 0.893% (0.8%) with a maximum (minimum) of 6.7% (0.1%) and a standard deviation of 0.639%. The average (median) incentive fee as a percentage of the gross spread is about 35% (29%) with a maximum (minimum) of 233% (5%) and standard deviation of 29.3%.

[INSERT TABLE 5 HERE]

5.2 Multivariate Analysis

The choice of providing incentive fees to the underwriters during the IPO might be related to the total underwriters' compensation package and underpricing. Arguably, such decision might not be random and perhaps is driven by the need to maximize gross proceeds and minimize the total listing costs (gross spread plus underpricing). This imposes challenges in terms of estimating the determinants of underpricing or underwriters' compensation using traditional OLS regressions. Ng and Smith (1996) document the issue of non-random decisions among the IPO firms in terms of underwriters' compensation. Following their methodology, we use two-stage Heckman (1979) model to correct for sample selection and endogeneity. In the first stage, we estimate the choice of providing incentive fees to underwriters using a Probit model, where the dependent variable is a binary taking a value of

1 if the IPO firm decided to compensate underwriters with a gross spread plus incentive fee and zero otherwise. The model proceeds as follows:

$$I_i^* = Z_i\gamma + \varepsilon_i \qquad (1)$$

Vector Z_i includes size, age of the issuing firm, gross proceeds, insider ownership, book to market, cash to gross proceeds, stock return volatility, market volatility and underwriters' reputations that influence the decision to provide incentive fees to the underwriters. These variables may also affect the underpricing and total underwriter compensation. γ includes parameters estimated from the model and ε_i is the error term. I_i^* is equal to one if the IPO firm pays incentive fees and zero otherwise:

Table 6 shows the results of the Probit model estimated using equation (1). The results show that the choice of providing underwriters with incentive fees is increased by the size of the IPO firm, gross proceeds at the time of listing, low growth opportunity of the issuing firm, the ratio of cash relative to gross proceeds, market volatility and whether or not reputable underwriters underwrite the IPO firm. These results are consistent with our prior expectations that the decision to incentive fees to underwriters might not be random. Interestingly, these firms' characteristics have negative impact on the choice to provide warrants to the underwriters at the time of listing or seasoned equity offerings (Ng Smith 1996). This suggests that IPO firms that provide incentive fees are different from those provide warrants to the underwriters. It is possible to conclude from the results of Table 6 that incentive fees issuers at the time of listing are less risky than non-incentive fees IPO issuers.

[INSERT TABLE 6 HERE]

Next we examine the determinants of initial returns and underwriters' compensations at the time of listing controlling for sample selections. We calculate the inverse Mills ratios (IMR) as the probability of density function relative to cumulative distribution function using

predicted value from equation (1). The IMR is included as an additional control variable when estimating the determinants of the initial returns and underwriter's compensations. We estimate the following regressions:

$$y_{1i} = X_i\beta_1 + u_{1i} \quad (2)$$

$$y_{2i} = X_i\theta_2 + u_{2i} \quad (3)$$

Equation (2) estimates the determinants of underpricing, while equation (3) estimates the determinants of underwriters' compensations. X_i includes the control variables similar to equation (1), but excludes the ratio of cash to gross proceeds. This variable is more likely to influence the choice of providing cash incentive fees rather than underpricing or underwriters compensation. Li and Prabhala (2007) document that when using sample selection model, it is advisable to have a variable that determine the choice (i.e. first-stage), but not the outcome (second stage). We use the ratio of cash and cash equivalent to total gross proceeds as our exclusion variable. Arguably, the cash position of the IPO firm at the time of listing may have a bearing on the use of incentive fees, but not on the actual underpricing and the total compensation. Our determinants of the underpricing and underwriters' compensations are consistent with the previous studies (Ritter, 1984; Barry et al., 1991; Dunbar, 1995 and Ng and Smith 1996). Previous studies on US IPOs use the Carter and Manaster (1990) ranking to measure the underwriter's reputation. However, such measure is not possible for the Hong Kong IPOs due to the data availability. We measure underwriters' reputation as the market share of their gross proceeds consistent with Migliorati and Vismara (2014) approach.

The results of second stage regressions controlling for sample selections are reported in Table 7. Model 1 & 2 shows respectively the determinants of the underpricing for IPOs that provide incentive fees and those do not. While Model 3 & 4 show the determinants of the underwriters' compensations for both subsamples (IPOs with and without incentive fees).

Model 1 of Table 7 shows that the size of the IPO firm at the time of listing, age, insider ownership and underwriters reputation reduces the underpricing when the IPO firm choose to pay incentive fees to underwriters. Growth opportunities of the IPO firms, stock returns volatility in the aftermarket and gross proceeds at the time of listing have no impact on the underpricing. The results show that the subsample of IPOs with incentive fees are subject to sample selection as shown by significant Inverse Mills ratios. Model 2 shows that the underpricing is high for IPOs that choose not to grant incentive fees to their underwriters, especially when the growth opportunity is low and market volatility at the time of listing is high. There is a weak evidence to suggest that age of the IPOs reduces the underpricing.

Model 3 of Table 7 shows that underwriters' compensation is high for IPOs with incentive fees. This evidence is more pronounced when the IPOs are large, raise higher proceeds, are associated with low growth opportunity, listed during high market volatility and are underwritten by reputable underwriters. The evidence is statistically significant at 5% level. For the subsample of IPOs without incentive fees (Model 4), the underwriters' compensation is high when the IPOs are mature and in some cases are large. However, the latter evidence is significant at 10% conventional level.

Overall, the results show that the size of the IPO firms, the market volatility and underwriters' reputations have impact on underpricing and underwriters' compensations for IPOs that provide incentive fees at the time of listing. Gross proceeds determine the size of underwriters' compensations, but not the level of underpricing. There is a clear evidence that the subsample of IPOs with incentive fees is subject to sample selection.

[INSERT TABLE 7 HERE]

The coefficients in Table 7 are used to estimate what the underpricing and total underwriter compensation would have been had the issuers decided to provide incentive fees to their

underwriters or no incentive fees. We compare these values with the actual underpricing and total underwriter compensation.

Table 8 shows that, for IPOs that provide incentive fees to their underwriters, the mean actual compensation is 3.727% (gross spread + incentive fee) but would have been 7.232% had they not offered an incentive fee to their underwriters. This suggests IPOs that have chosen to offer incentives to their underwriters, would have had to pay higher underwriters compensation without incentive fees.

For the same group of IPOs, the actual underpricing is 5.601% but would have been 8.82% if the company had decided not to grant incentive fees to their underwriters. The results suggest that the IPO firms would have paid higher underwriters' compensation and experienced higher underpricing, had they chosen not to offer incentives fees to their underwriters

For IPOs that have chosen not to pay incentive fees, the actual mean underwriters' compensation (gross spread) is 2.793% but it would have been 6.528% had they chosen to offer incentive fees to their underwriters. In terms of underpricing our results show that the actual mean underpricing is 9.50% and it would have been 12.189% if the IPO company had paid incentive fees to the underwriters. The results suggest that for the decisions of IPOs that do not provide incentive fees to their underwriters are optimal.

Overall, it is evident from the Table IPOs that provide cash incentives minimise their costs of going public by reducing the underwriter's compensations and the underpricing. Our findings suggest that, even in an environment where there are almost no regulations regarding underwriters compensation, Hong Kong IPOs issuers are able to minimises the total costs of going public. Since risky IPOs can minimize the total costs of going public by issuing

warrants (Dunbar 1995; Ng and Smith, 1996), our results show that less risky IPOs can do so by offering incentive fees to their underwriters.

[INSERT TABLE 8 HERE]

6. Conclusions

This paper examines the use of incentive fees as part of underwriters' compensation for firms seeking listing on the Hong Kong Stock Exchange. The market is unique in that IPOs can choose to grant or not to grant incentive fees to the lead underwriters as part of their compensation. This method of compensating underwriters is becoming attractive among European IPOs. Since the impact of incentive fees to the underwriters' compensation remains unexplored, we attempt to shed light on the impact of incentive fees to the underwriter's compensation or costs of going public.

Our results show that the choice of offering incentive fees is high when the IPO firms are large, raise more proceeds, have low growth opportunities, go public during high market volatility and are underwritten by reputable underwriters. These results sharply contrast previous studies on IPOs that issue warrants as part of underwriters' compensations. Our findings suggest that less risky IPOs tend to use incentive fees at the time of listing to minimize underpricing and underwriters' compensation. Further, we show that the decision to offer incentive fees to the underwriters is optimal and indeed serves the purpose.

Together, our findings suggest that, even in an environment where there are almost no regulations regarding the compensation of IPO underwriters, issuers can minimise the total costs of going public. It appears that less risky IPOs and those underwritten by reputable underwriters, the use of incentive fees minimises the costs of going public. This is consistent

with cost minimization and certification hypotheses. Our results are important and provide an alternative, to firms seeking to minimise the total costs of listing.

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Table 1: Distribution of IPOs by Year of Listing, IPOs with Incentives and Average Gross Spread. The table shows the number of Hong Kong IPOs by year of listing, number and percentage of IPOs with incentive fees by year and the annual average gross spread of a sample of 680 Hong Kong IPOs listed during the period 2003-2014

Year	Book Building IPOs	IPOs with the Incentive Fee	% IPOs with incentive Fees	Average Gross Spread (%)
2003	40	1	2.50	2.75
2004	30	2	6.67	2.67
2005	51	6	11.76	2.68
2006	50	6	12.00	2.79
2007	72	24	33.33	2.85
2008	26	12	46.15	2.84
2009	57	31	54.39	2.91
2010	81	40	49.38	2.94
2011	65	33	50.77	2.79
2012	48	26	54.17	2.78
2013	72	41	56.94	2.82
2014	88	63	71.59	2.88

Table 2: Descriptive statistics

The table shows the descriptive statistics for the full sample from 2003 through 2014. *Size* is the value of the total asset at the time of listing, *Initial return* is measured as the difference between first day closing price minus offer price deflated by the offer price, *Age* is measured as the difference between founding date and the IPO date in years, *Proceeds* is the gross proceeds at the time of IPO, *Ownership* is the proportion of shares retained by at the time of listing, *Book to market* is the ratio of book value of assets to market value , *Compensation* is the percentage cash of underwriters' compensations, *Cash/GP* is the cash and cash equivalents, available the year prior to the IPO, divided by the gross proceeds, *Com Vol* is the standard deviation of the IPO firm returns measured over 20 days in the aftermarket, *Market vol* is the market standard deviation measured over 250 business days before the IPO date, *Underwriter Rep* is a dummy variable taking a value of 1 if the underwriters is reputable and zero otherwise.

	Full sample 2003-2014		
	Mean	***Median***	***STD***
Variable Names			
Size (HK$ Mil)	8533	1262	18170
Initial returns	0.078	0.028	0.158
Age (Years)	15.036	13.000	11.616
Proceeds (HK$ Mil)	2380	903	3740
Ownership	0.770	0.750	0.046
Book to market	0.462	0.058	0.988
Compensation (%)	2.833	2.750	0.570
Cash/GP	0.861	0.195	0.497
Com Vol	0.257	0.207	0.204
Market vol	0.032	0.030	0.015
Underwriter Rep	0.546	1.000	0.498
No of obs	***680***		

Table 3: Descriptive statistics

The table shows the descriptive statistics by means and medians for the sample of IPO firms with and without incentives. *Size* is the total asset at the time of listing, *Initial returns* is measured as the difference between first day closing price minus offer price deflated by the offer price, *Age* is measured as the difference between founding date and the IPO date in years, *Proceeds* is the gross proceeds at the time of the IPO (given in Million HK$), *Ownership* is the proportion of shares retained by the existing owners at the time of listing, *Book to market* is the ratio of book value of assets to market value , *Compensation* is the percentage of underwriters' compensations (underwriting spread), *Cash/GP* is the cash and cash equivalents, available the year prior to the IPO, divided by the gross proceeds, *Com Vol* is the standard deviation of the IPO firm returns measured over 20 days in the aftermarket, *Market vol* is the market standard deviation measured over 250 business days before the IPO date, *Underwriter Rep* is a dummy variable taking a value of 1 if the underwriters is reputable and zero otherwise. *T-test* measure the difference in means, while the *z-value* measure the difference in medians. ****,**,* indicate 1%, 5% and 10% significant levels.

	With incentive fees		***Without incentive fees***			
	Mean	***Median***	***Mean***	***Median***	***T-test***	***Z-value***
Variables Names						
Size (Mil HK$)	9699	1715	7669	1034	-1.971**	-3.301***
Initial returns	0.056	0.011	0.095	0.051	3.159***	3.794***
Age (years)	15.565	13.000	14.644	12.000	-1.014	-1.025
Proceeds (Mil HK$)	2850	1390	2030	487	-2.816**	-7.660***
Ownership	0.773	0.750	0.768	0.750	-1.436	-1.366
Book to market	0.369	0.035	0.530	0.068	2.081**	3.027**
Compensation (%)	2.834	3.000	2.793	2.500	-1.997**	-3.420**
Cash/GP	0.945	0.275	0.804	0.126	-3.219**	-1.98**
Com Vol	0.259	0.199	0.254	0.210	-0.321	0.296
Market vol	0.030	0.029	0.033	0.031	2.426**	1.455
Underwriter Rep	0.758	1.000	0.390	0.000		-9.460***
N	***285***		***395***			

Table 4: Frequency distribution

The table shows the frequency distributions for the sample of IPO firms during 2003 through 2014. The frequency is computed over different ranges starting from 0.5% underwriters' spread (excluding the incentive fee) to greater than 5.5% underwriting spread. The sample is divided into IPOs where the underwriters are granted an incentive fee over and above the underwriting spread and those without incentive fees.

Ranges of underwriters spread					***With incentive fees***			***Without incentive fees***		
%					*Freq*	*Percent*	*Cum*	*Freq*	*Percent*	*Cum*
0.50	≤	Underwriter spread	<	1.00	4	1.40	1.40	3	0.76	0.76
1.00	≤	Underwriter spread	<	1.50	9	3.16	4.56	4	1.01	1.77
1.50	≤	Underwriter spread	<	2.00	11	3.86	8.42	7	1.77	3.54
2.00	≤	Underwriter spread	<	2.50	72	25.26	33.68	202	51.14	54.68
2.50	≤	Underwriter spread	<	3.00	125	43.86	77.54	113	28.61	83.29
3.00	≤	Underwriter spread	<	3.50	47	16.49	94.04	49	12.41	95.70
3.50	≤	Underwriter spread	<	4.00	9	3.16	97.19	13	3.29	98.99
4.00	≤	Underwriter spread	<	4.50	2	0.70	97.89	2	0.51	9950
4.50	≤	Underwriter spread	<	5.00	4	1.40	99.30	2	0.51	100.00
5.00	≤	Underwriter spread	<	5.50	1	0.35	99.65			
5.50	≤	Underwriter spread			1	0.35	100.00			

Table 5: Descriptive statistics of Gross Spread and Incentive Fees

The table shows the descriptive statistics by means, medians, maximum, minimum, and standard deviation of the gross spread of IPOs with and without incentive fees. The table also shows descriptive statistics of the incentive fees and the incentive fees as a % of gross spread of IPOs with incentive fees.

	IPOs Without Incentive Fees	IPOs With Incentive Fees		
	Gross Spread	Gross Spread	Incentive Fee	Incentive Fee as %of Gross Spread
Mean	2.793	2.834	0.893	35.0
Median	2.5	3.0	0.8	29.0
Maximum	5.0	5.2	6.7	233.0
Minimum	1.0	0.75	0.1	5.0
Standard Deviation	0.485	0.624	0.639	29.3
Number of Obs	**395**	**285**	**285**	**285**

Table 6: Probit Model

The table shows the results of the Probit model. The dependent variable is equal to one if the underwriters receive cash incentive and zero otherwise. Lsize is the logarithm of firm size as measured by the total assets, Lage is the logarithm of firm's age, Lproceeds is the logarithm of gross proceeds, Book to market is the ratio of book value of assets and market value of equity, *Cash/GP* is the cash and cash equivalents, available the year prior to the IPO, divided by the gross proceeds, *Com Vol* is the standard deviation of company returns measured over 20 days in the aftermarket, Market vol is the market standard deviation measured over 250 business days before the IPO date, *Underwriter Rep* is a dummy variable taking a value of 1 if the underwriters is reputable and zero otherwise. ****,**,* indicate 1%, 5% and 10% significant levels.

Control variables	***Coefficients***	***t-value***
Lsize	0.014**	2.58
Lage	0.011	1.24
Lproceeds	0.011***	6.37
Ownership	-0.009	-0.71
Book to market	0.034**	2.524
Cash/GP	0.052**	2.621
Com Vol	0.003	1.24
Market vol	0.004***	4.10
Underwriter Rep	0.017***	3.93
Constant	-8.864***	-5.42
Industry and Year	Yes	
Pseudo R-square	0.524	
No of obs	***680***	

Table 7: OLS regressions

The table shows the OLS estimation for a sample of IPOs with and without incentive fees. The definition of the control variables are the same as in the previous table. . ****,**,* indicate 1%, 5% and 10% significant levels.

	Dep=Initial returns				Dep=Underwriters compensation			
	With incentive fees		***Without incentive fees***		***With incentive fees***		***Without incentive fees***	
Control variables	Coefficient	T-test	Coefficient	T-test	Coefficient	T-test	Coefficient	T-test
Lsize	-0.017**	-2.450	0.001	1.020	0.044**	2.250	0.028*	1.850
Lage	-0.006*	-1.681	-0.012*	-1.790	0.041	1.290	0.049**	2.010
L proceeds	0.001	0.090	0.007	1.280	0.020***	6.490	0.003	0.330
Ownership	-0.029*	-1.770	0.011	0.910	-0.111	-1.120	0.046	1.400
Book to market	0.001	0.500	0.001*	1.681	0.078**	2.310	0.003	0.240
Com Vol	0.005	1.050	0.001	0.180	0.003	-0.210	0.008	0.850
Market vol	0.001*	1.660	0.002**	1.950	0.009**	3.620	0.003	1.160
Underwriter Rep	-0.098**	-1.990	-0.008	-1.240	0.207**	2.360	0.064	0.490
Inverse Mills	0.020**	2.300	-0.018	-0.640	0.018*	1.730	0.021*	1.892
Constant	0.499	1.370	1.103**	2.310	8.523***	9.050	1.151	0.590
R-square	0.145		0.155		0.151		0.166	
Obs	***285***		***385***		***285***		***385***	

Table 8:

This table shows the expected underwriter's compensation and underpricing by types of underwriters with and without incentive fees. Compensation is the percentage of underwriters' compensation including the cash incentives, underpricing is measured as the difference between first day closing price minus offer price deflated by the offer price.***,**,* indicate 1%, 5% and 10% significant levels.

	With incentive fees			***Without incentive fees***		
	Actual	Expected Costs without Incentive Fees	Difference (p-values)	Actual	Expected Costs with Incentive Fees	Difference (p-values)
Compensation (%)	3.727	7.232	0.01**	2.793	6.528	0.02**
Underpricing (%)	5.601	8.82	0.03**	9.500	12.189	0.00***
No of obs	***285***			***385***		