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# Does reputation of sponsors matter in IPO? Evidence from Hong Kong



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## Abstract

Contrary to other markets where underwriters perform a combined role of underwriting and sponsoring in an Initial Public Offering (IPO), IPO issuers in Hong Kong must appoint at least one sponsor in addition to the underwriters. The splitting of the single role of underwriters into two separate ones offers an ideal setting to disentangle the effects of the two roles and to examine which of the two roles—sponsor or underwriter—is more important in explaining IPO underpricing and initial volatility in the Hong Kong equity market. Interestingly, our findings provide supportive evidence that the sponsor reputation does matter in an IPO and it is even more significant than the underwriter reputation in explaining the IPO underpricing phenomenon. Given the recent high-tech fervor, our research goes deeper to examine specifically the role of sponsors on high-tech firms, with results indicating that the reliance on sponsors is higher for traditional issuers than for technology firms. We further discover that sponsors and underwriters are playing substitution roles rather than complementary roles. In order to examine the regulatory policy impact, our research also compares the role of IPO sponsors before and after the launch of the new sponsor regulatory regime in 2013. The empirical findings lend support to our argument that after the launch of the new regulations, public awareness of sponsors is raised, respect towards more reputable sponsor increases, and thus, the role of sponsors becomes more important than before.

**Keywords:** Initial public offerings (IPO), Sponsor reputation, Underwriter reputation, IPO underpricing, IPO return volatility, IPO sponsor regulatory regime

## Introduction

This research seeks to answer the question whether sponsor reputation poses an impact on Initial Public Offering (IPO) initial return and IPO initial volatility. The results are intuitively appealing in finding that sponsor reputation is indeed a more significant factor than underwriter reputation in explaining IPO initial return and IPO initial volatility. The research further investigates the relationship of issuers and business in high technology. It also finds that underwriters and sponsors tend to fulfil substitution roles. Additionally, it studies the impact of regulatory changes on sponsors. Not only does it confirm the impact of the regulatory regime, but the results also demonstrate that sponsors with a higher reputation improve the quality of the sponsor work in breaking down the



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asymmetry of information between issuing firms and investors, more than their counterparts with a lower reputation, after the launch of the new regulatory regime.

This research contributes to adding to the literature new empirical findings that explore the correlation between the role of the sponsor reputation and IPO underpricing in the Hong Kong equity market. Although there are prior empirical studies on IPO underpricing, so far very limited attention has been paid to the explanatory power of the very important role of the sponsor reputation in IPO. Moreover, the launch of the sponsor regulatory regime in October 2013 in Hong Kong provides ideal circumstances for examining the regulatory impact on sponsors.

An IPO is the first-time sale of shares in a stock market from private firms to public investors for raising capital (Carter and Manaster 1990). Contrary to other markets where underwriters perform a combined role of underwriting and sponsoring in an IPO, IPO issuers in Hong Kong must appoint at least one sponsor in addition to the underwriters. The split of the single role of underwriters into two separate ones offers an ideal setting to disentangle the effects of the two roles and to examine which of the two roles—sponsor or underwriter—is more important in explaining IPO underpricing and initial volatility in the Hong Kong equity market.

In order to be listed on the Hong Kong Exchanges and Clearing Limited (HKEX), issuers must appoint one or more sponsors at the outset of their IPO. A sponsor must hold the license of advising on corporate finance (Type 6 of the Regulated Activities<sup>1</sup>) and must have obtained the permission under its license or certificate of registration to undertake work as a sponsor. According to the Code of Conduct for Persons Licensed by or Registered with the Securities and Futures Commission (SFC), the primary role of IPO sponsors in Hong Kong (SFC 2013a) is to:

- (1) Assure to the HKEX and the market that:
  - (a) the listing applicant is in compliance with the relevant regulations and requirements;
  - (b) the listing document offers adequate information to allow investors to form a valid and justifiable opinion of the listing applicant's shares, financial condition and profitability.
- (2) Provide advice and guidance for the listing applicant in relation to the relevant regulations.

A sponsor is required to appoint at least two principals who have satisfied the eligibility requirements of the SFC (2013b). The principals should properly lead and supervise the IPO transaction team. Sponsors play a crucial role in the listing process in Hong Kong. In every IPO, sponsors must be intimately familiar with the details and nature of the business and financial performance of the listing applicant. Sponsors need to ensure the accuracy, relevancy, and adequacy of the materials stated inside the IPO

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<sup>1</sup>The ten Regulated Activities (RA) licensed by the Securities and Futures Commission in the financial industry of Hong Kong are (1) dealing in securities; (2) dealing in futures contracts; (3) leveraged foreign exchange trading service; (4) advising on securities; (5) advising on futures contracts; (6) advising on corporate finance; (7) providing automated trading; (8) securities margin financing; (9) asset management; and (10) providing credit rating services (SFC 2019).

prospectuses and confirm that they do not have any findings in the due diligence work showing that the prospectus contains any inaccurate or misleading information.

It is critical to point out that there is a substantial difference between the role of sponsors and that of underwriters. Sponsors assess the suitability of listing applicants to be listed and lead listing applicants throughout the IPO process. Sponsors focus on assessing the suitability of a listing candidate and conducting the due diligence work, and they are not involved in the marketing and sales of shares at all. On the other hand, the role of underwriters is completely different. Underwriters focus on underwriting and marketing of shares. In the event of an undersubscribed IPO, the underwriters will need to take up the unsubscribed shares in proportion to their underwriting commitments. The roles undertaken by an underwriter may also include those of global coordinator, bookrunner, and lead manager. A global coordinator is one who takes on a coordination role of the various aspects of an IPO including documentation, valuation, and marketing work. A bookrunner fulfils a marketing role that is primarily concerned with the marketing of shares to investors through the building of a book of demand, and working with the listing applicant on how the allocation of shares to the investors should be formulated. Lead manager positions also take on a marketing role that is responsible for writing a pre-deal research report and underwriting a portion of the shares offered.

In simple terms, the role of sponsors is to diminish asymmetry of information between issuers and public throughout the IPO process. The objective of this paper is to analyze how the sponsor reputation is correlated with IPO underpricing and initial volatility. The results of this research provide strong empirical evidence that an IPO with a higher sponsor reputation tends to have smaller underpricing and lower initial volatility. This paper also explores how the relationship changes for high-tech firms, whether sponsors and underwriters are playing substitution roles to each other, and the impact of the new regulations introduced in 2013 towards IPO sponsors. The research will bring new insights into the literature.

The significance of the role of sponsors is highlighted by the fact that the names of the sponsors are placed at the very top above any other roles, such as global coordinators and bookrunners, on the cover of IPO prospectuses in Hong Kong. The SFC has always stressed the importance of the role of sponsors in IPO. A sponsor that has not fulfilled its regulatory obligations will face serious regulatory discipline, as well as legal and criminal liabilities. It may give rise to reputational issues that may lead to its professionalism and integrity being called into question. Recently, the role of sponsors has become increasingly important in a Hong Kong IPO. In March 2019, the SFC heavily fined several investment banks with significant penalties and even suspended some of them from working as sponsors for one year for failing their duties as IPO sponsors. The SFC reprimanded and fined four investment bank giants, namely Merrill Lynch, Morgan Stanley, Standard Chartered Securities, and United Bank of Switzerland (UBS) for failing to discharge properly the obligations as IPO sponsors. In particular, the SFC fined UBS more than HK\$370 million, the scale of which has shocked many, and even suspended UBS's license to act as an IPO sponsor for one year. Not only did the extent and scope of the penalty imposed pose a strong threatening effect to sponsors, but also the sanctions sent a clear message to the public that the SFC expects a very high level of standards in terms of sponsor performance. Apart from the recent failure of

sponsors, there are also many other incidents in the past few years involving sponsors failing to discharge their due diligence properly (SFC 2018).

If sponsors do not conduct their sponsor work properly at a high standard, the investors will lose their confidence in the market. Issuers may then find it more difficult and expensive to raise capital because investors become more cautious when investing their money. This can trigger knock-on effects that dampen the competitiveness of Hong Kong as a hub for capital raising. Consequently, Hong Kong's reputation of being a leading IPO market and an international financial center can be seriously tarnished.

In 2013, in order to maintain high standards among IPO sponsors, the SFC launched the new sponsor regulatory regime in Hong Kong to introduce new standards and requirements for the IPO sponsors in order to make sure that sponsors were fit and proper to carry out their roles. The new regulatory measures were a response to several big incidents involving difficulties at listed companies in Hong Kong, where the SFC spotted substandard performance in the sponsors' due diligence exercise. To support the launch of the regime, the Hong Kong Securities and Investment Institute (HKSI) introduced two new Licensing Examinations for Securities and Futures Intermediaries (LE),<sup>2</sup> namely the LE Paper 15, targeting the principals of IPO sponsors, and the LE Paper 16, for market representatives. Practitioners are required to take such examinations in order to fulfil the eligibility requirements which became effective from October 1, 2013 (SFC 2013b). Major features of the sponsor regulatory regime are highlighted below (Johnstone and Espinasse 2017).

- (1) The requirement that at least one IPO sponsor should be appointed by an issuing firm at least two months before the application of listing is made;
- (2) A listing document draft (Application Proof) must be filed together with the listing application;
- (3) A sponsor's reliance on experts is subject to important limitations, in particular, the concept of applying professional skepticism will continue to apply;
- (4) Sponsors are required to work closely with company management to produce a comprehensible and relevant section of management discussion in IPO prospectuses;
- (5) Sponsors are required to inform the HKEX of any breach of compliance with the regulations as well as upon the occurrence of material developments requiring disclosure;
- (6) In the event that a sponsor opts not to continue to act as a sponsor for an issuing firm prior to listing, the reason behind why it ceased to act should be explained to the HKEX by the sponsor;
- (7) Sponsors are required to procure the commitment of the listing applicant and other professional advisers to fully co-operate with it in discharging its duties, and listing applicants have responsibilities to assist their sponsors;

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<sup>2</sup>The LE is a practical and market-focused examination in the securities and investment industry of Hong Kong. The Securities and Futures Ordinance provides for the implementation of the single licensing regime with ten types of RA. An individual will need one license or registration to carry on different types of RA. The LE has been approved by the SFC for meeting the competence requirements in relation to the applications for licenses as Representatives and/or Responsible Officers in Hong Kong (HKSI 2019).

- (8) Sponsor fees must be stated in terms of engagement of sponsors and be related only to the role of sponsors such that other roles assumed, if any, such as the role of underwriters, should be charged for separately; and
- (9) Application proofs (a draft of prospectuses that is substantially complete) submitted to the HKEX in listing applications will be released for public access without pre-vetting from the HKEX or the SFC before its publication. Under the arrangement, sponsors are made effectively to be under an increased burden to ensure the completeness and readiness of the listing documents.

The launch of the new sponsor regulatory regime provides ideal circumstances for studying the effectiveness of the new regulations. This research will investigate how these new regulations affect IPO sponsors.

The rest of this paper is organized as follows. Section 2 will be the literature review and contributions. The hypothesis development will be discussed in Section 3. Section 4 will present the research methodology and data. Section 5 will discuss the empirical tests and results. Finally, section 6 will conclude the research.

### **Literature review and contributions**

A wide spectrum of empirical research has examined the impact of an investment bank's reputation on IPO underpricing (Barry et al. 1988; Beatty and Ritter 1986; Carter et al. 1998; Logue 1973; Titman and Trueman 1986). Most of the studies show that IPOs underwritten by more prestigious investment banks tend to show smaller underpricing. The models of information asymmetry introduced by Rock (1986) provide explanatory insights on IPO underpricing. Rock (1986) pointed out that a portion of investors knew more than others did about the issuing firm's quality. Well-informed investors subscribe to high-quality firms while uninformed investors bid for IPOs of lower quality. IPO prices were underpriced in order to attract uninformed investors (Rock 1986). Furthermore, underpricing itself would reduce information asymmetry for subscribers and thus good investment banks would have no need to underprice much (Rock 1986). The information asymmetry problem exists for IPO because the issuer has not been listed before.

While there is a tremendous amount of research that investigates and explains the correlation between underwriter prestige and IPO underpricing, not much literature has been conducted on the reputation of other stakeholders in an IPO. Some papers have studied the reputation of the management of the issuer in an IPO. For instance, Chemmanur and Paeglis (2005) examined the effect of the management prestige on aftermarket performance and found that more reputable management tends to have stronger aftermarket stock performance. However, limited prior research has been conducted on investigating the correlation between sponsor reputation and the underpricing phenomenon. There are only limited studies that compare the long-term performance of an IPO supervised by the regulatory model of sponsorship (i.e., a system with IPO sponsors) and that of other issuers screened under the regulatory model of quota and channel (i.e., a government regulatory system) by investigating the equity market of Chinese mainland (Hoque and Mu 2019).

The literature has placed the focus on underpricing and limited attention has been made towards initial aftermarket volatility. It will be intuitively appealing to explore

whether sponsor reputation has an effect on initial volatility. An and Chan (2008) compared post-IPO volatility for issuing firms under the influence of credit ratings. Their results show that the provision of credit information helps create a clearer picture for investors and thus decreases the issuer's overall uncertainty. Similarly, IPO sponsors help diminish the asymmetry of information between issuers and investors. It is conjectured that the sponsor reputation should pose an impact on IPO initial volatility.

La Porta et al. (1997, 1998, 2000, 2002) investigated how important the regulatory environment is to the securities market. La Porta et al. (2006) pointed out that the quality and strength of the legal system and relevant regulations that govern an IPO market will help prevent issuers' poor quality and substandard financial performance.

Very few studies have been made on the effectiveness of the new sponsor regulatory regime launched in Hong Kong in 2013. This paper intends to analyze the effectiveness of new regulatory policies on sponsors in Hong Kong.

This research contributes to providing new findings in establishing the correlation between the sponsor reputation and IPO underpricing by presenting empirical evidence from studying the Hong Kong equity market.

First, there is so far very little attention paid to the explanatory power of sponsor reputation in IPO. The SFC has always stressed the importance of the role of sponsors. Given the crucial importance of IPO sponsors, it will be intuitively appealing to examine the correlation between sponsor reputation and IPO underpricing.

Second, the focus of prior research is mostly on underwriter reputation in other markets, but is seldom on sponsor reputation in an Asian city. Contrary to other markets where underwriters perform a combined role of underwriting and sponsoring in an IPO, IPO issuers in Hong Kong must appoint at least one sponsor in addition to underwriters. The split of the single role of underwriters into two separate ones offers an ideal setting to disentangle the effects of the two roles and to examine which of the two roles—sponsor or underwriter—is more important in explaining IPO underpricing and initial volatility in the Hong Kong equity market.

Third, in recent years, HKEX consistently remains a global leader in terms of market capitalization relative to GDP, which demonstrates the significance of the equity market in relation to the economy of the international financial center. There is a large number of foreign businesses that come to the Hong Kong market for an IPO. These companies also include firms from Chinese mainland. About half of the firms on HKEX are red chips, H-share companies, or private enterprises from Chinese mainland. Mainland companies accounted for more than 60% of the HKEX's stock capitalization by value. Retail investors' participation in an IPO in the Asian city is always significant and this explains the establishment of claw-back triggers<sup>3</sup> in IPOs in Hong Kong.

Fourth, the launch of the new regulations targeted at sponsors in 2013 provides ideal circumstances for further studying the effect of regulations on the role of sponsors. The enforcement of such a regime should have an impact by strengthening the role of

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<sup>3</sup>Claw-back triggers increase the size of a public offer and decrease the institutional portion if the level of oversubscription of the public offer is high. Typically, 10% of the offer will be allocated to public or retail investors in Hong Kong and 90% will be allocated to institutional investors. Under the claw-back arrangement, the proportion of 10% will then increase, depending on the level of over-subscription of the public offer tranche: (1) to 30% if the oversubscription is above 15 times but lower than 50 times; (2) to 40% if the oversubscription is over 50 times but lower than 100 times; and (3) to 50% if the oversubscription is above 100 times.

sponsors and enhancing market awareness on the due diligence work of sponsors. If sponsors are to prosper under the new requirements, they will need to assess the robustness of their operating procedures and improve the quality of their due diligence work when taking on prospective listing applicants.

### **Hypothesis development**

The hypotheses are set up to test the effect generated by sponsor reputation from different perspectives. Hypothesis 1 deals with the first angle, which is to investigate how the underwriter reputation and sponsors affect underpricing. It is expected that this research is consistent with the literature that an IPO with a higher underwriter reputation is likely to have smaller underpricing. Given that underwriter reputation plays a role in IPO underpricing, underwriter reputation will be taken as a control in testing sponsor reputation on IPO underpricing. It is conjectured that reputable sponsors should be doing a better job in breaking down the information asymmetry than their less reputable counterparts. When more hidden details about the issuer are disclosed to the public or less information is hidden, it should result in smaller underpricing. It follows that sponsors with higher reputation tend to be correlated with smaller underpricing. The research takes a step further to see how high-tech firms<sup>4</sup> affect the correlation between sponsor reputation and IPO underpricing. Apparently, the high-tech firms involve more unknowns in the future developments. This kind of uncertainty is not what the role of sponsors can reduce. Sponsors diminish the problem of information asymmetry, but sponsors are not able to reduce the uncertainty of future business developments of high-tech firms. Even reputable sponsors can only reduce a small portion of total uncertainty. It is expected that sponsor reputation should be less important to investors for such high-tech issuers than for issuers of other business.

*Hypothesis 1a: Other things being equal, the higher the underwriter reputation, the smaller the IPO underpricing.*

*Hypothesis 1b: Other things being equal, the higher the sponsor reputation, the smaller the IPO underpricing.*

*Hypothesis 1c: Other things being equal, for an IPO involving issuers with business in high technology (i.e., higher uncertainty), the negative relationship between sponsor reputation and IPO underpricing becomes weaker.*

Hypothesis 2 deals with the second angle, which is to investigate the effect of the investment banks' reputation on initial volatility. It is expected that an IPO with a higher underwriter reputation is more likely to have smaller initial volatility. Underwriter reputation will be taken as a control in testing sponsor reputation on IPO initial volatility. It is conjectured that reputable sponsors should be doing a better job in breaking down the information asymmetry than their less reputable counterparts. When more hidden details about the issuer are disclosed to the public or less information is hidden, lower initial volatility should result. It follows that sponsors with higher reputation tend

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<sup>4</sup>This research adopts the methodology used by Amiyatosh and Bhaskaran (2004), which classified technology firms as those with Standard Industrial Classification (SIC) codes under industry groups: Computers, Telecommunication, Electronic Equipment, Entertainment, Printing, Publishing, and Measuring (Fama and French 1997). Those firms not under these groups are defined as non-technology firms.

to be correlated with smaller initial volatility. The research also attempts to examine how high-tech firms affect the correlation between sponsor reputation and initial volatility. Similar to the argument given above in Hypothesis 1, it is expected that sponsor reputation should be less important to investors for such high-tech issuers than for issuers of other business.

*Hypothesis 2a: Other things being equal, the higher the underwriter reputation, the lower the IPO initial volatility.*

*Hypothesis 2b: Other things being equal, the higher the sponsor reputation, the lower the IPO initial volatility.*

*Hypothesis 2c: Other things being equal, for an IPO involving issuers with business in high technology (i.e., higher uncertainty), the negative relationship between sponsor reputation and IPO initial volatility becomes weaker.*

Next, Hypothesis 3 deals with the third angle, which is to study whether sponsors and underwriters are playing substitution roles with each other. When the sponsor reputation is high, the underwriter reputation will have less effect towards return. Only when the sponsor reputation is low may investors not desire to rely on such sponsors, and thus pay more attention to the underwriter reputation. When the sponsor reputation is high, investors will rely more on sponsors and thus pay less attention to the underwriter reputation. Therefore, sponsors and underwriters are expected to play substitution roles with each other.

*Hypothesis 3: Other things being equal, when sponsor reputation is high, the negative relationship between underwriter reputation and IPO underpricing becomes weaker.*

Then, Hypothesis 4 deals with the fourth angle, which is to investigate whether the new sponsor regulatory regime initiated in 2013 generates an impact on the relationship between sponsor reputation and underpricing and the relationship between sponsor reputation and initial volatility. The new sponsor regulatory regime launched in 2013 provides ideal circumstances for testing the effectiveness of the new regulations in regard to the correlation between the sponsor reputation and the initial return. Since the launch, sponsors have faced stricter regulations and the awareness of investors towards sponsors should be heightened. Investors and issuers may rely more on the role of sponsors in an IPO. Expectations on sponsors, especially on those with higher reputation, become higher. More prestigious sponsors will need to do an even better job to uphold their high level of reputation. Consequently, it follows that sponsor reputation should be more important and thus it is anticipated that after the launch of the new regime, the correlation between sponsor reputation and underpricing should be strengthened. In addition, after the launch of new regulations, prestigious sponsors are doing their job even better in breaking down the information asymmetry than their less reputable counterparts. When more hidden details about the issuer are known in the public, initial aftermarket prices become more stable. It is anticipated that after the launch of the new regime, the correlation between sponsor reputation and initial volatility should be strengthened.



*Hypothesis 4a: Other things being equal, after the new sponsor regulatory regime was launched in 2013, the negative relationship between sponsor reputation and IPO underpricing became stronger.*

*Hypothesis 4b: Other things being equal, after the new sponsor regulatory regime was launched in 2013, the negative relationship between sponsor reputation and IPO initial volatility became stronger.*

### **Research methodology and data**

The ordinary least squares (OLS) regressions will be used in the testing models. Industry-fixed effects are applied for testing the various research models by using the Standard Industrial Classification (SIC) codes to control the characteristics of different industries.

The independent variable (i.e., sponsor reputation) will be measured by three different proxies. These three proxies are market share, number of issues, and age of license. Market share is the first proxy, which is equal to the percentage of the amount of IPO proceeds managed by the bank out of the aggregate proceeds of the entire market over a certain period of time (Megginson and Weiss 1991). The second proxy used will be the number of issues of IPO the investment bank has managed over a certain period of time. The first two proxies will be used for the reputation of both sponsors and underwriters. In order to introduce some innovative elements in this research, a new proxy will be adopted for sponsor reputation. The third proxy is the age of the new sponsor license (or the effective date of sponsors, as referenced by the SFC) granted by the SFC in Hong Kong (SFC 2007). The SFC set up new licensing conditions for sponsors in 2007 to ensure sponsor quality and thus only those investment banks that have met the stringent eligibility requirements have been allowed to continue their sponsor work<sup>5</sup> (SFC 2006). Therefore, the earlier the investment bank is granted the new sponsor license, the more willingness, stronger capacity, and better preparation in carrying out the work of IPO sponsors are demonstrated by the investment bank. As a result, it follows that the older the age of license, the higher the reputation of the sponsor.

Under the arrangement, four models will be run separately for most regressions. The first model will be run with the market share proxy for both underwriter and sponsor reputation. The second model will be run with the number of issues proxy for both underwriter and sponsor reputation. The third model will be run with the market share proxy for underwriter reputation and age of license for sponsor reputation. The fourth model will be run with the number of issues proxy for underwriter reputation and age of license for sponsor reputation.

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<sup>5</sup>According to the announcement made by the SFC on December 30, 2006, the licensing condition was imposed on 183 Type 6 intermediaries, meaning that these intermediaries were restricted from acting as sponsors from January 1, 2007. These intermediaries included that those who would not act as sponsors and those who had failed to make representations after the receipt of Letters of Mindedness (LOMs) issued by the SFC informing them of its intention to impose the licensing condition restricting them from acting as sponsors from January 1, 2007. Type 6 intermediaries that had not been imposed with the licensing condition were either intermediaries that had met the eligibility criteria or those that had submitted representations after receipt of LOMs. Those for which the SFC was still in the process of carefully assessing their representations were allowed to take up new sponsor work.

The proxy for measuring the debut stock return will be the market-adjusted return on the listing date from the subscription price (Loughran and Ritter 2002). Mathematically, the initial return of firm  $i$  will be calculated as follows:

$$IniRtn_i = (FirstDayClosingPrice_i - OfferPrice_i) / OfferPrice_i - MarketReturn. \quad (1)$$

The proxy will be measured in percentage. The initial return will be market-adjusted with the Hang Seng Index to strengthen results immune to market sentiment.

The standard deviation of daily return of the debut ten days after listing will be adopted as the proxy for IPO initial volatility. A period of ten days is chosen because of the need to strike a balance between having adequate scope to measure initial volatility and avoiding the influence of other factors when the measuring period is too long. The calculation starts from the second day to eliminate the effect of underpricing on the listing date. The initial return is market-adjusted with the Hang Seng Index to strengthen results immune to market sentiment.

IPO data samples in the research will be the IPO listed on the Main Board (MB) of the HKEX. The entire sample will be running from January 1, 2010 to November 1, 2018. First, this research is exploratory in the relevant area and future research may study results with a larger sample size of more years of data. Second, the sample period is chosen so that it is possible to investigate the effect of the regulation in 2013 and compare the results before and after the launch of the new regulations.

The IPO samples are collected from the Thomson Financial SDC Platinum Databases (herein after referred to as SDC Platinum). All data for the variables used in the research are sourced from SDC Platinum, supplemented by the information provided from the HKEX, the SFC, and the Webb-site Who's Who database.

The total number of samples available is 673. The sample used in the research further excludes all Real Estate Investment Trusts (REITs), unit offerings, and funds, the practice of which is consistent with the literature. The sample also excludes listings at MB from Growth Enterprise Market (GEM) of HKEX and listings by way of introduction. It also excludes those without available data.

In order to diminish the spill-over effects of the underwriter reputation on that of sponsors, the sample excludes all IPOs with the lead underwriter being the only sponsor in a single IPO.<sup>6</sup> The rationale is that when the only sponsor is also acting as the lead underwriter, it will be very difficult, if not impossible, to single out the effect of sponsor reputation from that of the underwriter. As a result, there remain a total of 315 valid observations.

Table 1 provides the descriptive statistics on the variables and Table 2 provides the correlations among them. "*SponRepMar*" is the sponsor reputation proxied by market share, measured in percentage. "*SponRepIss*" is the sponsor reputation proxied by the number of issues. "*SponRepLic*" is the sponsor reputation proxied by the age of the new sponsor license from the SFC, measured in years. "*UndRepMar*" is the underwriter reputation proxied by market share, measured in percentage. "*UndRepIss*" is the underwriter reputation proxied by number of issues.

<sup>6</sup>Those IPO observations with identical sponsor and underwriter have been included to run the regressions as a robustness test and the results are very similar to those obtained by excluding those observations.

**Table 1** Statistics Description

Variable	N	Minimum	Maximum	Mean	Standard deviation	Variance
<i>SponRepMar</i>	315	0.00	7.70	2.59	2.18	4.754
<i>SponRepLss</i>	315	0.00	105.00	42.22	29.91	894.715
<i>SponRepLic</i>	315	0.00	11.87	6.97	4.26	18.111
<i>UndRepMar</i>	315	0.00	7.70	2.77	2.35	5.542
<i>UndRepLss</i>	315	1.00	106.00	45.90	32.28	1041.776
<i>Regulation</i>	315	0.00	1.00	0.68	0.47	0.220
<i>HighTech</i>	315	0.00	1.00	0.14	0.35	0.121
<i>lnProceeds</i>	315	14.30	23.35	18.59	1.55	2.400
<i>GrossSpread</i>	315	0.75	6.01	2.69	0.99	0.986
<i>OfferRange</i>	315	0.00	60.27	22.08	11.02	121.344
<i>lnSales</i>	315	0.99	10.76	5.31	1.79	3.211
<i>lnAge</i>	315	0.13	4.84	2.57	0.92	0.850
<i>MarketReturn</i>	315	-22.43	19.68	1.26	7.46	55.717
<i>lniRtn</i>	315	-46.56	298.53	9.62	30.21	912.751
<i>lniVol</i>	315	0.49	26.91	4.45	4.27	18.242

**Empirical tests and results**

**Underwriter reputation on IPO underpricing**

The regression equation is:

$$\begin{aligned}
 \text{lniRtn}_i = & \alpha + \beta_1 \text{UndRep}_i + \beta_2 \text{HighTech}_i + \beta_3 \text{lnProceeds}_i + \beta_4 \text{GrossSpread}_i \\
 & + \beta_5 \text{OfferRange}_i + \beta_6 \text{lnSales}_i + \beta_7 \text{lnAge}_i + \beta_8 \text{MarketReturn}_i + \varepsilon_i.
 \end{aligned}
 \tag{2}$$

“*lniRtn<sub>i</sub>*” is the market-adjusted first-day percentage return of the IPO of firm *i*.

“*UndRep<sub>i</sub>*” is the underwriter reputation of firm *i*.

“*HighTech<sub>i</sub>*” is a dummy variable that is equal to 1 if firm *i* is with business involving high technology and 0 otherwise. The purpose of having this variable is to control the business risk of IPO issuers (Ritter 1991).

“*lnProceeds<sub>i</sub>*” is a natural logarithm of total proceeds in the IPO of firm *i*. It represents the size of the IPO. The purpose of having this variable is to control the size of the IPO. This is to follow the literature in setting up the model, especially referencing the work of Carter et al. (1998).

“*GrossSpread<sub>i</sub>*” is the percentage of total underwriting commission received by the underwriters relative to the total proceeds generated by the IPO of firm *i*. It is measured in percentage. The purpose of adding “*GrossSpread<sub>i</sub>*” is to follow the major literature. The gross spread should be higher for an IPO with a higher risk and it should have an impact on IPO underpricing (Yong 2007).

“*OfferRange<sub>i</sub>*” is the percentage of the offer range in the IPO of firm *i*. It is calculated as follows:

$$\begin{aligned}
 \text{OfferRange}_i = & (\text{UpperOfferRange}_i - \text{LowerOfferRange}_i) / [(\text{UpperOfferRange}_i \\
 & + \text{LowerOfferRange}_i) / 2].
 \end{aligned}
 \tag{3}$$

**Table 2** Correlation matrix

Variable	SponRep Mar	SponRep Lic	SponRep Iss	UndRep Mar	UndRep Iss	Regulation	HighTech	In Proceeds	Gross Spread	Offer Range	InSales	InAge	Market Return	InRtn	IniVol
SponRepMar	1	0.682 <sup>a</sup>	0.894 <sup>a</sup>	0.823 <sup>a</sup>	0.684 <sup>a</sup>	-0.194 <sup>a</sup>	0.012	0.583 <sup>a</sup>	-0.251 <sup>a</sup>	-0.028	0.640 <sup>a</sup>	-0.062	0.044	-0.254 <sup>a</sup>	-0.455 <sup>a</sup>
SponRepLic	0.682 <sup>a</sup>	1	0.749 <sup>a</sup>	0.586 <sup>a</sup>	0.607 <sup>a</sup>	-0.064	-0.013	0.462 <sup>a</sup>	-0.235 <sup>a</sup>	0.056	0.426 <sup>a</sup>	-0.097	-0.059	-0.264 <sup>a</sup>	-0.398 <sup>a</sup>
SponRepIss	0.894 <sup>a</sup>	0.749 <sup>a</sup>	1	0.754 <sup>a</sup>	0.755 <sup>a</sup>	-0.157 <sup>a</sup>	-0.048	0.496 <sup>a</sup>	-0.276 <sup>a</sup>	-0.008	0.614 <sup>a</sup>	-0.072	0.007	-0.256 <sup>a</sup>	-0.466 <sup>a</sup>
UndRepMar	0.823 <sup>a</sup>	0.586 <sup>a</sup>	0.754 <sup>a</sup>	1	0.838 <sup>a</sup>	-0.215 <sup>a</sup>	0.048	0.534 <sup>a</sup>	-0.218 <sup>a</sup>	0.020	0.529 <sup>a</sup>	-0.116 <sup>b</sup>	0.016	-0.214 <sup>a</sup>	-0.410 <sup>a</sup>
UndRepIss	0.684 <sup>a</sup>	0.607 <sup>a</sup>	0.755 <sup>a</sup>	0.838 <sup>a</sup>	1	-0.169 <sup>a</sup>	0.018	0.389 <sup>a</sup>	-0.211 <sup>a</sup>	0.060	0.473 <sup>a</sup>	-0.138 <sup>b</sup>	-0.062	-0.201 <sup>a</sup>	-0.404 <sup>a</sup>
Regulation	-0.194 <sup>a</sup>	-0.064	-0.157 <sup>a</sup>	-0.215 <sup>a</sup>	-0.169 <sup>a</sup>	1	0.083	-0.042	-0.055	-0.158 <sup>a</sup>	-0.107	0.187 <sup>a</sup>	-0.015	0.090	0.223 <sup>a</sup>
HighTech	0.012	-0.013	-0.048	0.048	0.018	0.083	1	0.056	0.003	0.012	-0.017	-0.122 <sup>b</sup>	-0.113 <sup>b</sup>	0.022	-0.026
InProceeds	0.583 <sup>a</sup>	0.462 <sup>a</sup>	0.496 <sup>a</sup>	0.534 <sup>a</sup>	0.389 <sup>a</sup>	-0.042	0.056	1	-0.246 <sup>a</sup>	-0.085	0.534 <sup>a</sup>	0.046	0.161 <sup>a</sup>	-0.165 <sup>a</sup>	-0.296 <sup>a</sup>
GrossSpread	-0.251 <sup>a</sup>	-0.235 <sup>a</sup>	-0.276 <sup>a</sup>	-0.218 <sup>a</sup>	-0.211 <sup>a</sup>	-0.055	0.003	-0.246 <sup>a</sup>	1	0.167 <sup>a</sup>	-0.400 <sup>a</sup>	-0.016	0.140 <sup>b</sup>	0.219 <sup>a</sup>	0.237 <sup>a</sup>
OfferRange	-0.028	0.056	-0.008	0.020	0.060	-0.158 <sup>a</sup>	0.012	-0.085	0.167 <sup>a</sup>	1	-0.116 <sup>b</sup>	-0.083	-0.019	0.092	0.096
InSales	0.640 <sup>a</sup>	0.426 <sup>a</sup>	0.614 <sup>a</sup>	0.529 <sup>a</sup>	0.473 <sup>a</sup>	-0.107	-0.017	0.534 <sup>a</sup>	-0.400 <sup>a</sup>	-0.116 <sup>b</sup>	1	0.068	-0.036	-0.224 <sup>a</sup>	-0.411 <sup>a</sup>
InAge	-0.062	-0.097	-0.072	-0.116 <sup>b</sup>	-0.138 <sup>b</sup>	0.187 <sup>a</sup>	-0.122 <sup>b</sup>	0.046	-0.016	-0.083	0.068	1	-0.045	0.049	0.045
MarketReturn	0.044	-0.059	0.007	0.016	-0.062	-0.015	-0.113 <sup>b</sup>	0.161 <sup>a</sup>	0.140 <sup>b</sup>	-0.019	-0.036	-0.045	1	0.138 <sup>b</sup>	-0.014
InRtn	-0.254 <sup>a</sup>	-0.264 <sup>a</sup>	-0.256 <sup>a</sup>	-0.214 <sup>a</sup>	-0.201 <sup>a</sup>	0.090	0.022	-0.165 <sup>a</sup>	0.219 <sup>a</sup>	0.092	-0.224 <sup>a</sup>	0.049	0.138 <sup>b</sup>	1	0.383 <sup>a</sup>
IniVol	-0.455 <sup>a</sup>	-0.398 <sup>a</sup>	-0.466 <sup>a</sup>	-0.410 <sup>a</sup>	-0.404 <sup>a</sup>	0.223 <sup>a</sup>	-0.026	-0.296 <sup>a</sup>	0.237 <sup>a</sup>	0.096	-0.411 <sup>a</sup>	0.045	-0.014	0.383 <sup>a</sup>	1

<sup>a</sup>Correlation is significant at the 1% level (2-tailed)

<sup>b</sup>Correlation is significant at the 5% level (2-tailed)

N = 315

It is measured in percentage. Most IPOs in Hong Kong will provide a range of offer prices in the IPO prospectuses before listing. The offer price is then decided to be a value within the offer range. IPOs with a fixed offer price in the book-building stage are rare these days. The offering mechanism normally starts with a price range which is used by the bookrunners to canvass demand from institutions, typically lasting for around two weeks. The bottom end of the range is often set at an attractive level so as to act as an anchor pricing for investors, while the top end is often on the aggressive side. In more volatile or difficult market conditions, price ranges tend to be wider to add a degree of flexibility usually because there may be a less clear view on the demand for the IPO. The purpose of adding “*OfferRange<sub>i</sub>*” is to control market conditions.

“*lnSales<sub>i</sub>*” represents natural logarithm of the revenues for the pre-IPO year of firm *i*. It represents the size of the total revenues generated by the issuers in the pre-IPO year. The purpose of having this variable is to control the firm size of the IPO issuers. This is to follow the work of Arugaslan et al. (2004) and Ritter (1984), in setting up the model.

“*lnAge<sub>i</sub>*” is a natural logarithm of 1 plus years of establishment of firm *i*. Age is measured in number of years and the variable is calculated as  $\ln(1 + age)$ . The purpose of having this variable is to control the years of establishment of the IPO issuers. This is to follow the literature in setting up the model, especially referencing the work of Carter et al. (1998).

“*MarketReturn<sub>i</sub>*” is the percentage of market return of 60 days prior to the listing date of the IPO of firm *i*. Market return of 60 days is considered because prior research shows that it is correlated with market sentiment (Derrien 2005). Market returns prior to the IPO listing date are found to significantly affect IPO underpricing (Derrien and Womack 2003). Furthermore, it is about three months’ time. The time period is believed to be reasonable to represent the recent market return around the listing date of the IPO. The return of Hang Seng Index (considered the major indicator of the stock market performance in Hong Kong) is used to represent the market return. “*MarketReturn<sub>i</sub>*” is measured in percentage. The purpose of having this variable is to control the market situation when issuers are listed.

Using both the proxies of market share and the number of issues for measuring underwriter reputation yields results supporting Hypothesis 1a and thus provides empirical evidence that IPOs with higher underwriter reputation tend to have smaller underpricing. The results are thus confirmed to be consistent with the major literature. Details of the results are provided in Table 3.

### Sponsor reputation on IPO underpricing

The regression equation is:

$$\begin{aligned} IniRtn_i = & \alpha + \beta_1 SponRep_i + \beta_2 UndRep_i + \beta_3 HighTech_i + \beta_4 lnProceeds_i \\ & + \beta_5 GrossSpread_i + \beta_6 OfferRange_i + \beta_7 lnSales_i + \beta_8 lnAge_i \\ & + \beta_9 MarketReturn_i + \varepsilon_i. \end{aligned} \quad (4)$$

“*SponRep<sub>i</sub>*” is the sponsor reputation of firm *i*.

Using the proxies of market share, number of issues, and age of license for measuring sponsor reputation yields results supporting Hypothesis 1b and thus provides

**Table 3** Regression results of testing the relationship between underwriter reputation and IPO initial return

Variable	Col. 1	Col. 2
<i>Intercept</i>	17.626 (0.652)	28.018 (1.084)
<i>UndRepMar</i>	-1.874 (-1.997) <sup>b</sup>	
<i>UndReplss</i>		-0.111 (-1.786) <sup>c</sup>
<i>HighTech</i>	3.417 (0.651)	3.384 (0.644)
<i>InProceeds</i>	-1.306 (-0.924)	-1.841 (-1.367)
<i>GrossSpread</i>	3.919 (2.119) <sup>b</sup>	3.880 (2.095) <sup>b</sup>
<i>OfferRange</i>	0.114 (0.738)	0.120 (0.769)
<i>InSales</i>	-0.997 (-0.787)	-1.158 (-0.922)
<i>InAge</i>	1.965 (1.049)	2.007 (1.069)
<i>MarketReturn</i>	0.410 (1.737) <sup>c</sup>	0.388 (1.634)
Industry fixed effects	Yes	Yes
Observations	315	315
$R^2$	0.138	0.136
Adj. $R^2$	0.089	0.086

Notes. The *t*-statistics are displayed in parenthesis where 1%, 5%, and 10% significance levels are highlighted with <sup>a</sup>, <sup>b</sup>, and <sup>c</sup>, respectively

empirical evidence that IPOs with higher sponsor reputation tend to have smaller underpricing. It shows that the underwriter reputation is no longer significant when the sponsor reputation is considered. This reveals that sponsor reputation is a more important factor than underwriter reputation in explaining IPO underpricing. Details of the results are provided in Table 4.

**Table 4** Regression results of testing the relationship between sponsor reputation and IPO initial return

Variable	Col. 1	Col. 2	Col. 3	Col. 4
<i>Intercept</i>	7.366 (0.270)	19.683 (0.758)	9.483 (0.351)	15.627 (0.597)
<i>SponRepMar</i>	-3.133 (-2.083) <sup>b</sup>			
<i>SponReplss</i>		-0.206 (-2.151) <sup>b</sup>		
<i>SponRepLic</i>			-1.170 (-2.361) <sup>b</sup>	-1.225 (-2.387) <sup>b</sup>
<i>UndRepMar</i>	-0.101 (-0.080)		-0.995 (-0.992)	
<i>UndReplss</i>		-0.005 (-0.067)		-0.039 (-0.562)
<i>HighTech</i>	2.668 (0.510)	2.055 (0.391)	2.507 (0.480)	2.555 (0.489)
<i>InProceeds</i>	-0.785 (-0.550)	-1.379 (-1.018)	-0.653 (-0.457)	-0.972 (-0.702)
<i>GrossSpread</i>	3.951 (2.149) <sup>b</sup>	3.762 (2.043) <sup>b</sup>	3.620 (1.968) <sup>b</sup>	3.594 (1.952) <sup>c</sup>
<i>OfferRange</i>	0.109 (0.704)	0.118 (0.763)	0.155 (1.001)	0.155 (0.996)
<i>InSales</i>	-0.010 (-0.007)	-0.240 (-0.182)	-0.789 (-0.626)	-0.974 (-0.780)
<i>InAge</i>	1.841 (0.988)	1.867 (1.000)	1.596 (0.856)	1.701 (0.911)
<i>MarketReturn</i>	0.420 (1.789) <sup>c</sup>	0.406 (1.718) <sup>c</sup>	0.350 (1.484)	0.343 (1.450)
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	315	315	315	315
$R^2$	0.150	0.149	0.154	0.152
Adj. $R^2$	0.099	0.097	0.103	0.100

Notes. The *t*-statistics are displayed in parenthesis where 1%, 5%, and 10% significance levels are highlighted with <sup>a</sup>, <sup>b</sup>, and <sup>c</sup>, respectively

**Sponsor reputation on IPO underpricing for high-tech firms**

The regression equation is:

$$\begin{aligned}
 IniRtn_i = & \alpha + \beta_1 SponRep_i + \beta_2 HighTech_i + \beta_3 HighTech_i \times SponRep_i \\
 & + \beta_4 UndRep_i + \beta_5 lnProceeds_i + \beta_6 GrossSpread_i + \beta_7 OfferRange_i \\
 & + \beta_8 lnSales_i + \beta_9 lnAge_i + \beta_{10} MarketReturn_i + \varepsilon_i.
 \end{aligned}
 \tag{5}$$

Using the proxies of market share, number of issues, and age of license for measuring sponsor reputation yields results supporting Hypothesis 1c and thus provides empirical evidence that for IPO with high technology business, the negative relationship between sponsor reputation and initial return tends to be weakened. Details of the results are provided in Table 5.

**Underwriter reputation on IPO initial volatility**

The regression equation is:

$$\begin{aligned}
 IniVol_i = & \alpha + \beta_1 UndRep_i + \beta_2 HighTech_i + \beta_3 lnProceeds_i + \beta_4 GrossSpread_i \\
 & + \beta_5 OfferRange_i + \beta_6 lnSales_i + \beta_7 lnAge_i + \beta_8 MarketReturn_i \\
 & + \varepsilon_i.
 \end{aligned}
 \tag{6}$$

“*IniVol<sub>i</sub>*” is the standard deviation of market-adjusted daily return of the first 10 days after listing of firm *i*. It is measured in percentage.

**Table 5** Regression results of testing the relationship between sponsor reputation and IPO initial return for issuers involving business of high technology

Variable	Col. 1	Col. 2	Col. 3	Col. 4
<i>Intercept</i>	14.004 (0.512)	27.412 (1.044)	16.487 (0.613)	22.608 (0.867)
<i>SponRepMar</i>	-3.808 (-2.486) <sup>b</sup>			
<i>SponRepIss</i>		-0.250 (-2.532) <sup>b</sup>		
<i>SponRepLic</i>			-1.651 (-3.142) <sup>a</sup>	-1.731 (-3.170) <sup>a</sup>
<i>UndRepMar</i>	-0.196 (-0.156)		-0.965 (-0.971)	
<i>UndRepIss</i>		-0.002 (-0.026)		-0.029 (-0.422)
<i>HighTech</i>	-8.618 (-1.138)	-9.154 (-1.111)	-14.989 (-1.753) <sup>c</sup>	-14.832 (-1.732) <sup>c</sup>
<i>HighTech × SponRepMar</i>	4.184 (2.052) <sup>b</sup>			
<i>HighTech × SponRepIss</i>		0.284 (1.763) <sup>c</sup>		
<i>HighTech × SponRepLic</i>			2.526 (2.570) <sup>b</sup>	2.513 (2.550) <sup>b</sup>
<i>lnProceeds</i>	-1.148 (-0.803)	-1.787 (-1.304)	-0.966 (-0.680)	-1.285 (-0.933)
<i>GrossSpread</i>	4.275 (2.329) <sup>b</sup>	4.012 (2.180) <sup>b</sup>	3.790 (2.079) <sup>b</sup>	3.759 (2.060) <sup>b</sup>
<i>OfferRange</i>	0.108 (0.705)	0.113 (0.733)	0.157 (1.026)	0.156 (1.013)
<i>lnSales</i>	0.288 (0.214)	-0.045 (-0.034)	-0.641 (-0.512)	-0.861 (-0.696)
<i>lnAge</i>	1.608 (0.866)	1.746 (0.938)	1.581 (0.856)	1.715 (0.927)
<i>MarketReturn</i>	0.418 (1.789) <sup>c</sup>	0.421 (1.788) <sup>c</sup>	0.356 (1.522)	0.350 (1.495)
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	315	315	315	315
<i>R</i> <sup>2</sup>	0.162	0.158	0.172	0.170
Adj. <i>R</i> <sup>2</sup>	0.108	0.104	0.119	0.117

Notes. The *t*-statistics are displayed in parenthesis where 1%, 5%, and 10% significance levels are highlighted with <sup>a</sup>, <sup>b</sup>, and <sup>c</sup>, respectively

Using both the proxies of market share and the number of issues for measuring underwriter reputation yields results supporting Hypothesis 2a and thus provides empirical evidence that IPOs with a higher underwriter reputation tend to have lower initial volatility. The results reveal that IPOs with a higher underwriter reputation tend to have lower initial volatility. Details of the results are provided in Table 6.

**Sponsor reputation on IPO initial volatility**

The regression equation is:

$$\begin{aligned}
 IniVol_i = & \alpha + \beta_1 SponRep_i + \beta_2 UndRep_i + \beta_3 HighTech_i + \beta_4 \lnProceeds_i \\
 & + \beta_5 GrossSpread_i + \beta_6 OfferRange_i + \beta_7 \lnSales_i + \beta_8 \lnAge_i \\
 & + \beta_9 MarketReturn_i + \varepsilon_i.
 \end{aligned}
 \tag{7}$$

Using the proxies of market share, number of issues, and age of license for measuring sponsor reputation yields results supporting Hypothesis 2b and thus provides empirical evidence that IPOs with a higher sponsor reputation tend to have lower initial volatility. It shows that the underwriter reputation becomes less significant or not significant when the sponsor reputation is considered. This reveals that sponsor reputation is a more important factor than underwriter reputation in explaining the IPO initial volatility. Details of the results are provided in Table 7.

**Sponsor reputation on IPO initial volatility for high-tech firms**

The regression equation is:

$$\begin{aligned}
 IniVol_i = & \alpha + \beta_1 SponRep_i + \beta_2 HighTech_i + \beta_3 HighTech_i \times SponRep_i \\
 & + \beta_4 UndRep_i + \beta_5 \lnProceeds_i + \beta_6 GrossSpread_i + \beta_7 OfferRange_i \\
 & + \beta_8 \lnSales_i + \beta_9 \lnAge_i + \beta_{10} MarketReturn_i + \varepsilon_i.
 \end{aligned}
 \tag{8}$$

**Table 6** Regression results of testing the relationship between underwriter reputation and IPO initial volatility

Variable	Col. 1	Col. 2
Intercept	7.094 (2.002) <sup>b</sup>	9.205 (2.729) <sup>a</sup>
UndRepMar	-0.450 (-3.658) <sup>a</sup>	
UndReplss		-0.032 (-3.976) <sup>a</sup>
HighTech	-0.186 (-0.270)	-0.227 (-0.331)
lnProceeds	-0.024 (-0.131)	-0.128 (-0.729)
GrossSpread	0.315 (1.298)	0.303 (1.255)
OfferRange	0.027 (1.332)	0.030 (1.473)
lnSales	-0.463 (-2.787) <sup>a</sup>	-0.467 (-2.846) <sup>a</sup>
lnAge	0.111 (0.454)	0.090 (0.368)
MarketReturn	-0.022 (-0.716)	-0.030 (-0.956)
Industry fixed effects	Yes	Yes
Observations	315	315
R <sup>2</sup>	0.258	0.263
Adj. R <sup>2</sup>	0.215	0.221

Notes. The t-statistics are displayed in parenthesis where 1%, 5%, and 10% significance levels are highlighted with <sup>a</sup>, <sup>b</sup>, and <sup>c</sup>, respectively



**Table 7** Regression results of testing the relationship between sponsor reputation and IPO initial volatility

Variable	Col. 1	Col. 2	Col. 3	Col. 4
<i>Intercept</i>	5.540 (1.550)	7.881 (2.333) <sup>b</sup>	5.627 (1.600)	7.220 (2.125) <sup>b</sup>
<i>SponRepMar</i>	-0.475 (-2.411) <sup>b</sup>			
<i>SponReplss</i>		-0.033 (-2.627) <sup>a</sup>		
<i>SponRepLic</i>			-0.211 (-3.270) <sup>a</sup>	-0.196 (-2.944) <sup>a</sup>
<i>UndRepMar</i>	-0.182 (-1.099)		-0.292 (-2.238) <sup>b</sup>	
<i>UndReplss</i>		-0.015 (-1.507)		-0.021 (-2.315) <sup>b</sup>
<i>HighTech</i>	-0.299 (-0.437)	-0.438 (-0.641)	-0.350 (-0.515)	-0.360 (-0.530)
<i>lnProceeds</i>	0.055 (0.293)	-0.055 (-0.311)	0.093 (0.503)	0.011 (0.061)
<i>GrossSpread</i>	0.320 (1.329)	0.285 (1.189)	0.261 (1.091)	0.257 (1.077)
<i>OfferRange</i>	0.026 (1.299)	0.030 (1.475)	0.034 (1.708) <sup>c</sup>	0.036 (1.762) <sup>c</sup>
<i>lnSales</i>	-0.314 (-1.781) <sup>c</sup>	-0.321 (-1.870) <sup>c</sup>	-0.426 (-2.596) <sup>a</sup>	-0.437 (-2.696) <sup>a</sup>
<i>lnAge</i>	0.093 (0.380)	0.068 (0.280)	0.045 (0.186)	0.041 (0.170)
<i>MarketReturn</i>	-0.021 (-0.672)	-0.027 (-0.874)	-0.033 (-1.077)	-0.037 (-1.202)
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	315	315	315	315
<i>R</i> <sup>2</sup>	0.272	0.280	0.284	0.284
Adj. <i>R</i> <sup>2</sup>	0.228	0.237	0.240	0.241

Notes. The *t*-statistics are displayed in parenthesis where 1%, 5%, and 10% significance levels are highlighted with <sup>a</sup>, <sup>b</sup>, and <sup>c</sup>, respectively

Using the proxies of market share, number of issues, and age of license for measuring sponsor reputation yields results supporting Hypothesis 2c and thus provides empirical evidence that for IPO with high technology business, the negative relationship between sponsor reputation and IPO initial volatility tends to be weakened. Details of the results are provided in Table 8.

**Sponsor and underwriter are playing substitution roles to each other**

The regression equation is:

$$\begin{aligned}
 IniRtn_i = & \alpha + \beta_1 HighSponRep_i + \beta_2 UndRep_i + \beta_3 HighSponRep_i \times UndRep_i \\
 & + \beta_4 HighTech_i + \beta_5 lnProceeds_i + \beta_6 GrossSpread_i \\
 & + \beta_7 OfferRange_i + \beta_8 lnSales_i + \beta_9 lnAge_i + \beta_{10} MarketReturn_i \\
 & + \varepsilon_i.
 \end{aligned}
 \tag{9}$$

“*HighSponRep<sub>i</sub>*” is a dummy variable that is equal to 1 if the sponsor reputation in the IPO of firm *i* is higher than the median value of the sample and is equal to 0 otherwise.

Using the proxies of market share, number of issues, and age of license for measuring sponsor reputation yields results supporting Hypothesis 3 and thus provides empirical evidence that when sponsor reputation is high, the negative relationship between underwriter reputation and IPO underpricing becomes weaker. This demonstrates that the sponsors and underwriters tend to play a substitution role with each other. If the sponsor is reputable, the underwriter reputation becomes less

**Table 8** Regression results of testing the relationship between sponsor reputation and IPO initial volatility for issuers involving business of high technology

Variable	Col. 1	Col. 2	Col. 3	Col. 4
<i>Intercept</i>	6.488 (1.815) <sup>c</sup>	9.108 (2.675) <sup>a</sup>	6.354 (1.807) <sup>c</sup>	7.912 (2.327) <sup>b</sup>
<i>SponRepMar</i>	-0.571 (-2.853) <sup>a</sup>			
<i>SponReplss</i>		-0.040 (-3.102) <sup>a</sup>		
<i>SponRepLic</i>			-0.261 (-3.799) <sup>a</sup>	-0.246 (-3.460) <sup>a</sup>
<i>UndRepMar</i>	-0.195 (-1.189)		-0.289 (-2.226) <sup>b</sup>	
<i>UndReplss</i>		-0.015 (-1.464)		-0.020 (-2.211) <sup>b</sup>
<i>HighTech</i>	-1.911 (-1.931) <sup>c</sup>	-2.218 (-2.075) <sup>b</sup>	-2.166 (-1.939) <sup>c</sup>	-2.085 (-1.867) <sup>c</sup>
<i>HighTech × SponRepMar</i>	0.598 (2.242) <sup>b</sup>			
<i>HighTech × SponReplss</i>		0.045 (2.159) <sup>b</sup>		
<i>HighTech × SponRepLic</i>			0.262 (2.043) <sup>b</sup>	0.249 (1.940) <sup>c</sup>
<i>lnProceeds</i>	0.003 (0.015)	-0.120 (-0.673)	0.061 (0.328)	-0.020 (-0.112)
<i>GrossSpread</i>	0.366 (1.525)	0.324 (1.358)	0.279 (1.170)	0.274 (1.150)
<i>OfferRange</i>	0.026 (1.305)	0.029 (1.443)	0.035 (1.729) <sup>c</sup>	0.036 (1.776) <sup>c</sup>
<i>lnSales</i>	-0.271 (-1.540)	-0.290 (-1.694) <sup>c</sup>	-0.410 (-2.513) <sup>b</sup>	-0.426 (-2.637) <sup>a</sup>
<i>lnAge</i>	0.059 (0.245)	0.049 (0.202)	0.043 (0.180)	0.043 (0.176)
<i>MarketReturn</i>	-0.021 (-0.687)	-0.024 (-0.799)	-0.032 (-1.064)	-0.036 (-1.184)
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	315	315	315	315
<i>R</i> <sup>2</sup>	0.284	0.291	0.294	0.293
Adj. <i>R</i> <sup>2</sup>	0.238	0.246	0.248	0.248

Notes. The *t*-statistics are displayed in parenthesis where 1%, 5%, and 10% significance levels are highlighted with <sup>a</sup>, <sup>b</sup>, and <sup>c</sup>, respectively

important in terms of explaining IPO underpricing. Details of the results are provided in Table 9.

**Impact of the new regulatory sponsor regime launched in 2013 on IPO underpricing**

The regression equation is:

$$\begin{aligned}
 IniRtn_i = & \alpha + \beta_1 SponRep_i + \beta_2 Regulation_i + \beta_3 Regulation_i \times SponRep_i \\
 & + \beta_4 UndRep_i + \beta_5 HighTech_i + \beta_6 lnProceeds_i + \beta_7 GrossSpread_i \\
 & + \beta_8 OfferRange_i + \beta_9 lnSales_i + \beta_{10} lnAge_i + \beta_{11} MarketReturn_i + \varepsilon_i.
 \end{aligned}
 \tag{10}$$

“*Regulation<sub>i</sub>*” is a dummy variable that is equal to 1 if IPO of firm *i* is listed after the launch of the new sponsor regulatory regime on October 1, 2013 and is equal to 0 otherwise.

Using the proxies of market share, number of issues, and age of license for measuring sponsor reputation consistently yields results not supporting Hypothesis 4a. After the new sponsor regulatory regime was launched in 2013, the negative relationship between sponsor reputation and underpricing did not become stronger. However, this does not mean the new sponsor regulatory regime is not effective. The insignificance can be caused by the limited sample size. Details of the results are provided in Table 10.

**Table 9** Regression results of testing the relationship between underwriter reputation and IPO initial return when sponsor reputation is high

Variable	Col. 1	Col. 2	Col. 3	Col. 4
<i>Intercept</i>	10.731 (0.391)	24.983 (0.950)	10.222 (0.379)	19.621 (0.749)
<i>HighSponRepMar</i>	-15.280 (-1.673) <sup>c</sup>			
<i>HighSponRepLss</i>		-6.919 (-0.700)		
<i>HighSponRepLic</i>			-16.227 (-2.671) <sup>a</sup>	-15.649 (-2.156) <sup>b</sup>
<i>UndRepMar</i>	-3.064 (-1.936) <sup>c</sup>		-4.066 (-3.027) <sup>a</sup>	
<i>UndRepLss</i>		-0.159 (-1.784) <sup>c</sup>		-0.197 (-2.319) <sup>b</sup>
<i>HighSponRepMar</i> × <i>UndRepMar</i>	3.252 (1.474)			
<i>HighSponRepLss</i> × <i>UndRepLss</i>		0.126 (0.833)		
<i>HighSponRepLic</i> × <i>UndRepMar</i>			4.320 (2.641) <sup>a</sup>	
<i>HighSponRepLic</i> × <i>UndRepLss</i>				0.231 (1.911) <sup>c</sup>
<i>HighTech</i>	2.671 (0.508)	3.418 (0.648)	2.551 (0.490)	3.350 (0.640)
<i>InProceeds</i>	-0.966 (-0.677)	-1.603 (-1.157)	-0.885 (-0.625)	-1.351 (-0.984)
<i>GrossSpread</i>	3.879 (2.100) <sup>b</sup>	3.861 (2.077) <sup>b</sup>	3.788 (2.058) <sup>b</sup>	3.739 (2.019) <sup>b</sup>
<i>OfferRange</i>	0.136 (0.874)	0.123 (0.789)	0.217 (1.373)	0.190 (1.198)
<i>InSales</i>	-0.277 (-0.204)	-1.077 (-0.812)	-0.582 (-0.460)	-0.923 (-0.735)
<i>InAge</i>	1.818 (0.971)	1.948 (1.033)	1.629 (0.874)	1.924 (1.025)
<i>MarketReturn</i>	0.409 (1.730) <sup>c</sup>	0.382 (1.603)	0.377 (1.607)	0.362 (1.528)
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	315	315	315	315
<i>R</i> <sup>2</sup>	0.146	0.138	0.161	0.149
Adj. <i>R</i> <sup>2</sup>	0.091	0.082	0.107	0.094

Notes. The *t*-statistics are displayed in parenthesis where 1%, 5%, and 10% significance levels are highlighted with <sup>a</sup>, <sup>b</sup>, and <sup>c</sup>, respectively

**Impact of the new regulatory sponsor regime launched in 2013 on initial volatility**

The regression equation is:

$$\begin{aligned}
 IniVol_i = & \alpha + \beta_1 SponRep_i + \beta_2 Regulation_i + \beta_3 Regulation_i \times SponRep_i \\
 & + \beta_4 UndRep_i + \beta_5 HighTech_i + \beta_6 InProceeds_i + \beta_7 GrossSpread_i \\
 & + \beta_8 OfferRange_i + \beta_9 InSales_i + \beta_{10} InAge_i + \beta_{11} MarketReturn_i + \varepsilon_i
 \end{aligned}
 \tag{11}$$

Using the proxies of market share, number of issues, and age of license for measuring sponsor reputation consistently yields results supporting Hypothesis 4b and thus provides empirical evidence that after the new sponsor regulatory regime was launched in 2013, the negative relationship between sponsor reputation and IPO initial volatility became stronger. This demonstrates the effectiveness of the new sponsor regulatory regime. Details of the results are provided in Table 11.

**Robustness tests**

Additional analyses of the results have been further conducted to investigate the robustness of the results obtained. First, those IPO observations with identical sponsor and underwriter have been included to run the regressions as a robustness test and the results are found to be very similar to those obtained by excluding those observations.

**Table 10** Regression results of testing the impact of the new sponsor regulatory regime launched in 2013 on the relationship between sponsor reputation and IPO initial return

Variable	Col. 1	Col. 2	Col. 3	Col. 4
<i>Intercept</i>	2.746 (0.100)	12.174 (0.462)	2.789 (0.102)	7.087 (0.267)
<i>SponRepMar</i>	-2.921 (-1.622)			
<i>SponReplss</i>		-0.150 (-1.161)		
<i>SponRepLic</i>			-0.916 (-1.202)	-0.954 (-1.237)
<i>UndRepMar</i>	0.071 (0.056)		-0.741 (-0.733)	
<i>UndReplss</i>		0.005 (0.058)		-0.027 (-0.398)
<i>Regulation</i>	6.864 (1.082)	10.214 (1.385)	10.200 (1.360)	10.549 (1.409)
<i>Regulation</i> × <i>SponRepMar</i>	-0.341 (-0.199)			
<i>Regulation</i> × <i>SponReplss</i>		-0.084 (-0.625)		
<i>Regulation</i> × <i>SponRepLic</i>			-0.484 (-0.553)	-0.497 (-0.567)
<i>HighTech</i>	1.526 (0.289)	0.645 (0.121)	1.125 (0.214)	1.111 (0.211)
<i>InProceeds</i>	-0.798 (-0.559)	-1.352 (-0.998)	-0.660 (-0.463)	-0.897 (-0.648)
<i>GrossSpread</i>	4.157 (2.254) <sup>b</sup>	3.971 (2.153) <sup>b</sup>	3.817 (2.073) <sup>b</sup>	3.805 (2.065) <sup>b</sup>
<i>OfferRange</i>	0.130 (0.828)	0.129 (0.819)	0.177 (1.130)	0.177 (1.132)
<i>InSales</i>	0.153 (0.113)	0.017 (0.013)	-0.538 (-0.425)	-0.670 (-0.533)
<i>InAge</i>	1.267 (0.665)	1.107 (0.577)	0.821 (0.429)	0.873 (0.455)
<i>MarketReturn</i>	0.412 (1.753) <sup>c</sup>	0.391 (1.656) <sup>c</sup>	0.337 (1.433)	0.332 (1.407)
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	315	315	315	315
$R^2$	0.157	0.158	0.163	0.162
Adj. $R^2$	0.100	0.101	0.106	0.105

Notes. The  $t$ -statistics are displayed in parenthesis where 1%, 5%, and 10% significance levels are highlighted with <sup>a</sup>, <sup>b</sup>, and <sup>c</sup>, respectively

Second, robustness tests have been performed to further investigate whether it is the new sponsor regulatory regime launched in 2013 or other factors that caused the relationship between sponsor reputation and IPO initial volatility to be stronger. A Placebo testing is arranged to strengthen the results to see whether other time divisions will yield the same result. One time point before 2013 (i.e., July 1, 2011) and one time point after 2013 (i.e., July 1, 2015) from the sample have been tested. Results show that using a different time point does not yield the same results. This further strengthens the results obtained in Hypothesis 4b.

## Discussion and conclusion

This research seeks to answer the question whether sponsor reputation poses an impact on IPO initial return and IPO initial volatility. It first tests and confirms the impact of underwriter reputation on IPO initial return. The results are consistent with the literature, showing that an IPO with a higher underwriter reputation tends to have smaller underpricing. Next, it studies the impact of underwriter reputation on IPO initial volatility. The results show that an IPO with a higher underwriter reputation tends to have lower initial volatility. Not much prior research has analyzed the relationship between underwriter reputation and initial volatility in IPOs. The results shed light on the impact of underwriter reputation. Furthermore, it investigates whether sponsor reputation is more significant than underwriter reputation in explaining IPO initial

**Table 11** Regression results of testing the impact of the new sponsor regulatory regime launched in 2013 on the relationship between sponsor reputation and IPO initial volatility

Variable	Col. 1	Col. 2	Col. 3	Col. 4
<i>Intercept</i>	3.593 (1.018)	5.518 (1.648) <sup>c</sup>	3.670 (1.055)	4.814 (1.425)
<i>SponRepMar</i>	-0.173 (-0.752)			
<i>SponReplss</i>		-0.007 (-0.433)		
<i>SponRepLic</i>			-0.099 (-1.018)	-0.084 (-0.859)
<i>UndRepMar</i>	-0.105 (-0.645)		-0.222 (-1.723) <sup>c</sup>	
<i>UndReplss</i>		-0.012 (-1.168)		-0.017 (-1.997) <sup>b</sup>
<i>Regulation</i>	3.081 (3.795) <sup>a</sup>	3.478 (3.709) <sup>a</sup>	3.145 (3.288) <sup>a</sup>	3.160 (3.318) <sup>a</sup>
<i>Regulation × SponRepMar</i>	-0.513 (-2.342) <sup>b</sup>			
<i>Regulation × SponReplss</i>		-0.039 (-2.281) <sup>b</sup>		
<i>Regulation × SponRepLic</i>			-0.195 (-1.747) <sup>c</sup>	-0.192 (-1.720) <sup>c</sup>
<i>HighTech</i>	-0.666 (-0.985)	-0.853 (-1.263)	-0.719 (-1.070)	-0.738 (-1.101)
<i>InProceeds</i>	0.053 (0.291)	-0.053 (-0.306)	0.087 (0.478)	0.027 (0.154)
<i>GrossSpread</i>	0.358 (1.516)	0.334 (1.424)	0.307 (1.306)	0.306 (1.307)
<i>OfferRange</i>	0.026 (1.319)	0.029 (1.453)	0.039 (1.939) <sup>c</sup>	0.040 (2.006) <sup>b</sup>
<i>InSales</i>	-0.255 (-1.477)	-0.243 (-1.440)	-0.352 (-2.178) <sup>b</sup>	-0.351 (-2.197) <sup>b</sup>
<i>InAge</i>	-0.110 (-0.452)	-0.164 (-0.672)	-0.176 (-0.722)	-0.189 (-0.774)
<i>MarketReturn</i>	-0.026 (-0.847)	-0.032 (-1.080)	-0.037 (-1.221)	-0.040 (-1.333)
Industry fixed effects	Yes	Yes	Yes	Yes
Observations	315	315	315	315
$R^2$	0.309	0.319	0.319	0.321
Adj. $R^2$	0.262	0.273	0.273	0.275

Notes. The *t*-statistics are displayed in parenthesis where 1%, 5%, and 10% significance levels are highlighted with <sup>a</sup>, <sup>b</sup>, and <sup>c</sup>, respectively

return and IPO initial volatility. The results are intuitively appealing in finding that sponsor reputation is indeed a more significant factor than underwriter reputation in explaining IPO initial return and IPO initial volatility. The results are strong as they are consistent in all cases of different proxies.

Then, it analyzes the impact of the high-tech firms on the above relationships. The results support that for issuers with business in high technology, both the negative correlation between sponsor reputation and underpricing and the negative correlation between sponsor reputation and return volatility tend to be weaker. For high-tech firms, the total uncertainty is higher and the uncertainty in the future business development cannot be reduced by sponsors, regardless of their reputation. Even reputable sponsors can only reduce a small portion of total uncertainty. As a result, sponsor reputation should be less important to investors for such high-tech issuers than for issuers of other businesses in terms of both explaining IPO underpricing and initial volatility. The future uncertainty associated with such high technology business may not be eliminated or diminished by the disclosure of more relevant information in the IPO prospectuses. Under such circumstances, no matter how hard the sponsors work or how well their due diligence is conducted, it is very difficult, if not impossible, for sponsors to ask the issuer to provide details which can substantially reduce such business uncertainty. Given that reputable sponsors are more aware of the need to maintain their reputation than less reputable ones, reputable sponsors may choose to even underprice more for

such issuers with high technology business than for others with less uncertainty, in order to maintain their great reputation.

Next, it studies the roles of underwriter and sponsor to see if they are substitution roles with each other. The results indicate that underwriters and sponsors play substitution roles. Only when the sponsor reputation is low may investors not desire to rely on such sponsors and thus pay more attention to the underwriter reputation. However, when the sponsor reputation is high, investors will rely more on sponsors and thus pay less attention to the underwriter reputation.

Finally, it tests whether the new sponsor regulatory regime launched in 2013 has any impact on the relationship between sponsor reputation and IPO initial return and on the relationship between sponsor reputation and IPO initial volatility. While the study does not find any significant change in the relationship between sponsor reputation and IPO initial return after the launch of the new sponsor regulatory regime, it obtains results which show that the negative relationship between sponsor reputation and IPO initial volatility becomes stronger after the introduction of the new regime. Not only does it confirm the impact of the regulatory regime, but the results also demonstrate that sponsors with a higher reputation improve the quality of the sponsor work in breaking down the information asymmetry between issuing firms and investors, more than their counterparts with a lower reputation, after the launch of the new regulatory regime. The lower initial volatility associated with more reputable sponsors shows that sponsors with a higher reputation are more successful in mitigating the information asymmetry between issuing firms and investors. When more hidden details about the issuer are known by the investing public, trading prices tend to be more stable. In other words, after the introduction of the new regulation in 2013, public awareness of sponsors has risen and respect towards more reputable sponsor has increased. The new 2013 sponsor regulatory regime makes sponsor reputation more significant in explaining IPO initial volatility.

This research contributes to the literature with new empirical findings in exploring the correlation between the role of the sponsor reputation and IPO underpricing in the Hong Kong equity market. Although there are prior empirical studies on IPO underpricing, so far very limited has been attention paid to the explanatory power of the reputation of the very important role of sponsors in an IPO. Moreover, the launch of the sponsor regulatory regime in October 2013 in Hong Kong provides ideal circumstances for examining the regulatory impact on sponsors.

Innovation has been considered and new elements that have not been captured before have been included in the research. For example, a new proxy of adopting age of license for sponsor reputation has been introduced and it is found that the proxy is consistent with the other two proxies, i.e., market share and number of issues, in measuring reputation. The successful application of the new proxy further strengthens the results obtained.

This research has implications in both the academic and practical arena. It offers a clearer picture to academics and practitioners in the IPO market. In essence, it has broad future applications in IPO debut return and sponsor reputation with regard to academic studies and business practices. First, it provides various stakeholders such as investors, issuers, sponsors, and underwriters with empirical evidence on how sponsor reputation affects IPO. Second, it offers new insights to regulators on how new regulations affect the market and how effective these new regulations achieve their intended

purposes. This will enable policymakers to develop better and more effective policies in the future.

This research is exploratory. Given the evidence of high technology firms found in this research, future research may further investigate the potential effect of sponsor reputation on industries of different characteristics. This research focuses on initial return of IPOs. Future research can also investigate the relationship between sponsor reputation and long-run performance of IPOs, which will be another appealing area to explore further.

#### Abbreviations

GEM: Growth Enterprise Market of HKEX; HKEX: Hong Kong Exchanges and Clearing Limited; HKSI: Hong Kong Securities and Investment Institute; IPO: Initial Public Offering(s); LE: Licensing Examination for Securities and Futures Intermediaries; MB: Main Board; RA: Regulated Activities; SDC Platinum: Thomson Financial SDC Platinum Databases; SFC: Securities and Futures Commission; SIC code: Standard Industrial Classification code

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#### Authors' contributions

WT participated in the research design, conducted the results analyses, designed the robustness checks, and wrote the manuscript. MW participated in the research design, collected the data, conducted the statistical testing, and wrote the manuscript. All authors reviewed the final manuscript. The author(s) read and approved the final manuscript.

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The authors declare that they have no competing interests.

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