The Impact of Underwriters' Reputation in *post*-IPO Stock Price Informativeness: International Evidence

Maria Carmo Correia[a] and Gilberto Loureiro[b]

[a]Corresponding author. Polytechnic Institute of Cávado and Ave, School of Management, 4750-180 Barcelos, Portugal. Email: mcorreia@ipca.pt. Phone: +351 253 802500.

[b]University of Minho, School of Economics and Management & NIPE (Economic Policies Research Unit), Campus de Gualtar, 4710-057 Braga, Portugal. Email: gilberto@eeg.uminho.pt. Phone: +351 253 601940.

ABSTRACT

This paper is the first to analyze whether underwriters reputation contributes to improving stock price informativeness of IPO firms following the offering. Using a sample of more than 5,000 IPO firms from 34 countries between 2000 and 2014, we find different results across regions - United States, Europe, and Asia-Pacific.

We document a positive and significant relation between underwriter reputation and *post*-IPO stock price informativeness (one/two/three years *post*-IPO) for Asian firms. In the U.S. and Europe, we find no significant effect of underwriter reputation on *post*-IPO stock price informativeness. These different results may be partially explained by the different levels of shareholder protection in the major markets in these regions. The results are similar during cold market periods and are also robust to different measures of stock price informativeness (firm-specific stock return variation, future earnings return coefficient, or illiquidity). We also find evidence that Asian underwriters with a narrow industry spectrum, independent of their reputation, contribute to more informative stock prices.

JEL Classifications: G24, G14, G30, G15

Keywords: Initial Public Offerings (IPO), Underwriters' Reputation, Stock Price Informativeness, International IPO Markets

1. PURPOSE AND MOTIVATION

This study is the first to examine if more reputable underwriters help improve the stock price informativeness[1] of their sponsored initial public offering (IPO) firms in the period subsequent to the IPO. Given that high-quality underwriters provide better certification (e.g., Dong, Michel and Pandes (2011), bring additional monitoring, through higher analyst coverage (e.g., Loureiro, 2013) and supply accurate earnings forecasts (e.g., Lee and Masulis, 2011; Chen, Lin, Chang et al., 2013) to the companies they sponsor, there is an improvement of the quality of the information (more accurate and transparent) disclosed by those firms. Consequently, we expect that their *post*-IPO stock price is more informative. There are studies that analyze how the firms can increase their information environment and, consequently, the transparency of their stock prices, such as through analysts coverage (Piotroski and Roulstone, 2004; Chan and Hameed, 2006), cross-listing in U.S. markets[2]/ADRs (Fernandes and Ferreira, 2008), insider trading laws (Fernandes and Ferreira, 2009), board structure (Ferreira, Ferreira and Raposo, 2011), and the adoption of International Financial Reporting Standards (IFRS) (Loureiro and Taboada, 2012). Nevertheless, to the best of our knowledge, none of them analyze if the firms' decision to hire a reputable underwriter to sponsor their IPOs will improve their *post*-IPO stock price informativeness.

We measure *post*-IPO stock price informativeness by the firm-specific stock return variation and future earnings return coefficient. The sample includes more than 5,000 firms from 34 countries distributed by three geographic areas: the United States (U.S.), Europe (EU), and Asia-Pacific (AP), from 2000 to 2014.

This study adds to the financial literature in several ways: 1) we examine if the stock prices of IPO firms sponsored by the most reputable underwriters incorporate more firm-specific information in the years following the IPO; 2) we analyze the impact of underwriters' reputation on *post*-IPO stock price informativeness conditional on (i) geographic areas of the IPO firms; (ii) the IPO market conditions, in particular periods of low volume in the IPO market, which include the *post*-bubble crisis and the consequences of the global financial crisis; 3) at the underwriter-level, we analyze *post*-IPO stock price informativeness considering not only underwriters' reputation but also their industry specialization, conditional on the geographic areas where underwriters are domiciled.

[1] Stock price informativeness assesses the extent to which information about a firm is quickly and accurately incorporated in stock prices (Fernandes and Ferreira, 2008; Haggard, Martin and Pereira, 2008; Loureiro and Taboada, 2012; Bai, Philippon and Savov, 2016).
[2] For reputational bonding purposes, see, for instance, Loureiro (2010b, 2013).

We argue that reputable underwriters, through the higher quality services they are able to provide, can help improve the information environment of their IPO firms, which translates into a higher stock price informativeness *post*-IPO. Our results suggest that is particularly the case of IPOs from countries with weaker protection of investors' rights (e.g. China). In countries with more developed markets and better shareholder protection, we find no impact of underwriter reputation on *post*-IPO stock price informativeness. Our evidence indicates that, to some extent, underwriter reputation substitutes the lack of corporate governance provided by national institutions. Thus, IPO firms from countries with weaker governance benefit more from hiring a reputable underwriter. These results pass several robustness tests. The contribution that high reputation banks bring to their customers does not need to be coupled with industry expertise. The specialization by industry by itself also contributes to making IPO prices more informative. This is particularly true for Asian banks.

The remainder of the paper is organized as follows: Section 2 conducts a literature review and develops the hypotheses; Section 3 describes the methodology, data and sample selection; Section 4 tests the main hypotheses and shows the robustness check. Section 5 concludes.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Underwriters' Reputation and Asymmetric Information

Asymmetric information theory assumes that investors and issuers are not equally informed. Given that the underwriters are information gatekeepers, the greater the reputation of an investment bank, the more effective it is in reducing the impact of information asymmetry (Chemmanur and Fulghieri, 1994; Banerjee, Dai and Shrestha, 2011; Hoque, 2014), decreasing issuers' costs of raising capital (Carter and Manaster, 1990) and enhancing market efficiency (Dong, Michel and Pandes, 2011).

Among many *pre*- and *post*-IPOs activities performed by reputable underwriters in order to decrease asymmetric information, we can enumerate the following: (i) Screening IPO candidates and certifying firm value (e.g., Booth and Smith, 1986; Carter and Manaster, 1990; Dong, Michel and Pandes, 2011). High-quality underwriters possess above-average IPO screening skills (e.g., Agrawal and Cooper, 2010; Dong, Michel and Pandes, 2011) and provide better certification to the companies they sponsor (e.g., Dong, Michel and Pandes (2011); (ii) Producing information (e.g., Benveniste and Spindt, 1989). Besides the price formation process being more transparent in Japan (e.g., Kutsuna, Smith and Smith, 2009),

India (e.g., Clarke, Khurshed, Pande et al., 2016), Taiwan and Hong Kong (e.g., Chang, Chen, Kao et al., 2014) than it is in the United States, reputable underwriters are more efficient in pricing securities issues in primary markets than less reputable ones (e.g., Wang and Yung, 2011; Chen, Lin, Chang et al., 2013; Bangsund, 2014; Chang, Chen, Kao et al., 2014). (iii) Providing marketing services to give more visibility to the stocks (Dong, Michel and Pandes, 2011; Jeon, Lee, Nasser et al., 2015) and market to the IPO through more established distribution networks[3] and institutional contacts (Su and Bangassa, 2011; Neupane and Thapa, 2013; Chuluun, 2015; Bajo, Chemmanur, Simonyan et al., 2016).

This activity can be divided into: (a) providing aftermarket price support (e.g., Chemmanur and Fulghieri, 1994; Dong, Michel and Pandes, 2011; Mazouz, Agyei-Ampomah, Saadouni et al., 2013; Reber and Vencappa, 2016) – Given the higher reputation capital at stake, more reputable underwriters are more likely to provide price support in the aftermarket, such as market making, price stabilization[4], and penalty bids (e.g., Lewellen, 2006; Mazouz, Agyei-Ampomah, Saadouni et al., 2013; Reber and Vencappa, 2016). This is true for the U.S., but may not be for the other countries. For instance, in Italy the underwriter's reputation is negatively associated with the stabilization activity supporting the idea that underwriters with a better reputation are better at identifying IPOs that will not need any stabilization activity (Signori, Meoli and Vismara, 2013). In India, underwriters neither undertake any market stabilization activities nor impose penalties (Neupane, Neupane, Paudyal et al., 2016); (b) providing analyst research coverage (all-star analyst) of the stock (e.g., Dong, Michel and Pandes, 2011; Su and Bangassa, 2011; Fernando, Gatchev, May et al., 2015); (c) providing accurate earnings forecasts (e.g., Lee and Masulis, 2011; Chen, Lin, Chang et al., 2013); (d) providing larger and more reputable syndicates[5] (Fernando, Gatchev, May et al., 2015) and, consequently, more visibility (e.g., Jeon, Lee, Nasser et al., 2015); (e) providing *post*-IPO monitoring (financing, mergers and acquisitions, and *post*-deal roadshows) (Kovner, 2012); (f) providing reputational bonding and additional monitoring (higher analyst coverage and greater accuracy) in the case of U.S. cross-listings (Loureiro, 2010b, 2013).

[3] According to Chuluun (2015) and Bajo, Chemmanur, Simonyan et al. (2016), the network of investment banks that a lead IPO underwriter is related to can be decisive to extract and disseminate information during the IPO underwriting process. This way, the more central the underwriter is in the network, the more attention is paid by the investors to the IPOs underwritten by them. These authors also mention that the underwriter network effect is different from that of the underwriter reputation.

[4] Mazouz, Agyei-Ampomah, Saadouni et al. (2013) conducted a study on the Hong Kong IPO market and conclude that stabilization protects investors from purchasing overpriced IPOs and brings benefits to both issuers (less underpriced) and underwriters (more commissions). For more development about the inherent concepts (e.g., overallotment, naked short position, greenshoe option, clawback clauses) see, for example, Lewellen (2006), Signori, Meoli and Vismara (2013) and Meoli, Signori and Vismara (2015).

[5] There has been a growing trend in the number of investment banks *per* IPO. One reason for that is to ensure more analysts coverage (e.g., Liu and Ritter, 2011).

According to Loureiro (2013), reputable underwriters bring additional monitoring, through higher analyst coverage, to the firms they sponsor. Subsequently, there is an improvement of the quality of the information (more accurate and transparent) disclosed by those firms, which is associated with a lower implied cost of capital. Consequently, the underwriters' characteristics (e.g., services and reputational capital) could influence the information environment of an IPO through higher analyst coverage (e.g., Loureiro, 2013). An increase in analyst coverage increases information production reducing information asymmetry costs (Banerjee, Dai and Shrestha, 2011; Chen, Lin, Chang et al., 2013; Chan and Chan, 2014; Hoque, 2014) and illiquidity in the secondary market (Popescu and Xu, 2011; Bouzouita, Gajewski and Gresse, 2015).

2.2. Stock Price Informativeness in the post-IPO period

A number of studies analyze the factors that positively influence the IPOs' information environment, namely cross-listing in a U.S. stock exchange (Fernandes and Ferreira, 2008), the enforcement of insider trading laws (Fernandes and Ferreira, 2009), and the adoption of International Financial Reporting Standards (IFRS) (Loureiro and Taboada, 2012). These studies advocate that firms with better information environment (e.g., disclosure policy, analyst following) or better institutional environment (e.g., property rights protection, quality of government, legal origin) have more informative stock prices in developed markets and in countries with the strongest investor protection and more transparency (Morck, Yeung and Yu, 2000; Jin and Myers, 2006; Fernandes and Ferreira, 2008, 2009; Loureiro and Taboada, 2012). These results are consistent with those of Grossman and Stiglitz (1980) and Veldkamp (2006). Empirical evidence has shown that more transparent environments, with better investor protection and lower cost of private information, have more informative stock prices (Grossman and Stiglitz, 1980; Morck, Yeung and Yu, 2000; Jin and Myers, 2006; Veldkamp, 2006; Dasgupta, Gan and Gao, 2010; Loureiro and Taboada, 2012).

The literature offers alternative measures for stock price informativeness. For instance, Morck, Yeung and Yu (2000), Durnev, Morck, Yeung et al. (2003), Fernandes and Ferreira (2008, 2009), He, Li, Shen et al. (2013) and Mathers (2017) use the stock return nonsynchronicity, which captures firm-specific stock return variations (or idiosyncratic volatility[6,7]) that are unexplained by market movements (e.g., French and Roll, 1986; Roll,

[6] Based on a particular CAPM asset-pricing model, idiosyncratic volatility measures the part of the variation in returns that cannot be explained by that asset-pricing model (Roll, 1988; Zhang, Li, Shen et al., 2016; Aabo, Pantzalis and Park, 2017).
[7] To analyze the distinction between relative and absolute idiosyncratic volatility see Aabo, Pantzalis and Park (2017).

1988; Ferreira and Laux, 2007; Ferreira, Ferreira and Raposo, 2011; Zhang, Li, Shen et al., 2016). There are authors who do not agree with that proxy. For instance, Roll (1988) states that idiosyncratic volatility can be indicative of either "informed trading" or "occasional frenzy" unrelated to concrete information, Dasgupta, Gan and Gao (2010) consider this relationship ambiguous, Fernandes and Ferreira (2009) also maintain that the informational interpretation of firm-specific return variation is controversial because limits to arbitrage, pricing errors, and noise can also result in volatility. Alternatively, other studies measure stock price informativeness using an accounting-based proxy – the future earnings response coefficient (FERC) (Durnev, Morck, Yeung et al., 2003). This proxy measures the extent to which stock prices incorporate information about future earnings[8] (Fernandes and Ferreira, 2009; Hu and Liu, 2013; Chan, Li, Lin et al., 2017). Similar to Yu (2011), we use both FERC and idiosyncratic volatility measures in our empirical analyses. By doing so, we provide an additional proxy that overcomes the potential problems of noise trading that plague the measure based on idiosyncratic volatility (e.g., Hou and Loh, 2016).

Concerning the first measure, stock return synchronicity is negatively related to stock price informativeness. Accordingly, high firm-specific return variation (i.e., lower stock return synchronicity - measured by a market model R^2)[9] indicates that the stock price is tracking its fundamental value more closely (Durnev, Morck, Yeung et al., 2003) because the firms are more transparent (Jin and Myers, 2006), the information is incorporated into stock prices more quickly and accurately (Durnev, Morck and Yeung, 2004; Chen, Goldstein and Wei, 2007; Loureiro and Taboada, 2012) and more information about future earnings is embedded in stock prices (Durnev, Morck, Yeung et al., 2003), leading to greater efficiency in the stock markets (French and Roll, 1986; Roll, 1988).

Both market- and firm-level information environments of emerging markets are less efficient and transparent compared with those of developed markets (Morck, Yeung and Yu, 2000; Jin and Myers, 2006; Hu and Liu, 2013). For instance, Morck, Yeung and Yu (2000), Fernandes and Ferreira (2009), and Ferreira, Ferreira and Raposo (2011) indicate that stock prices show higher synchronicity in emerging markets than in developed markets because less firm-specific information[10] is incorporated into stock valuation in emerging markets, given the weaker public investor property rights. Furthermore, in emerging markets, there is a larger

[8] Like Yu (2011), we estimate FERC from a regression of stock returns against contemporaneous and future years' earnings growth.
[9] Idiosyncratic volatility is commonly defined as $(1-R^2)$ (Fernandes and Ferreira, 2008, 2009; Ferreira, Ferreira and Raposo, 2011; Lee and Liu, 2011; Yu, 2011; He, Li, Shen et al., 2013; Lin, Karim and Carter, 2014; Mathers, 2017). However, Bartram, Brown and Stulz (2012), Li, Rajgopal and Venkatachalam (2014) and Zhang, Li, Shen et al. (2016) discover that R^2 and idiosyncratic volatility are not interchangeable in certain information environments.
[10] Gul, Kim and Qiu (2010) and Lin, Karim and Carter (2014) demonstrate the validity of using idiosyncratic return volatility in emerging markets.

number of irrational individual investors who are subject to strong behavioral biases making the market more speculative (Lee and Liu, 2011). According to Banerjee, Dai and Shrestha (2011), the stock return synchronicity is a concern for the Asian countries for various reasons, such as government influence in asset markets, underdeveloped monitoring institutions, closely-held ownership structures, weak investor protection. Indeed, an uninformed Asian investor has a lack of relevant private information to help him make the best decision. All of these factors suggest that the Chinese stock market is not as efficient as those in more developed countries (e.g., Wang, Wu and Yang, 2009). Given the lower sophistication of investors in emerging markets like China, Hu and Liu (2013) suggest that the decision makers should make more effort to cultivate professional institutional investors and strengthen the financial knowledge of individual investors to improve the price efficiency of the stock market.

Considering the second measure of stock price informativeness, FERC, Durnev, Morck, Yeung et al. (2003) find that this measure is positively correlated with firm-specific return variation. Indeed, Fernandes and Ferreira (2009) and Chan, Li, Lin et al. (2017) state that if firm-specific return variation reflects the incorporation of information about fundamental value into stock prices, then stock prices incorporate more information about future earnings.

According to Haw, Hu, Lee et al. (2012), on average, stock price informativeness about future earnings is greater in countries with strong investor protection and with greater financial disclosure.

To date, to the best of our knowledge, there is no evidence on the relation between underwriters' reputation and stock price informativeness (measured by idiosyncratic volatility and FERC) of the firms they sponsor.

2.3. Hypotheses Development

Based on the above discussions, we will test hypotheses related to the impact of underwriters' reputation on *post*-IPO stock price informativeness.

Given that underwriters' reputation improves the information environment and reduces the costs associated with obtaining information, the main focus of this research is to analyze if the IPOs that were sponsored by high reputable underwriters exhibit higher *post*-IPO stock price informativeness. Furthermore, this study seeks to distinguish the results by geographic areas. We split the entire sample into three subsamples: the United States (U.S.),

Europe (EU) and Asia-Pacific (AP). This classification follows a geographic criterion and allows us to better understand the specifications of each subsample, regarding underwriters' reputation and stock price informativeness, among other aspects.

We develop our main hypotheses, in which H1a), H1b) and H2 are related to firm-specific stock return variation and H3a) and H3b) are linked to FERC, as measures of stock price informativeness. The first two hypotheses are worked at the IPO level whereas the last two are driven at the underwriter level.

Given that the U.S. and the majority of European markets do not have regulatory restrictions to price the offers, have stronger investor protection and more transparency, we do not expect reputable underwriters to contribute in a significant way to improve *post*-IPOs stock price informativeness of the IPOs that they sponsored. In these situations, the information environment is in itself improved. In contrast, given that the majority of AP market has regulatory restrictions to price the offers, less investor protection of property rights and less transparency, we expect reputable underwriters to contribute in a significant way to improving *post*-IPOs stock price informativeness of the IPOs they sponsored. In these situations, the information environment needs to be improved, which can be achieved through a financial intermediary, such as reputable underwriters once they can reduce the information asymmetry costs.

Building upon these ideas, we formulate the following hypotheses:

H1a): *IPO-firms domicile in markets with worse shareholder protection (such as Asia) are more expected to observe a positive relation between underwriter reputation and stock price informativeness in the three years post-IPO.*

H1b): *IPO-firms domicile in markets with better shareholder protection (such as U.S. and Europe) are less expected to observe a positive relation between underwriter reputation and stock price informativeness in the three years post-IPO.*

Considering the financial crises commonly reported in the literature, it is important to analyze if the IPOs that were sponsored by high reputation underwriters exhibit more stock price informativeness during these crises. During the crises, only the best issuers will issue IPOs. Besides this, they are themselves more transparent and do not have too much competition to obtain the support of an investment bank whereby they can choose the more reputable ones. During the financial crises, we do not expect reputable underwriters to

contribute in a significant way to improving *post*-IPOs stock price informativeness in the IPOs they sponsored.

H2: *IPO-firms domicile in U.S., Europe and Asian markets are less expected to observe a positive relation between underwriter reputation and stock price informativeness in the three years post-IPO, when the financial markets are in crisis.*

Stock prices show higher synchronicity in emerging markets because less firm-specific information is incorporated into stock valuation compared to developed markets (Morck, Yeung and Yu, 2000; Fernandes and Ferreira, 2009; Ferreira, Ferreira and Raposo, 2011). In our geographic subsamples, the region Asia is mainly dominated by China, which is an emerging market that typically scores poorly in corporate governance indicators. Thus, we expect that Asian underwriters' reputation can contribute to increasing *post*-IPOs stock price informativeness of the IPOs firms they sponsor, since they improve the quality of the firms' information environment (more accurate and transparent disclosure to the market). Moreover, the role of underwriters is expected to be more effective when they are specialized in one (or few) industries. Their ability to impound firm-specific information into stock prices is greater when they have a deeper knowledge of the firms operations and competitive environment (e.g., Alves, Peasnell and Taylor, 2010). Taking all into account, we formulate the following hypotheses focusing on the AP geographic area because it corresponds to the area where reputable underwriters can contribute more given the characteristics of the Asian stock market.

H3a): *Reputable Asian underwriters will improve the stock price informativeness of IPOs they sponsored in the three years post-IPO.*

H3b): *Reputable and specialized Asian underwriters will improve the stock price informativeness of IPOs they sponsored in the three years post-IPO.*

3. METHODOLOGY and DATA DESCRIPTION

3.1. Methodology

To test our first two hypotheses, we estimate a model where the dependent variable is stock price informativeness, and the primary independent variable is the underwriters' reputation.

It is well established in the financial literature that *firm-specific stock return variation* is a proxy to measure stock price informativeness (e.g., Fernandes and Ferreira, 2008, 2009). The measure of *firm-specific stock return variation* can be based on R^2, similar to the stock price nonsynchronicity measure commonly used in other studies[11] (Morck, Yeung and Yu, 2000; Fernandes and Ferreira, 2008, 2009; Loureiro and Taboada, 2012). Using data from *Datastream* for the period 1999-2014, we computed, for each IPO, the *firm-specific stock return variation* that is estimated using a two-factor international model (Morck, Yeung and Yu, 2000; Jin and Myers, 2006; Fernandes and Ferreira, 2008, 2009; Boutchkova, Doshi, Durnev et al., 2012; Loureiro and Taboada, 2012), which includes both the local and the U.S. market index returns. Specifically, for the U.S. IPOs, the model includes the local and global market index returns excluding the U.S. We include lead and lag local/U.S. stock market returns to consider nonsynchronous trading as in Hutton, Marcus and Tehranian (2009). In all regressions of our study, we use White-robust standard errors in order to control for heteroscedasticity, unless stated otherwise. For each firm-year and using weekly[12] return data, the regression of a stock excess returns on the six market factors is as follows:

$$r_{i,t} = \alpha + \beta_{i,t-1} r_{m,t-1} + \beta_{i,t} r_{m,t} + \beta_{i,t+1} r_{m,t+1} + \beta_{i,t-1}^{US} r_{US,t-1} + \beta_{i,t}^{US} r_{US,t} + \beta_{i,t+1}^{US} r_{US,t+1} + \varepsilon_{it} \quad (1)$$

where $r_{i,t}$ is the weekly return of stock *i* in excess of the risk-free rate; $r_{m,t}$ is the excess local market return; and $r_{US,t}$ is the excess U.S. market return. In addition to using the one-year time horizon (52 weeks), we also calculated model (1) for 2 years (104 weeks) and 3 years (156 weeks). We compute the stock's relative *firm-specific return variation* as the ratio of idiosyncratic volatility to total volatility, that is, 1-R_i^2 of model (1) (Fernandes and Ferreira, 2008, 2009; Ferreira, Ferreira and Raposo, 2011; Yu, 2011; He, Li, Shen et al., 2013; Lin,

[11] However, Bartram, Brown and Stulz (2012) argue that R^2 is a function of both systematic and idiosyncratic risk. The authors state that only an increase in the idiosyncratic risk, ceteris paribus, would indicate more informative pricing.

[12] In line with DeFond, Hung, Li et al. (2015) and Loureiro and Silva (2015), we use weekly returns to mitigate some measurement problems associated with daily returns, such as infrequent trading and issues related with inaccurate return distributions.

Karim and Carter, 2014; Mathers, 2017). For each IPO, we have three different 1-R_i^2, according to the period considered, that is, for one/two/three years after the issuance of the IPO. Similar to Morck, Yeung and Yu (2000), Jin and Myers (2006); Fernandes and Ferreira (2008, 2009); Loureiro and Taboada (2012); He, Li, Shen et al. (2013) and Mathers (2017) we use a logistic transformation of 1-R_i^2.

$$\Psi_{i,t} = \ln\left(\frac{1 - R_{i,t}^2}{R_{i,t}^2}\right) \tag{2}$$

where, $\Psi_{i,t}$ is the annual logistic transformed relative *firm-specific return variation* on stock *i*. $\Psi_{i,t}$ is winsorized at the top and bottom 1% tails (Fernandes and Ferreira, 2008, 2009; Loureiro and Taboada, 2012). A greater value of $\Psi_{i,t}$ means there is more *firm-specific return variation* relative to the marketwide variation (or lack of synchronicity with the market) indicating that more private information about firm fundamentals is impounded into stock prices (Fernandes and Ferreira, 2008, 2009; Mathers, 2017).

Given that we want to study the impact of underwriters' reputation on *post*-IPO stock price informativeness, we built the model below for the period 2000-2014, where *firm-specific return variation*,Ψ, is the dependent variable, underwriters' reputation measured by market share (*MktSh*) is the main independent variable and the control variables are related to attention (*Analysts*), certification (*ADR*), country's economic development (*GDP per Capita*), size (*Assets*) and firm's market value (*MTBV*). The stock price informativeness is computed for one/two/three years *post*-IPO and so are the variables related to attention, size and firm's market value. However, underwriters' reputation, certification and development of the countries are contemporaneous to the year of the IPO (t=0). We consider fixed effects by year, region and industry (17 SIC codes) similar to Fernandes and Ferreira (2008) and Loureiro (2013).

$$\begin{aligned}\Psi_{i,t} = \alpha &+ \beta_{1i} AvMktShd_{i,t} + \beta_{2i} LnAvAnalysts_{i,t} + \beta_{3i} ADRd_{i,t} \\ &+ \beta_{4i} LnGDPperCapita_{i,t} + \beta_{5i} LnAssets_{i,t} + \beta_{6i} MTBV_{i,t} \\ &+ \delta_t * Year\ dummies + \delta_{region} * Region\ dummies \\ &+ \delta_{IndSIC17} * IndSIC17\ dummies + \varepsilon_{i,t+\tau}\end{aligned} \tag{3}$$

where, $\Psi_{i,t}$ is the annual logistic transformed relative *firm-specific return variation* on stock *i*; $AvMktShd_{i,t}$ is a dummy variable that takes the value 1 when the annual average market share by IPO is higher than the annual median market share of all IPOs;

$LnAvAnalysts_{i,t}$ is the natural logarithm of the annual average number of analysts that follow each IPO issuer; $ADRd_{i,t}$ is a dummy variable that takes the value 1 when a non-U.S. issuer executes an IPO in a U.S. stock market; $LnGDPperCapita_{i,t}$ is the natural logarithm of GDP *per capita*, which translates the Gross Domestic Product *per capita* by country/year; $LnAssets_{i,t}$ is the natural logarithm of the assets and represents the total net value of assets at the end of the first fiscal year after the date of the first quotation; $MTBV_{i,t}$ is the annual market-to-book financial ratio reported to the end of the first fiscal year *post*-IPO. In addition to using the one year time horizon (52 weeks), we also estimate model (3) for two years (104 weeks) and three years (156 weeks). Definitions for all the variables are in Appendix 1A. Tables 1 and 2 illustrate the correlation matrix and descriptive statistics of *firm-specific stock return variation* (Ψ) regression model (3).

An alternative measure of stock price informativeness is the stock *illiquidity*. According to Amihud (2002), this variable is defined as the annual average ratio of the daily absolute return to the trading volume on that day:

$$Illiq_{i,t} = \frac{1}{D_{i,t}} \sum_{t=1}^{D_{i,t}} \frac{|R_{itd}|}{VOLD_{itd}} \tag{4}$$

where $|R_{itd}|$ is the return on stock *i* on day *d* of year *t*, $VOLD_{itd}$ is the respective daily volume in dollars and $D_{i,t}$ is the number of days for which data are available for stock *i* in year *t*. In addition to using the one-year time horizon (52 weeks), we also calculated model (4) for two years (104 weeks) and three years (156 weeks). Definitions for all the variables are in Appendix 1A.

Similar to model (3), we construct the model below, considering the same control variables, time horizon and fixed effects. We only change the dependent variable *firm-specific stock return variation* for the variable *illiquidity*.

$$\begin{aligned} Illiq_{i,t} = \alpha &+ \beta_{1i} AvMktShd_{i,t} + \beta_{2i}\, LnAvAnalysts_{i,t} + \beta_{3i} ADRd_{i,t} \\ &+ \beta_{4i} LnGDPperCapita_{i,t} + \beta_{5i}\, LnAssets_{i,t} + \beta_{6i} MTBV_{i,t} \\ &+ \delta_t * Year\ dummies + \delta_{region} * Region\ dummies \\ &+ \delta_{IndSIC17} * IndSIC17\ dummies + \varepsilon_{i,t+\tau} \end{aligned} \tag{5}$$

As before, $Illiq_{i,t}$ is winsorized at the top and bottom 1% tails. Definitions for all the variables are in Appendix 1A.

We apply model (3) and (5) to each IPO considering the impact of underwriters' reputation on stock price informativeness. In order to test ours two last hypotheses and understand if the stock prices of IPOs sponsored by the more reputable investment banks incorporate future earnings returns, we apply an underwriter-level model (i.e., the observations used to estimate the model are based on underwriter) for the entire period of time, 2000-2014. Following Durnev, Morck, Yeung et al. (2003) for each underwriter that sponsored at least 14 IPOs, we calculate the *future earnings return coefficient* (FERC) of their IPOs. First, we estimate the following model:

$$r_{i,t} = a_0 + b_0 \Delta E_{i,t} + \sum_{\tau=1}^{2} b_\tau \, \Delta E_{i,t+\tau} + \sum_{\tau=1}^{2} d_\tau \, r_{i,t+\tau} + \delta_{underwriters' nationality \; Region} * Underwriters' nationality \; region \; dummies + \varepsilon_{i,t} \quad (6)$$

where $r_{i,t}$ is the annual return of stock *i*, $r_{i,t+\tau}$ is the annual return of stock i, τ periods ahead, $\Delta E_{i,t}$ is the annual change in net income before extraordinary items divided by previous year's stock market capitalization and $\Delta E_{i,t+\tau}$ is the annual change in net income before extraordinary items, τ periods ahead divided by previous year's stock market capitalization. The variables $\Delta E_{i,t+\tau}$ and $r_{i,t+\tau}$ are reported to the period 2000-2016. Second, following Durnev, Morck, Yeung et al. (2003), we compute FERC as:

$$\text{FERC}_{j,t} = \sum_{\tau=1}^{2} b_\tau \quad (7)$$

where $FERC_{j,t}$ is the *future earnings return coefficient* for underwriter *j* on the entire period sample *t* and b_τ is the *future earnings return coefficient b* assuming values for one year and two years ahead of the first year. $FERC_{j,t}$ is winsorized at the top and bottom 1% tails. Definitions for all the variables are in Appendix 1B.

Then, we built model (8) for the period 2000-2014, where FERC is the dependent variable and underwriters' reputation (*MktSh*) and industry concentration (*Herfindustry*) are the main independent variables. The control variables are related to the number of IPOs (*NumIPO*) and size (*Assets*). The model has fixed effects by region of the underwriters' nationality.

$$FERC_{j,t} = \alpha + \beta_1 MktShUWd_{j,t} + \beta_2 HerfIndustry_{j,t} + \beta_3 NumIPOd_{j,t} + \beta_4 LnAvAssets_{j,t} + \delta_{underwriter'nationality\ Region} * Underwriter'nationality\ region\ dummies + \varepsilon_{j,t} \quad (8)$$

where $FERC_{j,t}$ is *future earnings return coefficient* for the underwriter j on the entire period sample t; $MktShUWd_{j,t}$ is a dummy variable that takes the value 1 when the underwriter's market share is higher than the median market share of all underwriters[13]; $HerfIndustry_{j,t}$ corresponds to the concentration level of each underwriter in each industry; $NumIPOd_{j,t}$ is a dummy variable that takes the value 1 when the sum of the number of IPOs that each underwriter sponsored is higher than the median number of IPOs of all underwriters; $LnAvAssets_{j,t}$ is the natural logarithm of the average of the assets by underwriter at the end of the first fiscal year after the date of the first quotation. Definitions for all the variables are in Appendix 1B. Tables 3 and 4 present the correlation matrix and descriptive statistics of *FERC* regression model (8).

However, given that the role of underwriters is expected to be more effective when they are specialized in one (or few) industries, we adapted model (8), in order to consider if a reputable and specialized underwriters will improve the stock price informativeness. The iteration between underwriters' reputation (*MktShUWd*) and industry concentration (*Herfindustry*), result in an interactive variable (*MktShUWHerf* = *MktShUWd* x *Herfindustry*). The new model is as follows:

$$FERC_{j,t} = \alpha + \beta_1 MktShUWd_{j,t} + \beta_2 HerfIndustry_{j,t} + \beta_3 MktShUWHerf_{j,t} + \beta_4 NumIPOd_{j,t} + \beta_5 LnAvAssets_{j,t} + + \delta_{underwriter'nationality\ Region} * Underwriter'nationality\ region\ dummies + \varepsilon_{j,t} \quad (9)$$

where $FERC_{j,t}$ is *future earnings return coefficient* for the underwriter j on the entire period sample t. Definitions for all the variables are in Appendix 1B.

3.2. Data and Sample Selection

We obtained information about all worldwide original, successful IPOs, from 1999 to 2014, from Thomson Financial's SDC Platinum New Issues database (*SDC*).

[13] We classify investment banks having greater than 0.652% market share as reputable banks.

In this study, the nationality of an IPO firm is the country where the company is based (Gillet, Hübner and Plunus, 2010), whereas some studies use the country of the stock exchange where they are listed[14] (e.g., Abrahamson, Jenkinson and Jones, 2011).

We used some filters to exclude all private placements, rule 144A eligible private placements, shelf registration issues, unit issues, closed-end fund/trusts, limited partnerships, rights issues and IPOs where the investment banks were not available. All quotations, market indices, market value, turnover by volume, and market-to-book value were obtained from Thomson Reuters *Datastream* and other financial data[15] (e.g. assets value, net income before extraordinary items) are from Thomson Reuters *Worldscope*. We use the 17 Fama-French industry classification based on the original 4-digit SIC codes of the IPO firms. Industry classification and risk-free rates (weekly rate based on the one month T-bills return) are from *Kenneth French*'s website and GDP *per capita* from *Worldbank*. Moreover, the number of analysts is from *I/B/E/S*.

Following the literature, we exclude IPOs with no firm identification code (SEDOL or ISIN), no quotations[16], market value or turnover by volume information from *Datastream*, no information on proceeds raised, no common stocks issued or REITs from *SDC*, no net income before extraordinary items available from *Worldscope*. We also eliminate financial (SIC 6000-6999) and utilities (SIC 4900-4999) firms, government agencies[17] (SIC 9000-9999), and firms domiciled in tax offshores (except for Luxembourg).

We identify technologic IPOs following Loughran and Ritter (2004). To avoid penny stocks, most of the studies using U.S. IPOs eliminate stocks whose offer price is below 5 U.S. dollars. In our sample of international IPOs this threshold cannot be used as it would eliminate about half of the sample (the median offer price of the initial sample was 5.5 U.S. dollars). Instead, following Banerjee, Güçbilmez and Pawlina (2012), we eliminate penny stocks with offer prices below 1 U.S. dollar, representing about 25% of the initial sample. After this screening, the mean IPO offer price is 317 U.S. dollars, the median is 9.95 U.S. dollars, and the 25th percentile is 3.6 U.S. dollars.

Following Loureiro (2010b, 2013), we further eliminate IPOs with proceeds below 2 million U.S. dollars, corresponding to 5% of the sample.

[14] In our study, 92,39% of the IPOs are listed in the stock market of the same country where they are located.
[15] All financial ratios were winsorized 1% and 99% in its values, to eliminate the outliers effect (e.g., Doidge, Karolyi and Stulz, 2010; Chemmanur and He, 2011).
[16] In some cases, the date of the first stock price available is a few days later than the IPO date. Whenever the stock price was missing in the 60 days after the IPO date, the observation was dropped (e.g., Boulton, Smart and Zutter, 2010; Autore, Boulton, Smart et al., 2014).
[17] It is beyond the scope of this work to analyze state-owned enterprises because the underwriter reputation is effective only in the non-state-owned enterprise market (Chen, Shi and Xu, 2013, 2014).

We also eliminate countries with less than 10 IPOs during the entire period of the sample (1999/2014) (e.g., Banerjee, Dai and Shrestha, 2011; Autore, Boulton, Smart et al., 2014).

Concerning the stock price informativeness, we only consider IPOs that have quotations at least for 52 weeks (Fernandes and Ferreira, 2008, 2009; Loureiro and Taboada, 2012), but weeks with zero return are not counted as missing. We also exclude the initial and end year (Fernandes and Ferreira, 2008, 2009). Our sample is compounded of 11.064 successful IPOs coming from 34 countries.

Next, we collect information about underwriters involved in each IPO. As in previous studies, we focus on lead managers (e.g., Megginson and Weiss, 1991; Nanda and Yun, 1997; Loureiro, 2010b). Whenever there is a syndicate of underwriters, we divide the IPO proceeds by each lead manager to compute their market shares (Dunbar and Foerster, 2008; Loureiro, 2010b; Banerjee, Dai and Shrestha, 2011; Migliorati and Vismara, 2014; Fernando, Gatchev, May et al., 2015). We classify each lead manager having regard to its ultimate parent company[18] to ensure that the proceeds of the IPO remained with a parent who survived (Kirkulak and Davis, 2005; Loureiro, 2010b; Abrahamson, Jenkinson and Jones, 2011; Migliorati and Vismara, 2014; Boeh and Dunbar, 2016). Subsequently, when we are referring to lead managers or underwriters, we refer to the underwriter's ultimate parents.

Finally, when we analyze the impact of underwriters' reputation on FERC, we only consider investment banks that sponsored at least 14 IPOs during the entire period of the sample, in order to benefit from a continuous IPOs issuance experience. In this case, our final sample is compounded of 8.661 successful IPOs coming from 34 countries.

3.3. Subsamples

Since IPOs have different characteristics depending on the country where they are issued, in this section we split the sample into subsamples by geographic area. Regarding the entire sample, we have 34 countries split into three subsamples: The United States (U.S.), Europe (EU) and Asia-Pacific (AP). Europe includes Germany, France, United Kingdom, Italy, Sweden, Netherlands, Greece, Poland, Switzerland, Norway, Belgium, Spain, Finland, Denmark, Austria, Ireland, Turkey, Portugal, Luxembourg, and Hungary. Asia-Pacific

[18] We tried to use the affiliations in order not to lose some details which are hidden with mergers and acquisitions and with the merger of data at the parent company level. For instance, if we use the data in the first tier, the bank *Barclays* incorporates another bank, *Lehman Brothers*, which was crucial in the banking sector. However, it is hard to work with investment banks' subsidiaries given the information available in *SDC*. There, we can find subsidiaries with the same name, but with different codes or nationalities.

includes China, Japan, South Korea, Taiwan, India, Australia, Israel, Malaysia, Hong Kong, Russia, Singapore, Thailand and New Zealand.

We also analyze different market conditions and the period of the financial crises. The number of IPOs issued and their value depends on the waves of the stock market and the financial crises (e.g., Boeh and Dunbar, 2014). Considering not only the worldwide sample but also the geographic subsamples, Appendix 2 shows two crises broadly recognized in the financial literature; one is the bubble crisis and the other is the global crisis (e.g., Abrahamson, Jenkinson and Jones, 2011). The years that are classified as *cold* can be related with the consequences of the crises[19]. Accordingly, we consider as *cold* market the years 2002-2003, 2008-2009 and 2013, as we can see in Appendix 2.

4. EMPIRICAL RESULTS

4.1. Firm-Specific Stock Return Variation

The subsamples are divided according to the geographic area of IPO firms (the United States, Europe and Asia-Pacific). To know the impact of underwriters' reputation on *firm-specific stock return variation*, we run a regression based on model (3).

Table 5 shows that the coefficient of the variable *AvMktShd* has a positive and significant relation to *firm-specific stock return variation* only in the AP area (mainly dominated by China). Accordingly, one of the benefits that issuers have from being sponsored by reputable underwriters is to exhibit stock prices *post*-IPO with more firm-specific information content. We argue that reputable underwriters, through the higher quality services they are able to provide, can help improve the information environment of their IPO firms. This is only true for the Asian IPOs. This result corroborates H1a). Through improvement of the quality of the information (more accurate and transparent) disclosed by those firms, high reputation underwriters can reduce the information asymmetry costs and illiquidity in the secondary market, which in turn could diminish the need for more monitoring by shareholders, make the IPO firms more attractive to investors, and be associated with a lower implied cost of capital. Our evidence indicates that, to some extent, underwriter reputation substitutes the lack of corporate governance provided by national institutions. Our results suggest that is particularly the case of IPOs from countries with weaker protection of investors' rights (e.g. China). Thus, IPO firms from countries with weaker governance benefit more from hiring a reputable underwriter. In contrast, according to the coefficient of the

[19] In Europe, the global crisis lasted longer without interruption until 2013, including also the Eurozone crisis in 2011.

variable *AvMktShd* for the U.S. and European IPOs, reputable underwriters do not contribute in a significant way to improving *post*-IPOs stock price informativeness of the IPOs that they sponsored. These results corroborate H1b). Our evidence suggests that in countries with more developed markets and better shareholder protection, there is no impact of underwriter reputation on *post*-IPO stock price informativeness, may be due to the fact that in these countries, the information and institutional environment is in itself improved.

Considering the *cold* market, we can observe from Table 6 that the results are similar to those of Table 5, that is, reputable underwriters contribute in a significant way to improving *post*-IPO stock price informativeness only in the Asian IPOs they sponsored, given the characteristics of the Asian stock markets. Consequently, the result obtained refutes partially H2. Even that only the best firms issue IPOs (which are more transparent, for instance) during the crises, the Asian IPOs firms also need to be sponsored by reputable underwriters in order to fill the poor institutional environment of their national institutions. The U.S. and European IPOs present a different result, which suggest the idea that for stock price informativeness be more effective in Asian markets, besides the improvement in firms' informational environment, there should be also a good institutional environment, which can be substituted by a financial intermediary, such as reputable underwriters once they can reduce the information asymmetry costs.

4.2. Future Earnings Response Coefficient (FERC)

Similar to Yu (2011), we also adopt FERC measure in our empirical analyses in order to confirm the above results. To estimate FERC, we work with underwriter-level IPOs. To do that, the IPOs are aggregated by the same underwriter who sponsored them. In the first step, we run regression based on model (8), considering the variables *MktShd* and *HerfIndustry* separately. Subsequently, we added an interactive variable, *MktShHerf*, in model (9), in order to capture if the reputable underwriters specialized by industry help incorporate more information about future earnings into the stock prices of the IPOs they sponsored.

As we mentioned before, we require each underwriter to have sponsored at least 14 IPOs in the entire period of the sample, because of that only 127 underwriters satisfy the requirement. The underwriters' nationality is split into three regions: AP (57%), EU (32%) and U.S. (11%). We consider only the AP region (mainly dominated by China), not only because it has more underwriters but also given the weaker investor property rights.

Reputable underwriters from this region could have an opportunity to contribute to reversing the lack of information about future earnings into the IPOs stock prices.

Table 7 shows that the coefficient of the variable *MktShd* has a positive and significant relation to FERC, which means that Asian underwriters' reputation improve the incorporation of more information about future earnings into the stock prices of the IPOs they sponsored. This result corroborates H3a). Moreover, the coefficient of the variable *HerfIndustry* has also a positive and significant relation to FERC. Indeed, specialized Asian underwriters' ability to impound firm-specific information into stock prices is greater when they have a deeper knowledge of the firms operations and competitive environment. Taking the interactive variable, we observe that the coefficient of the variable *MktShHerf* has a negative and significant relation to FERC. The contribution that high reputation banks bring to their customers does not need to be coupled with industry expertise. The specialization by industry by itself also contributes to making IPO prices more informative. The underwriters with a narrow spectrum, independent of their reputation, contribute to more informative stock prices. This is particularly true for Asian banks. This result refutes H3b).

4.3. Robustness Test: Alternative Measure of Stock Price Informativeness

Besides the *firm-specific stock return variation* measure of stock price informativeness from Morck, Yeung and Yu (2000), there are papers that also use the measure *illiquidity* from Amihud (2002) (e.g., Ferreira, Ferreira and Raposo, 2011).

To determine the variable *illiquidity* from model (5), for each IPO, we collect daily data on the total return index from *Datastream*, expressed in U.S. dollars. The daily volume expressed in dollars is the product of daily volume and the daily price both taken from *Datastream*. According to Amihud (2002), *illiquidity* is defined as the annual average ratio of the daily absolute return to the trading volume on that day.

In model (5), the dependent variable *illiquidity* can take different time horizons: one, two and three years after the IPO issuance.

Table 8 shows that the coefficient of the variable *AvMktShd* has a negative and significant relation to *illiquidity* in the AP area. This means that underwriters' reputation improves the liquidity of the Asian IPOs stock prices they sponsored, increasing the quality of the information disclosed by those firms. The result obtained corroborates H1a). By the reasons exposed before, IPO firms from countries with weaker governance (e.g., China) benefit more from hiring a reputable underwriter. In that sense, high reputation underwriters

can reduce the information asymmetry costs and illiquidity in the secondary market, which in turn could diminish the need for more monitoring by shareholders, make the IPO firms more attractive to investors, and be associated with a lower implied cost of capital.

5. CONCLUSION

The main goal of this research is to analyze if the IPOs that were sponsored by high reputable underwriters exhibit higher *post*-IPO stock price informativeness.

There are studies that analyze how firms can improve their information environment and, consequently, the transparency of their stock prices (e.g., cross-list). Nevertheless, to the best of our knowledge, none of them analyzes if the firms' decision to hire a reputable underwriter to sponsor their IPOs will improve their *post*-IPO stock price informativeness. This is the main contribution of this research.

This study is done globally to uncover different patterns across countries and regions. The analysis also considers IPO market conditions (e.g., crises). Therefore, our results are useful for academics, practitioners and regulators.

Our results suggest that one of the benefits that issuers have from being sponsored by reputable underwriters is to exhibit stock prices *post*-IPO with more firm-specific information content. This is only true for the Asian IPOs. We argue that reputable underwriters, through the higher quality services they are able to provide, can help improve the information environment of their Asian IPO firms. These results may be partially explained by the low levels of shareholder protection observed in the majority of countries of the AP region (e.g., China). To some extent, underwriter reputation substitutes the lack of corporate governance provided by national institutions. Thus, IPO firms from countries with weaker governance benefit more from hiring a reputable underwriter.

In countries with more developed markets and better shareholder protection (such as U.S. and Europe), we find no impact of underwriter reputation on *post*-IPO stock price informativeness. In these situations, the information environment is in itself improved.

The results remain unchanged even when considering cold market periods and are also robust to an alternative measure of stock price informativeness (illiquidity).

At the underwriter-level IPOs, empirical evidence shows that Asian underwriters' reputation improve the incorporation of more information about future earnings into the stock prices of the IPOs they sponsored. We also find evidence that when Asian underwriters are highly specialized in a specific industry (or a small number of industries), they have a better

ability to improve the information content of their sponsored firms' stock prices. This result suggests that underwriters with a narrow spectrum, independent of their reputation, contribute also to more informative stock prices.

Although empirical evidences are obtained, this study presents some limitations, such as the low number of observations used to calculate FERC.

This work motivates other research ideas that can be explored in the future. An interesting topic for future research is to explore if the participation of institutional investors specialized in a few industries will improve the stock price informativeness of their IPO clients. Lastly, other research idea is to analyze if specialized Asian underwriters have the ability to impound firm-specific information into stock prices of U.S. or European IPOs when they cross-list in the Asian stock market, in order to determine if specialized Asian underwriters perform better than specialized underwriters from American or European markets.

Acknowledgments

Maria Carmo Correia acknowledges support from the SAS Institute, Software, Lda, for the license of SAS software.

REFERENCES

Aabo, T., Pantzalis, C. and Park, J.C. (2017). "Idiosyncratic volatility: An indicator of noise trading?" *Journal of Banking and Finance* 75: 136-151.

Abrahamson, M., Jenkinson, T. and Jones, H. (2011). "Why Don't U.S. Issuers Demand European Fees for IPOs?" *The Journal of Finance* LXVI(6): 2055-2082.

Agrawal, A. and Cooper, T. (2010). "Accounting Scandals in IPO Firms: Do Underwriters and VCs Help?" *Journal of Economics & Management Strategy* 19(4): 1117–1181.

Alves, P., Peasnell, K. and Taylor, P. (2010). "The Use of the R2 as a Measure of Firm-Specific Information: A Cross-Country Critique." *Journal of Business Finance & Accounting* 37(1): 1-26.

Amihud, Y. (2002). "Illiquidity and stock returns: cross-section and time-series effects." *Journal of Financial Markets* 5: 31-56.

Autore, D.M., Boulton, T.J., Smart, S.B. and Zutter, C.J. (2014). "The impact of institutional quality on initial public offerings." *Journal of Economics and Business* 73: 65-96.

Bai, J., Philippon, T. and Savov, A. (2016). "Have financial markets become more informative?" *Journal of Financial Economics* 122: 625-654.

Bajo, E., Chemmanur, T.J., Simonyan, K. and Tehranian, H. (2016). "Underwriter networks, investor attention, and initial public offerings." *Journal of Financial Economics* ARTICLE IN PRESS: 1-33.

Banerjee, S., Dai, L. and Shrestha, K. (2011). "Cross-country IPOs: What explains differences in underpricing?" *Journal of Corporate Finance* 17: 1289-1305.

Banerjee, S., Güçbilmez, Í.U. and Pawlina, G. (2012). "Leaders and Followers in Hot IPO Markets." *Journal of Corporate Finance* 37: 309-334.

Bangsund, L. (2014). "IPO Valuation and Investment Bank Reputation: Evidence from a Beauty Contest." *Journal of Applied Finance* 2: 52-60.

Bartram, S.M., Brown, G. and Stulz, R.M. (2012). "Why Are U.S. Stocks More Volatile? ." *The Journal of Finance* 67 (4): 1329-1368.

Benveniste, L.M. and Spindt, P.A. (1989). "How Investment Bankers Determine the Offer Price and Allocation of New Issues." *Journal of Financial Economics* 24: 343-361.

Boeh, K. and Dunbar, C.G. (2014). "IPO waves and the issuance process." *Journal of Corporate Finance* 25: 455-473.

Boeh, K. and Dunbar, C.G. (2016). "Underwriter deal pipeline and the pricing of IPOs." *Journal of Financial Economics* 120: 383–399.

Booth, J.R. and Smith, R.L. (1986). "Capital raising, underwriting, and the certification hypothesis." *Journal of Financial Economics* 15: 261–281.

Boulton, T.J., Smart, S. and Zutter, C. (2010). "IPO underpricing and international corporate governance. ." *Journal of International Business Studies* 41: 206–222.

Boutchkova, M., Doshi, H., Durnev, A. and Molchanov, A. (2012). "Precarious Politics and Return Volatility." *Review of Financial Studies* 25 (4): 1111-1154.

Bouzouita, N., Gajewski, J.-F. and Gresse, C. (2015). "Liquidity Benefits from IPO Underpricing: Ownership Dispersion or Information Effect." *Financial Management* Winter: 785-810.

Carter, R. and Manaster, S. (1990). "Initial Public Offerings and Underwriter Reputation." *The Journal of Finance* XLV(4): 1045-1067.

Chan, K. and Chan, Y. (2014). "Price informativeness and stock return synchronicity: Evidence from the pricing of seasoned equity offerings." *Journal of Financial Economics* 114: 36-53.

Chan, K. and Hameed, A. (2006). "Stock price synchronicity and analyst coverage in emerging markets " *Journal of Financial Economics* 80: 115–147.

Chan, K., Li, F., Lin, J. and Lin, T. (2017). "What do stock price levels tell us about the firms." *Journal of Corporate Finance* 46: 34-50.

Chang, H.-H., Chen, A., Kao, L. and Wu, C.-S. (2014). "IPO price discovery efficiency under alternative regulatory constraints:Taiwan, Hong Kong and the U.S." *International Review of Economics and Finance* 29: 83–96.

Chemmanur, T.J. and Fulghieri, P. (1994). "Investment Bank Reputation, Information Production, and Financial Intermediation." *The Journal of Finance* XLIX(1): 57-79.

Chemmanur, T.J. and He, J. (2011). "IPO waves, product market competition, and the going public decision: Theory and evidence." *Journal of Financial Economics* 101(2): 382–412.

Chen, C., Shi, H. and Xu, H. (2013). "Underwriter Reputation, Issuer Ownership, and Pre-lPO Earnings Management: Evidence from China." *Financial Management* Fall: 647-677.

Chen, C., Shi, H. and Xu, H. (2014). "The IPO underwriting market share in China: Do ownership and quality matter?" *Journal of Banking & Finance* 46: 177–189.

Chen, Q., Goldstein, I. and Wei, J. (2007). "Price Informativeness and Investment Sensitivity to Stock Price." *Review of Financial Studies* 20: 619-650.

Chen, S.-S., Lin, W.-C., Chang, S.-C. and Lin, C.-Y. (2013). "Information Uncertainty, Earnings Management, and Long-run Stock Performance Following Initial Public Offerings." *Journal of Business Finance & Accounting* 40(9 & 10): 1126-1154.

Chuluun, T. (2015). "The role of underwriter peer networks in IPOs." *Journal of Banking & Finance* 51: 62-78.

Clarke, J., Khurshed, A., Pande, A. and Singh, A.K. (2016). "Sentiment traders & IPO initial returns: The Indian evidence." *Journal of Corporate Finance* 37: 24-37.

Dasgupta, S., Gan, J. and Gao, N. (2010). "Transparency, Price Informativeness, and Stock Return Synchronicity: Theory and Evidence." *Journal of Financial & Quantitative Analysis* 45: 1189-1220.

DeFond, M., Hung, M., Li, S. and Li, Y. (2015). "Does mandatory IFRS adoption affect crash risk?" *The Accounting Review.* 90(1): 265-299.

Doidge, C., Karolyi, G.A. and Stulz, R.M. (2010). "Why Do Foreign Firms Leave U.S. Equity Markets?" *The Journal of Finance* LXV(4): 1507-1553.

Dong, M., Michel, J.-S. and Pandes, J.A. (2011). "Underwriter Quality and Long-Run IPO Performance." *Financial Management* Spring: 219 - 251.

Dunbar, C.G. (2000). "Factors affecting investment bank initial public offering market share." *Journal of Financial Economics* 55: 3-41.

Dunbar, C.G. and Foerster, S.R. (2008). "Second time lucky? Withdrawn IPOs that return to the market." *Journal of Financial Economics* 87: 610–635.

Durnev, A., Morck, R. and Yeung, B. (2004). "Value-Enhancing Capital Budgeting and Firm-Specific Stock Return Variation." *The Journal of Finance* 59: 65-105.

Durnev, A., Morck, R., Yeung, B. and P., Z. (2003). "Does Greater Firm-Specific Return Variation Mean More or Less Informed Stock Pricing?" *Journal of Accounting Research* 41: 797–836.

Fernandes, N. and Ferreira, M.A. (2008). "Does international cross-listing improve the information environment." *Journal of Financial Economics* 88: 216-244.

Fernandes, N. and Ferreira, M.A. (2009). "Insider Trading Laws and Stock Price Informativeness." *The Review of Financial Studies* 22(5): 1845-1887.

Fernando, C.S., Gatchev, V.A., May, A.D. and Megginson, W.L. (2015). "Prestige without purpose? Reputation, differentiation, and pricing in U.S. equity underwriting." *Journal of Corporate Finance* 32: 41–63.

Ferreira, D., Ferreira, M.A. and Raposo, C.C. (2011). "Board structure and price informativeness." *Journal of Financial Economics* 99: 523-545.

Ferreira, M.A. and Laux, P.A. (2007). "Corporate Governance, Idiosyncratic Risk, and Information Flow." *The Journal of Finance* VOL. LXII(2): 951-989.

French, K.R. and Roll, R. (1986). "Stock Return Variances: The Arrival of Information and the Reaction of Traders." *Journal of Financial Economics* 17: 5-26.

Gillet, R., Hübner, G. and Plunus, S. (2010). "Operational risk and reputation in the financial industry." *Journal of Banking and Finance* 34(1): 224-235.

Grossman, S.J. and Stiglitz, J.E. (1980). "On the Impossibility of Informationally Efficient Markets." *American Economic Review* 70: 393.

Gul, F.A., Kim, J.-B. and Qiu, A.A. (2010). "Ownership concentration, foreign share-holding, audit quality, and stock price synchronicity: Evidence from China." *Journal of Financial Economics* 95(425–442).

Haggard, K.S., Martin, X. and Pereira, R. (2008). "Does Voluntary Disclosure Improve Stock Price Informativeness?" *Financial Management* 37 747-768.

Haw, I., Hu, B., Lee, J. and W., W. (2012). "Investor protection and price informativeness about future earnings: international evidence." *Review of Accounting Studies* 17(2): 389-419.

He, W., Li, D., Shen, J. and Zhang, B. (2013). "Large foreign ownership and stock price informativeness around the world." *Journal of International Money and Finance* 36: 211-230.

Hoque, H. (2014). "Role of asymmetric information and moral hazard on IPO underpricing and lockup." *Journal of International Financial Markets, Institutions & Money* 30: 81–105.

Hou, K. and Loh, R.K. (2016). "Have we solved the idiosyncratic volatility puzzle?" *Journal of Financial Economics* 121: 167-194.

Hu, C. and Liu, S. (2013). "The Implications of Low R2: Evidence from China." *Emerging Markets Finance & Trade* 49(1): 17-32.

Hutton, A., Marcus, A. and Tehranian, H. (2009). "Opaque financial reports, R2, and crash risk." *Journal of Financial Economics* 94: 67-86.

Jeon, J.Q., Lee, C., Nasser, T. and Via, M.T. (2015). "Multiple lead underwriter IPOs and firmvisibilit." *Journal of Corporate Finance* 32: 128-149.

Jin, L. and Myers, S. (2006). "R2 around the world: new theory and new tests." *Journal of Financial Economics* 79: 257–292.

Kirkulak, B. and Davis, C. (2005). "Underwriter reputation and underpricing: Evidence from the Japanese IPO market." *Pacific-Basin Finance Journal* 13: 451-470.

Kovner, A. (2012). "Do underwriters matter? The impact of the near failure of an equity underwriter." *J. Finan. Intermediation* 21: 507-529.

Kutsuna, K., Smith, J.K. and Smith, R.L. (2009). "Public Information, IPO Price Formation, and Long-Run Returns: Japanese Evidence." *The Journal of Finance* LXIV(1): 505-546.

Lee, D.W. and Liu, M.H. (2011). "Does more information in stock price lead to greater or smaller idiosyncratic return volatility?" *Journal of Banking & Finance* 35: 1563-1580.

Lee, G. and Masulis, R.W. (2011). "Do more reputable financial institutions reduce earnings management by IPO issuers?" *Journal of Corporate Finance* 17(4): 982-1000.

Lewellen, K. (2006). "Risk, reputation, and IPO price support." *The Journal of Finance* 61: 613–653.

Li, B., Rajgopal, S. and Venkatachalam, M. (2014). "R2 and Idiosyncratic Risk Are Not Interchangeable." *The Accounting Review*. 89(6): 2261-2295.

Lin, K.J., Karim, K. and Carter, C. (2014). "Stock Price Informativeness and Idiosyncratic Return Volatility in Emerging Markets: Evidence from China." *Review of Pacific Basin Financial Markets and Polocies* 17(4): 28.

Liu, X. and Ritter, J.R. (2011). "Local underwriter oligopolies and IPO underpricing." *Journal of Financial Economics* 102: 579–601.
Loughran, T. and Ritter, J. (2004). "Why Has IPO Underpricing Changed Over Time?" *Financial Management* Autumn: 5-37.
Loureiro, G. (2010b). "The reputation of underwriters: A test of the bonding hypothesis." *Journal of Corporate Finance* 16: 516-532.
Loureiro, G. (2013). "The impact of hiring a reputable underwriter on the information environment of cross-listed firms." *Investment Analysts Journal* 42(78): 45-64.
Loureiro, G. and Silva, S. (2015). Earnings Management and Stock Price Crashes Post-Cross-Delisting. NIPE, University of Minho**:** 1-40.
Loureiro, G. and Taboada, A.G. (2012). The Impact of IFRS Adoption on Stock Price Informativeness EFMA. Barcelona**:** 1-39.
Mathers, A.M.W., B.; Wang, X. (2017). "Innovation and Price Informativeness." *Financial Management* Summer 2017: 523-546.
Mazouz, K., Agyei-Ampomah, S., Saadouni, B. and Yin, S. (2013). "Stabilization and the aftermarket prices of initial public offerings." *Rev Quant Finan Acc* 41: 417-439.
Megginson, W.L. and Weiss, K.A. (1991). "Venture Capitalist Certification in Initial Public Offerings." *The Journal of Finance* XLVI(3): 879-903.
Meoli, M., Signori, A. and Vismara, S. (2015). "Are IPO underwriters paid for the services they provide?" *International Journal of Managerial Finance* 11(4): 414-437.
Migliorati, K. and Vismara, S. (2014). "Ranking Underwriters of European IPOs." *European Financial Management* 20(5): 891–925.
Morck, R., Yeung, B. and Yu, W. (2000). "The information content of stock markets: why do emerging markets have synchronous stock price movements?" *Journal of Financial Economics* 58: 215–260.
Nanda, V. and Yun, Y. (1997). "Reputation and Financial Intermediation: An Empirical Investigation of the Impact of IPO Mispricing on Underwriter Market Value." *Journal of Financial Intermediation* 6: 39-63.
Neupane, S., Neupane, B., Paudyal, K. and Thapa, C. (2016). "Domestic and foreign institutional investors' investment in IPOs." *Pacific-Basin Finance Journal* 39.
Neupane, S. and Thapa, C. (2013). "Underwriter reputation and the underwriter–investor relationship in IPO markets." *Int. Fin. Markets, Inst. and Money* 24: 105-126.
Piotroski, J. and Roulstone, D. (2004). "The influence of analysts, institutional investors, and insiders on the incorporation of market, industry, and firm-specific information into stock prices." *Accounting Review* 79(4): 1119–1151.
Popescu, M. and Xu, Z. (2011). "Co-Managers, Information, and the Secondary Market Liquidity of Initial Public Offerings." *Financial Management* 40: 199-218
Reber, B. and Vencappa, D. (2016). "Deliberate premarket underpricing and aftermarketmispricing: New insights on IPO pricing." *International Review of Financial Analysis* 44: 18–33.
Roll, R. (1988). "R²." *The Journal of Finance* 43: 541-566.
Signori, A., Meoli, M. and Vismara, S. (2013). "Short covering and price stabilization of IPOs." *Applied Economics Letters* 20(10): 931-937.
Su, C. and Bangassa, K. (2011). "The impact of underwriter reputation on initial returns and long-run performance of Chinese IPOs." *Journal of International Financial Markets, Institutions & Money* 21: 760– 791.
Veldkamp, L.L. (2006). "Information Markets and the Comovement of Asset Prices." *Review of Economic Studies* 73( ): 823-845.
Wang, W. and Yung, C. (2011). "IPO information aggregation and underwriter quality." *Review of Finance* 15: 301–325.

Wang, Y., Wu, L. and Yang, Y. (2009). "Does the stock market affect firm investment in China? A price informativeness perspective." *Journal of Banking & Finance* 33: 53-62.

Yu, J. (2011). "Stock Price Informativeness and Corporate Governance: An International Study." *International Review of Finance* 11(4): 477-514.

Zhang, W., Li, X., Shen, D. and A., T. (2016). "R2 and idiosyncratic volatility:Which captures the firm-specific return variation?" *Economic Modelling* 55: 298-304.

APPENDICES

Appendix 1A – Firm-specific stock return variation (Ψ) and Illiquidity Regression Model: Definitions for Variables

Variables	Meaning
Firm-specific stock return variation	This variable is estimated using a two-factor international model, which includes both the local and U.S. market index returns, expressed in U.S. dollars. Specifically for U.S. IPOs, the model contains the local and global market index returns excluding the U.S., expressed in U.S. dollars. $$r_{i,t} = \alpha + \beta_{i,t-1} r_{m,t-1} + \beta_{i,t} r_{m,t} + + \beta_{i,t+1} r_{m,t+1} + \beta_{i,t-1}^{US} r_{US,t-1} + + \beta_{i,t}^{US} r_{US,t} + \beta_{i,t+1}^{US} r_{US,t+1} + \varepsilon_{it}$$ where $r_{i,t}$ is the weekly return of stock *i* in excess of the risk-free rate; $r_{m,t}$ is the excess local market return; and $r_{US,t}$ is the excess U.S. market return. Afterwards, to obtain the annual R^2 for each IPO, we use a logistic transformation of 1-R_i^2 to compute this variable. (Source: Self elaboration based on *Datastream*)
Illiquidity	According to Amihud (2002), this variable is defined as the annual average ratio of the daily absolute return to the trading volume on that day. $$Illiq_{i,t} = \frac{1}{D_{i,t}} \sum_{t=1}^{D_{i,t}} \frac{\lvert R_{itd} \rvert}{VOLD_{itd}}$$ where $\lvert R_{itd} \rvert$ is the return on stock i on day d of year t, $VOLD_{itd}$ is the respective daily volume in dollars and $D_{i,t}$ is the number of days for which data are available for stock *i* in year t. (Source: Self elaboration based on *Datastream*)
AvMktShd	This variable is referred to moment 0 and it is a dummy variable that takes the value 1 when the annual average market share by IPO is higher than the annual median market share of all IPOs. We calculate the annual average market share considering the annual market share of the underwriters involved in each IPO. The annual market share is measured as follows: the sum of the annual gross proceeds obtained from the IPOs where the bank acts as a lead manager in a geographic area, divided by the sum of annual gross proceeds received in all IPOs, in that geographic area, multiplied by 100. Gross proceeds correspond to the total amount obtained by a successful IPO and are expressed in U.S. Million and reflect 2014 prices. (Source: Self elaboration based on *SDC* data).
LnAvAnalysts	This variable is the natural logarithm of the annual average of analysts that follow each IPO issuer. (Source: Self elaboration based on *I/B/E/S*).
ADRd	This variable is referred to moment 0 and it is a dummy variable that takes the value 1 when a non-U.S. issuer executes an IPO in a U.S. stock market. (Source: Self elaboration based on *SDC* data).
LnGDPperCapita	This variable is referred to moment 0 and it is the natural logarithm of GDP per capita, expressed in U.S. dollars and reflects 2005 prices, which translates the Gross Domestic Product per capita by country/year. (Source: *http://data.worldbank.org/indicator/NY.GDP.PCAP.KD*, *World Bank WDI Database - Last Updated Date: 5/2/2016*).
LnAssets	This variable is the natural logarithm of the *Assets*, which is expressed in U.S. dollars and represents the total net value of assets at the end of the first fiscal year after the date of the first quotation, reflecting 2014 prices. (Source: Self elaboration based on *Worldscope).*
MTBV	This variable is the annual market-to-book financial ratio reported to the end of the first fiscal year *post*-IPO. (Source: *Datastream*)

Appendix 1B – FERC Regression Model: Definitions for Variables

Future earnings return coefficient (FERC)	$$r_{i,t} = a_0 + b_0 \Delta E_{i,t} + \sum_{\tau=1}^{2} b_\tau \Delta E_{i,t+\tau} + \sum_{\tau=1}^{2} d_\tau r_{i,t+\tau} + \delta_{underwriters' nationality\ Region} * Underwriters' nationality\ region\ dummies + \varepsilon_{i,t}$$ where $r_{i,t}$ is the annual return of stock i, $r_{i,t+\tau}$ is the annual return of stock i, τ periods ahead, $\Delta E_{i,t}$ is the annual change in net income before extraordinary items divided by previous year's stock market capitalization and $\Delta E_{i,t+\tau}$ is the annual change in net income before extraordinary items, τ periods ahead divided by previous year's stock market capitalization. The variables $\Delta E_{i,t+\tau}$ and $r_{i,t+\tau}$ are reported to the period 2000-2016. The FERC is given by: $$\text{FERC}_{j,t} = \sum_{\tau=1}^{2} b_\tau \quad (7)$$ where $FERC_{j,t}$ is future earnings return coefficient for the underwriter j on the entire period sample t and b_τ is the future earnings return coefficient b assuming values for one year and two years ahead of the first-year. (Source: Self elaboration based on *Datastream* and *Worldscope* data).
MktShUWd	This variable is a dummy variable that takes the value 1 when the underwriter's market share is higher than the median market share of all underwriters, for the entire period of the sample, 2000-2014. The market share is measured as follows: the sum of the gross proceeds obtained from the IPOs where the bank acts as a lead manager in a geographic area, divided by the sum of gross proceeds received in all IPOs, in that geographic area, multiplied by 100. Gross proceeds correspond to the total amount obtained by a successful IPO and are expressed in U.S. Million and reflect 2014 prices. (Source: Self elaboration based on *SDC* data).
Herfindustry	$$\sum_{i=1}^{49} \left(100 \frac{vi}{V}\right)^2$$ Where *vi* represents the gross proceeds obtained by an underwriter from one SIC Code and *V* corresponds to the total gross proceeds received by the underwriter from the entire SIC Code. This variable is calculated based on the entire period of time, 2000-2014, and corresponds to the concentration level of each underwriter in each industry. The SIC Code was defined according to the 49 sectors of activity specified on the *Kenneth French*'s site (Source: Self elaboration based on *SDC* and *Kenneth French*'s site).
NumIPOd	This variable is a dummy variable that takes the value 1 when the sum of the number of IPOs that each underwriter sponsored in the period of time 2000-2014 is higher than the median number of IPOs of all underwriters. (Source: Self elaboration based on *SDC* data).
LnAvAssets	This variable is the natural logarithm of the AvAssets, which is average of the variable Assets by underwriter. Assets is expressed in U.S. dollars and represents the total net value of assets at the end of the first fiscal year after the date of the first quotation, reflecting 2014 prices. (Source: Self elaboration based on *Worldscope*).

Appendix 2 – Market Classification

To define *cold/normal/hot* markets, we take into account the annual number of IPOs plus the annual value of their proceeds (e.g., Dunbar, 2000). The average number of IPOs and the average value of their proceeds are calculated based on the total values for the entire period and for each geographic area. We only consider values 30% above or below the mean values to classify them as *hot* or *cold*, respectively.

Years	**Market**			
	Worldwide	**U.S.**	**AP**	**EU**
1996	Hot	Hot	Normal	Normal
1997	Normal	Normal	Normal	Hot
1998	Normal	Normal	Normal	Hot
1999	Hot	Hot	Cold	Hot
2000	Hot	Hot	Normal	Hot
2001	Normal	Normal	Normal	Normal
2002	Cold	Cold	Cold	Cold
2003	Cold	Cold	Cold	Cold
2004	Normal	Normal	Normal	Normal
2005	Normal	Normal	Normal	Normal
2006	Normal	Normal	Normal	Normal
2007	Normal	Normal	Normal	Normal
2008	Cold	Cold	Cold	Cold
2009	Cold	Cold	Normal	Cold
2010	Hot	Normal	Hot	Cold
2011	Normal	Normal	Hot	Cold
2012	Normal	Normal	Normal	Cold
2013	Cold	Normal	Cold	Cold
2014	Normal	Normal	Hot	Normal

Table 1 - Correlation Matrix of Firm-Specific Stock Return Variation (Ψ) Regression Model

The sample includes IPOs for the period from 2000 to 2014. In addition to using the one year time horizon (52 weeks), we also estimate model (3) and (5) for two years (104 weeks) and three years (156 weeks). Definitions for all the variables are in Appendix 1A.

			1	2	3	4	5	6	7
1 Year	1	Ψ	1						
	2	AvMktShd	-0.0512	1					
	3	LnAvAnalysts	0.0198	0.2424	1				
	4	ADRd	-0.07	0.1266	0.0928	1			
	5	LnGDPperCapita	-0.1369	0.0313	-0.1137	-0.0638	1		
	6	LnAssets	-0.1625	0.3737	0.4435	0.1806	-0.0927	1	
	7	MTBV	-0.0694	0.0523	0.068	0.0197	0.1005	-0.1105	1

			1	2	3	4	5	6	7
2 Years	1	Ψ	1						
	2	AvMktShd	-0.062	1					
	3	LnAvAnalysts	-0.1121	0.2893	1				
	4	ADRd	-0.0709	0.1214	0.1392	1			
	5	LnGDPperCapita	-0.1524	0.0228	0.0014	-0.0632	1		
	6	LnAssets	-0.2179	0.359	0.5398	0.1897	-0.1279	1	
	7	MTBV	-0.0639	0.051	0.1244	-0.0053	0.0965	-0.0972	1

			1	2	3	4	5	6	7
3 Years	1	Ψ	1						
	2	AvMktShd	-0.0701	1					
	3	LnAvAnalysts	-0.1965	0.3132	1				
	4	ADRd	-0.0846	0.1243	0.1546	1			
	5	LnGDPperCapita	-0.1645	0.0203	0.0419	-0.0742	1		
	6	LnAssets	-0.2385	0.3543	0.5827	0.1898	-0.1456	1	
	7	MTBV	-0.0422	0.0548	0.1538	-0.0056	0.0735	-0.0668	1

Table 2 - Descriptive statistics of Firm-Specific Stock Return Variation (Ψ) Regression Model

The sample includes IPOs for the period from 2000 to 2014. In addition to using the one year time horizon (52 weeks), we also estimate model (3) and (5) for two years (104 weeks) and three years (156 weeks). Definitions for all the variables are in Appendix 1A.

	Variable	Obs	Mean	Median	Standard Deviation	Minimum	Maximum
1 Year	Ψ	8,938	1.358585	1.349926	0.802605	-0.62466	3.395051
	AvMktShd	8,938	0.483777	0	0.499765	0	1
	LnAvAnalysts	5,003	0.868668	0.866918	0.639885	0	3.055277
	ADRd	8,909	0.031317	0	0.174182	0	1
	LnGDPperCapita	8,938	9.745875	10.41413	1.172049	6.329273	11.38251
	LnAssets	8,540	11.95857	11.87676	1.370195	8.973828	16.26879
	MTBV	8,509	4.267249	2.77	5.665685	-7.01	1.06
2 Years	Variable	Obs	Mean	Median	Std. Dev.	Min	Max
	Ψ	8,398	1.751344	1.766126	0.855643	-0.32718	3.908798
	AvMktShd	8,398	0.481662	0	0.499693	0	1
	LnAvAnalysts	6,231	0.859098	0.824257	0.658342	0	3.33126
	ADRd	8,372	0.0301	0	0.170874	0	1
	LnGDPperCapita	8,398	9.703896	10.4124	1.187959	6.329273	11.38251
	LnAssets	7,890	11.99178	11.93634	1.363161	8.96596	16.29461
	MTBV	7,980	3.692425	2.58	4.697063	-8.63	35.355
3 Years	Variable	Obs	Mean	Median	Std. Dev.	Min	Max
	Ψ	7,640	1.918245	1.931115	0.920236	-0.23762	4.187334
	AvMktShd	7,640	0.47788	0	0.499543	0	1
	LnAvAnalysts	5,962	0.866338	0.780499	0.694172	0	3.241645
	ADRd	7,615	0.030072	0	0.170797	0	1
	LnGDPperCapita	7,640	9.721572	10.4124	1.186035	6.329273	11.38251
	LnAssets	7,063	12.023	11.9667	1.391353	8.934897	16.31295
	MTBV	7,236	3.341999	2.393333	4.201474	-7.41	31.37

Table 3 - Correlation Matrix of FERC Regression Model

The sample includes IPOs for the period from 2000 to 2014. Definitions for all the variables are in Appendix 1B.

		1	2	3	4	5
1	FERC	1				
2	MktShd	0.0609	1			
3	HerfIndustry	0.157	-0.3861	1		
4	NumIPOd	0.0388	0.7572	-0.3767	1	
5	LnAvAssets	0.0577	0.4558	-0.0379	0.3027	1

Table 4 - Descriptive statistics of FERC Regression Model

The sample includes IPOs for the period from 2000 to 2014. Definitions for all the variables are in Appendix 1B.

Variable	Obs	Mean	Median	Standard Deviation	Minimum	Maximum
FERC	127	1.055132	0.564274	5.541657	-15.6319	15.32804
MktShd	127	0.181102	0	0.386628	0	1
HerfIndustry	127	1747.204	1425.69	986.6259	539.8016	5768.412
NumIPOd	127	0.173228	0	0.379943	0	1
LnAvAssets	127	12.8525	12.80203	1.083281	10.60177	16.1151

Table 5 – Regressions of firm-specific stock return variation in years *post-IPO* on the underwriters' reputation

In each annual regression, the sample and subsamples includes IPOs for the period 2000-2014. In a given geographic area, the annual firm-specific stock return variation, Ψ, one/two/three years *post-IPO*, is the dependent variable. The main independent variable is defined as follows: *AvMktShd* is a dummy variable that takes the value 1 when the annual average market share by IPO is higher than the annual median market share of all IPOs; *LnAvAnalysts* is the natural logarithm of the annual average of analysts that follow each IPO issuer; *ADRd* is a dummy variable that takes the value 1 when a non-U.S. issuer executes an IPO in a U.S. stock market; *LnGDPperCapita* is the natural logarithm of GDP *per capita*, which translates the Gross Domestic Product *per capita* by country/year; *LnAssets* is the natural logarithm of the assets and represents the total net value of assets at the end of the first fiscal year after the date of the first quotation; *MTBV* is the annual market-to-book financial ratio reported to the end of the first fiscal year *post*-IPO. Definitions for all the variables are in Appendix 1A. These regressions have fixed effects by year, region and industry (17 SIC code).

	One Year After				**Two Years After**				**Three Years After**			
	Worldwide	**AP**	**EU**	**U.S.**	**Worldwide**	**AP**	**EU**	**U.S.**	**Worldwide**	**AP**	**EU**	**U.S.**
VARIABLES	Ψ				Ψ				Ψ			
AvMktShd	0.0006	0.0908***	0.0521	-0.0387	0.0682***	0.1803***	-0.0298	-0.0089	0.1103***	0.2321***	-0.0355	0.0095
	(0.03)	(3.26)	(1.17)	(-0.82)	(3.42)	(7.15)	(-0.78)	(-0.22)	(5.24)	(8.60)	(-0.93)	(0.22)
LnAvAnalysts	0.0509**	0.0510*	-0.0032	0.0022	-0.0267	0.0351	-0.0553	-0.1263**	-0.1302***	-0.0217	-0.2186***	-0.2683***
	(2.54)	(1.93)	(-0.08)	(0.05)	(-1.36)	(1.34)	(-1.55)	(-2.58)	(-6.12)	(-0.74)	(-5.87)	(-5.37)
ADRd	-0.1463**	-0.2335***	0.1429		-0.0897	-0.2060***	0.2285***		-0.1239**	-0.3053***	0.2316**	
	(-2.37)	(-2.76)	(1.56)		(-1.53)	(-2.62)	(2.65)		(-2.00)	(-3.91)	(2.40)	
LnGDPperCapita	-0.1265***	-0.0619***	0.1788**		-0.1018***	-0.0482***	0.4322***		-0.0957***	-0.0505***	0.4795***	
	(-7.46)	(-3.02)	(2.49)		(-6.91)	(-2.83)	(8.27)		(-6.24)	(-2.86)	(9.82)	
LnAssets	-0.1644***	-0.1506***	-0.1856***	-0.1511***	-0.2060***	-0.1862***	-0.2299***	-0.2016***	-0.2024***	-0.1925***	-0.1971***	-0.2064***
	(-16.84)	(-10.50)	(-11.16)	(-7.60)	(-21.86)	(-13.59)	(-15.16)	(-10.63)	(-20.02)	(-12.76)	(-12.02)	(-9.58)
MTBV	-0.0110***	-0.0072	-0.0120***	-0.0120***	-0.0137***	-0.0152***	-0.0123***	-0.0124***	-0.0107***	-0.0109**	-0.0084**	-0.0112***
	(-4.93)	(-1.58)	(-3.40)	(-3.60)	(-6.35)	(-3.80)	(-3.52)	(-4.30)	(-4.16)	(-2.29)	(-2.13)	(-3.01)
Constant	4.5678***	3.8275***	1.4748*	3.1047***	5.1543***	4.4333***	-0.0442	4.0224***	5.3055***	4.7642***	-0.6358	4.5151***
	(21.56)	(13.39)	(1.83)	(8.53)	(27.17)	(17.76)	(-0.07)	(13.18)	(26.23)	(17.80)	(-1.12)	(12.66)
Observations	4,616	2,500	1,104	1,016	5,653	3,124	1,472	1,062	5,350	2,965	1,442	945
R-squared	0.284	0.315	0.333	0.271	0.370	0.402	0.367	0.386	0.413	0.443	0.411	0.440
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No
IndSIC17 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

White-robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6 – Regressions of firm-specific stock return variation in years *post-IPO* on the underwriters' reputation, during a cold market

In each annual regression, the sample and subsamples includes IPOs for the period 2002/2003, 2008/2009, and 2013 when the market is *cold.* In a given geographic area, the annual firm-specific stock return variation, Ψ, one or two years *post-IPO* during a cold market, is the dependent variable. The main independent variable is defined as follows: *AvMktShd* is a dummy variable that takes the value 1 when the annual average market share by IPO is higher than the annual median market share of all IPOs; *LnAvAnalysts* is the natural logarithm of the annual average of analysts that follow each IPO issuer; *ADRd* is a dummy variable that takes the value 1 when a non-U.S. issuer executes an IPO in a U.S. stock market; *LnGDPperCapita* is the natural logarithm of GDP *per capita*, which translates the Gross Domestic Product *per capita* by country/year; *LnAssets* is the natural logarithm of the assets and represents the total net value of assets at the end of the first fiscal year after the date of the first quotation; *MTBV* is the annual market-to-book financial ratio reported to the end of the first fiscal year *post-*IPO. Definitions for all the variables are in Appendix 1A. These regressions have fixed effects by year, region and industry (17 SIC code).

	One Year After				**Two Years After**			
	Worldwide	**AP**	**EU**	**U.S.**	**Worldwide**	**AP**	**EU**	**U.S.**
VARIABLES	Ψ				Ψ			
AvMktShd	-0.0404	0.0325	-0.0711	-0.0750	0.1599**	0.2907***	-0.2792	-0.0578
	(-0.60)	(0.42)	(-0.27)	(-0.65)	(2.20)	(3.61)	(-0.95)	(-0.49)
LnAvAnalysts	-0.0458	-0.1349*	0.2829*	-0.0035	-0.1496*	-0.1107	0.3271*	-0.2331
	(-0.79)	(-1.77)	(1.91)	(-0.03)	(-1.92)	(-1.20)	(1.83)	(-1.18)
ADRd	0.3280*	0.0310	0.4965*		-0.0196	-0.5463**	1.2248***	
	(1.93)	(0.17)	(1.90)		(-0.06)	(-2.27)	(4.68)	
LnGDPperCapita	-0.1259***	-0.1155**	0.3528**		-0.2393***	-0.2121***	0.7702***	
	(-3.04)	(-2.37)	(2.01)		(-4.99)	(-3.84)	(3.17)	
LnAssets	-0.1346***	-0.1437***	-0.1917***	-0.1653***	-0.1813***	-0.2236***	-0.3651***	-0.0963
	(-5.48)	(-4.32)	(-2.97)	(-3.61)	(-5.12)	(-5.88)	(-4.96)	(-1.16)
MTBV	0.0062	-0.0020	0.0151	0.0163*	0.0113	0.0105	-0.0002	0.0034
	(0.90)	(-0.12)	(0.67)	(1.75)	(1.21)	(0.57)	(-0.01)	(0.24)
Constant	3.5994***	3.4972***	-0.1396	2.9642***	5.4549***	5.6930***	-2.4589	2.0832*
	(7.18)	(5.11)	(-0.07)	(4.75)	(7.71)	(7.01)	(-0.87)	(1.91)
Observations	644	371	86	187	626	434	80	112
R-squared	0.220	0.249	0.573	0.267	0.249	0.291	0.601	0.505
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	No	No	No	Yes	No	No	No
IndSIC17 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

White-robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7 – Regressions of FERC in years *post-IPO* on the underwriters' reputation

In each triannual regression, the sample and subsample includes IPOs for the entire period of time 2000/2014. In a given geographic area, the FERC, in three years *post-IPO*, is the dependent variable. The main independent variables are defined as follows: *MktShd* is a dummy variable that takes the value 1 when the underwriter's market share is higher than the median market share of all underwriters; *HerfIndustry* corresponds to the concentration level of each underwriter in each industry. *NumIPOd* is a dummy variable that takes the value 1 when the sum of the number of IPOs that each underwriter sponsored is higher than the median number of IPOs of all underwriters; *LnAvAssets* is the natural logarithm of the average of the assets by underwriter at the end of the first fiscal year after the date of the first quotation. Definitions for all the variables are in Appendix 1B. These regressions have fixed effects by underwriters' nationality.

	Underwriters – During Three Years After			
	Worldwide		**APUW**	
VARIABLES	FERC		FERC	
MktShd	1.8764	8.9072***	3.6103*	12.3729***
	(1.61)	(3.38)	(1.92)	(3.49)
HerfIndustry	0.0012**	0.0013**	0.0015*	0.0015
	(2.12)	(2.17)	(1.69)	(1.66)
MktShHerf		-0.0068***		-0.0094**
		(-3.11)		(-2.35)
NumIPOd	0.2312	-0.8367	0.9206	-0.4130
	(0.28)	(-1.46)	(0.68)	(-0.34)
LnAvAssets	0.2318	0.3701	-0.2369	0.2380
	(0.49)	(0.80)	(-0.27)	(0.24)
Constant	-4.4663	-6.2342	1.4668	-4.3876
	(-0.76)	(-1.07)	(0.14)	(-0.37)
Observations	127	127	72	72
R-squared	0.080	0.096	0.047	0.061
RegionUW FE	Yes	Yes	No	No

White-robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 8 – Regressions of illiquidity in years *post-IPO* on the mean of underwriters' reputation

In each annual regression, the sample and subsamples includes IPOs for the period 2000-2014. In a given geographic area, the annual illiquidity, one/two/three years *post-IPO*, is the dependent variable. The main independent variable is defined as follows: *AvMktShd* is a dummy variable that takes the value 1 when the annual average market share by IPO is higher than the annual median market share of all IPOs; *LnAvAnalysts* is the natural logarithm of the annual average of analysts that follow each IPO issuer; *ADRd* is a dummy variable that takes the value 1 when a non-U.S. issuer executes an IPO in a U.S. stock market; *LnGDPperCapita* is the natural logarithm of GDP *per capita*, which translates the Gross Domestic Product *per capita* by country/year; *LnAssets* is the natural logarithm of the assets and represents the total net value of assets at the end of the first fiscal year after the date of the first quotation; *MTBV* is the annual market-to-book financial ratio reported to the end of the first fiscal year *post*-IPO. Definitions for all the variables are in Appendix 1A. These regressions have fixed effects by year, region and industry (17 SIC code).

	One Year After				Two Years After				Three Years After			
	Worldwide	**AP**	**EU**	**U.S.**	**Worldwide**	**AP**	**EU**	**U.S.**	**Worldwide**	**AP**	**EU**	**U.S.**
VARIABLES	**Illiquidity**				**Illiquidity**				**Illiquidity**			
AvMktShd	-0.1206	-0.0637	0.7709	-0.2822*	-0.3972	-0.5404**	-1.9827**	-0.3157	-0.6152	-0.8929**	-2.1096*	-1.1367
	(-0.53)	(-0.35)	(1.04)	(-1.90)	(-1.33)	(-2.11)	(-2.22)	(-1.10)	(-1.11)	(-1.99)	(-1.74)	(-1.42)
LnAvAnalysts	-0.2906**	-0.0855	-0.1515	-0.9321**	-0.2475	0.1261	0.6019	-2.1476***	-0.3776	0.9710	0.3179	-5.5978***
	(-2.02)	(-0.60)	(-0.33)	(-2.58)	(-0.83)	(0.37)	(0.77)	(-2.94)	(-0.59)	(0.96)	(0.25)	(-2.81)
ADRd	-0.6175***	-1.2234***	0.4625		-0.4596	-1.5224***	2.5452**		0.2723	-2.2853***	4.1818**	
	(-2.60)	(-3.76)	(0.79)		(-1.17)	(-3.73)	(2.17)		(0.40)	(-2.87)	(2.30)	
LnGDPperCapita	0.3725***	0.2749**	2.5027***		0.2041	0.0915	2.6573*		0.0980	0.1145	3.8757*	
	(3.45)	(2.08)	(2.77)		(1.25)	(0.47)	(1.91)		(0.37)	(0.37)	(1.69)	
LnAssets	-0.6572***	-0.3677**	-1.5505***	-0.3413***	-1.5742***	-0.7407**	-3.2117***	-0.7440***	-2.5160***	-1.3159*	-4.5295***	-1.4362**
	(-5.64)	(-2.41)	(-4.78)	(-2.59)	(-7.12)	(-2.34)	(-6.28)	(-2.76)	(-5.48)	(-1.72)	(-5.14)	(-2.04)
MTBV	-0.0654***	-0.0865*	-0.0970***	-0.0244**	-0.0442	-0.1466**	-0.0137	0.0463	-0.0575	-0.3381**	0.0435	0.0525
	(-4.29)	(-1.68)	(-3.29)	(-2.05)	(-1.08)	(-2.05)	(-0.17)	(0.90)	(-0.82)	(-2.54)	(0.32)	(0.64)
Constant	5.8752***	2.8489	-5.0323	6.4916***	18.8692***	9.4847**	15.6004	14.1959***	31.7283***	16.4206	19.6848	31.1514***
	(3.62)	(1.24)	(-0.56)	(2.77)	(5.96)	(2.12)	(0.88)	(3.16)	(4.91)	(1.56)	(0.64)	(2.75)
Observations	4,583	2,498	1,097	992	5,614	3,121	1,461	1,037	5,312	2,962	1,431	921
R-squared	0.078	0.085	0.098	0.093	0.089	0.058	0.120	0.080	0.064	0.037	0.099	0.084
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No
IndSIC17 FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

White-robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1